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- Please ensure that when accepting deliveries by carrier, you sign for the relevant number of boxes stated on the paperwork, as discrepancies cannot be rectified subsequently.
- We can only supply chemicals to trade users, professionals and on official orders.
- All prices are exclusive of VAT and whilst every effort is made to guarantee prices in this catalogue, we reserve the right to change prices without prior notice due to exchange rate volatility.
- Illustrations and descriptions contained within this catalogue are as representative as possible at the time of going to print, but some items may change appearance slightly from that depicted due to manufacturer's design or model changes. Ancillary equipment used in illustrations, may not be included with the actual product. Please check at time of ordering.
- All goods are supplied subject to our Standard Conditions of Sale.
- Goods ordered at the customer's request that are not illustrated within this catalogue will be deemed as a "Special purchase" and cannot be returned for credit unless found to be faulty. Additionally, if the goods have been despatched from our suppliers and are in transit to the customer then the order cannot be cancelled.
- We input orders using our product codes. It is your responsibility to ensure the product codes you use are correct at time of ordering.

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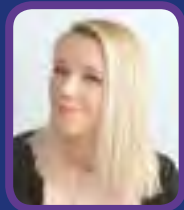
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DATA LOGGING

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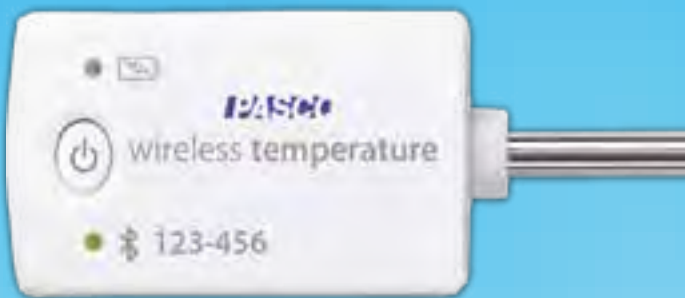
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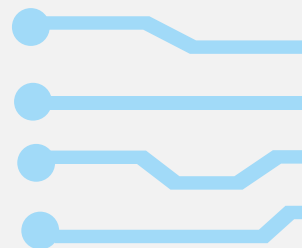


Hundreds of free lab experiments for download in PASCO's digital library:
www.pasco.com/digital-library

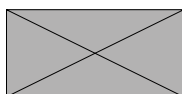
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Adding PASCO technology is easy as 1 2 3



1. Choose your device and download the award-winning SPARKvue app and software



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Free on iOS, Android and Chrome devices



Laptops and Desktops



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Single User Licence (PAS 010 035)
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2. Select your sensors



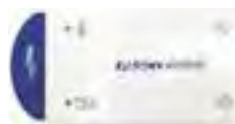
Wireless Sensors



PASPORT Sensors



Choose an interface



AirLink



850 Universal Interface

3. Start collecting data



Wireless sensors are compatible with any current model Mac, iPad, iPhone, Android tablet or Android phone. Windows computers tablets, Chromebooks and older Macs may require the USB Bluetooth Adapter (PAS200020) to connect to this sensor. Please consult our Customer Services department for any compatibility enquiries.



SPARKvue®

For Windows or Mac Computers. Mobile apps for SPARKvue are free. Award-winning, cross-platform data collection and analysis software.

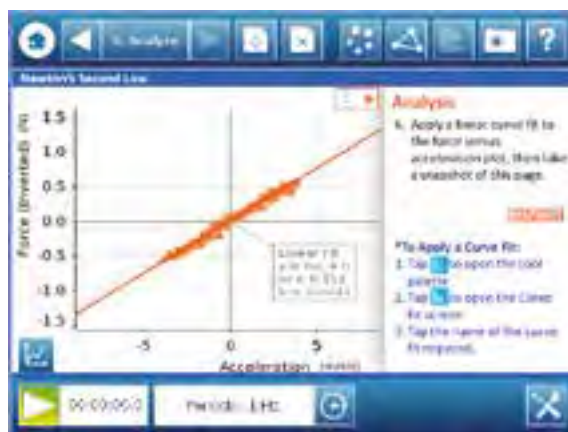
SPARKvue software is a science tool and state-of-the-art learning environment all in one. SPARKvue offers a full suite of display options, from graphs and meters to digits and tables. Powerful analysis tools are always available at the touch of a finger but never in the way. And SPARKvue creates opportunities for student reflection at every step, with the option to save a journal snapshot of work, including written observations, with just a touch of a finger.

What Students Can Do with SPARKvue:

- Make predictions before collecting data
- Display the results of their tests
- Graph their data
- Analyse their data
- Compare actual results with predicted results
- Reflect on the unexpected
- Save a journal snapshot of work

What Teachers Can Do with SPARKvue:

- Give interactive lectures using live data and rich media
- Hold collaborative reviews of students' results and findings
- Prompt student reflection with embedded questions
- Assess student learning at any time in the process
- Select your own measurements and display data your way



Try SPARKvue free for 60 days for PC and Mac

Scan or visit www.pasco.com/downloads/sparkvue/sparkvue-trial/

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|---------|
| PAS 010 030 | SPARKvue Site Licence | EACH | £344.99 |
| PS-2400-DIG | SPARKvue Site Licence Digital Download | EACH | £309.99 |
| PAS 010 035 | SPARKvue Single User Licence | EACH | £99.99 |
| PS-2401-DIG | SPARKvue Single User Licence Digital Download | EACH | £89.99 |

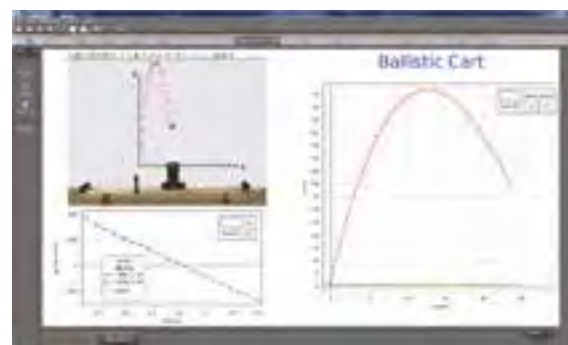


PASCO Capstone Software

For Mac or Windows only.

PASCO Capstone was designed from the ground up to be the most powerful software available for high level physics and engineering applications or for anyone that wants the advanced capabilities it offers.

Highly flexible with complete user control, Capstone supports text, tables, various plot formats, images, and videos, and can be used to fulfil all your teaching lab needs. While Capstone was designed in conjunction with the 850 Universal Interface, it is **completely compatible with all current and legacy USB interfaces**. Capstone is **also compatible with the new line of wireless sensors**, yet Windows OS may require the USB Bluetooth Adapter (PAS 200 020).



Try Capstone free for 60 days

Scan or visit www.pasco.com/downloads/capstone/pasco-capstone-trial/

Capstone can be purchased as a Single License for use on one PC or as a Site License for use on all computers in a single school campus (including student use at home). Digital Licenses are also available.

Capstone software is fully supported by PASCO's dedicated software team. **Capstone updates are available free of charge and can be downloaded from the PASCO website.** Automatic in-application prompts are given to notify users of any available updates to ensure your datalogging system stays current.

Key features:

- **Various data display formats:** tables, graphs, digital and analogue meters, FFTs, histograms. Format and layer as you wish
- **Sampling:** Adjustable sampling frequencies for each sensor, start and stop recording conditions (time-based and measurement-based), period and manual sampling options, playback mode
- **Analysis:** Data fitting using in-built or user-defined functions, statistics tools to find maximum, minimum, averages and standard deviations. Option for error bars.
- **Calculations:** Create models, and any functions of sensor data using the calculator tool; includes statistics, calculus, filters, logic functions and special operations such as amplitude and period
- **Video analysis:** Connect any USB camera to record and auto-sync video feed to sensor data. Use in-built analysis tools to determine distances, velocities and accelerations of moving parts
- **Workbook:** Ability to create experimental script for students to work through. Save settings and displays to reduce configuration time. PASCO have a bank of ready-made workbooks available free of charge at www.pasco.com/downloads

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|---------|
| PAS 040 010 | PASCO Capstone Software (Single User) | EACH | £114.99 |
| UI-5401-DIG | PASCO Capstone Software (Single User) Digital Download | EACH | £104.99 |
| PAS 040 015 | PASCO Capstone Software (Site Licence) | EACH | £719.99 |
| UI-5400-DIG | PASCO Capstone Software (Site Licence) Digital Download | EACH | £679.99 |



AirLink

Make all your PASPort sensors wireless.

PASCO's most cost-effective interface is compatible with its entire line of blue PASPort sensors and allows you to make any PASPort sensor wireless and greatly expand the range of measurements available to you.

Connect your PASPort sensor to your device via Bluetooth 4.0 or through a direct USB connection. The all-new Airlink is the easiest way to use PASPort sensors. Just plug the sensor, connect to your device and begin collecting data. Bluetooth pairing is done within PASCO's software (either Capstone or SPARKvue), making the entire process quick and simple.

The AirLink is built to last. The polycarbonate case withstands the rigor of student use and PASPORT sensors can only be plugged in using the correct orientation, preventing damage to the sensor pins or the interface.

Key features:

- Most cost effective interface for PASPort sensors
- Connects one PASPort sensor to a device
- Easy in-application Bluetooth pairing
- USB and Bluetooth 4.0 connectivity
- Rechargeable Lithium Polymer battery
- Compatible with both PASCO SPARKvue and Capstone
- Multiple Airlinks can be used together
- Can be used simultaneously with other PASCO interfaces and the wireless sensors



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------|----------|---------------|
| PAS 200 010 | PS-3200 | AirLink | EACH | £67.99 |

SPARKlink Air

The SPARKlink Air allows students and teachers to connect any of PASCO's 70+ sensors to their device via USB or Bluetooth.

This single device allows students to collect data both inside the classroom when using a desktop or laptop but also supports data collection on Bluetooth iOS and Android devices. The SPARKlink Air is ideal for schools with computers, tablets, or a mixture of both. Note: The SPARKlink Air can connect to Chromebooks via USB but not through Bluetooth. It includes two sensor ports, Built-in Temperature and Voltage Sensors with probes, USB and Bluetooth connection, and rugged polycarbonate case.

Features:

- Fast Response Temperature and Voltage Sensors included
- Bluetooth support for connecting Mac, Windows, iOS, and Android devices
- Rechargeable battery that provides 4 to 6 hours of continuous data collection between charges
- Mobile design allowing students to explore science inside and outside the classroom

SPARKlink Air Charging Station

Conveniently store and charge up to 5 SPARKlink Air interfaces with a single power source. SPARKlink Air sold separately (PAS 010 021).



PAS 010 021



PAS 010 025

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|----------------------|---------------------------------|-----------------|----------------|
| PAS 010 021 | PS-2011 | SPARKlink® Air | EACH | £249.99 |
| Accessories | Supplier Code | Description | Quantity | Price |
| PAS 010 025 | PS-2577 | SPARKlink® Air Charging Station | EACH | £184.99 |





Wireless Sensor Charging Station

Charge any PASCO sensor that contains a Lithium-Polymer battery.

Shift or remove partitions to resize the sensor bays. This versatile charging station can be configured to fit any size wireless sensor by adding or removing partitions. Charge up to 10 Wireless Sensors at once.

Includes:

- Wireless Charging Station (13 cm x 35 cm)
- Power Adapter
- 10 USB Charging Cables
- 9 Removable Partitions

| Cat No. | Description | Quantity | Price |
|---------|----------------------------------|----------|--------|
| PS-3599 | Wireless Sensor Charging Station | EACH | £99.45 |



10 Port USB Charging Station

PASCO's new line of Wireless Sensors and Interfaces utilise Bluetooth Smart technology for much longer battery life before needed to be recharged. But when you do need to recharge a classroom set of Airlink Interfaces, Wireless Sensors or Smart Carts, this is an ideal and space saving solution. And of course, it can also recharge your other classroom technology via USB connection. For example, up to 5 iPads may be charged at once.

Each USB port works independently. The maximum power of this charger is 60 W and maximum current up to 2.4 A.

Safety features:

- Over current protection
- Over voltage protection
- Short circuit protection
- Over temperature protection
- Surge protection
- Smart current detection

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------------|----------|--------|
| PAS 200 030 | PS-3501 | 10 Port USB Charging Station | EACH | £69.99 |



USB Bluetooth Adapter

PASCO's new line of Wireless Sensors, Airlink and Smart Carts all use Bluetooth 4.0 technology for wireless connectivity.

Any current model Mac, iPad, iPhone, Android tablet or Android phone can support direct connection to PASCO's wireless devices. Windows computers/tablets, Chromebooks and older Macs may require the USB Bluetooth Adapter.

Simply connect it to an open USB port and the up to three PASCO devices (Wireless Sensors, Smart Carts, Airlinks) can be connected via Bluetooth.

Please consult our Customer Services department for any compatibility enquiries.

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------|----------|--------|
| PAS 200 020 | PS-3500 | USB Bluetooth Adapter | EACH | £15.99 |



550 Universal Interface

With the 550, your Physics lab is equipped with high-speed data collection, signal generation and power supply, oscilloscope and FFT displays, timers and more.

This powerful wireless sensor interface for Physics works with SPARKvue and Capstone. Similar to the 850, the 550 offers more than just a sensor interface; it offers a power supply and signal generator on top of 6 sensor ports.

Key features:

- 6 sensor ports
- Signal generator, power supply and oscilloscope functionality
- Sampling rates of up to 2 MHz
- Compatible with both PASCO Capstone and SPARKvue
- USB and Bluetooth 2.0 connectivity

The 550 interface boasts the following ports:

- 2 x digital inputs - for use with e.g. photogates, GM tube
- 2 x analogue inputs - for use with black Science Workshop analogue sensors
- 2 x PASPort inputs - for use with any blue PASPort sensors

And can replace your bench top kit by offering:

- 1 x AC/DC power supply - $\pm 8\text{ V}$ @ 400 mA
- 1 x function generator - 400 mA at 8 V; DC to 100 kHz
- 2 MHz, dual channel oscilloscope - requires up to 2 x Voltage Sensors

Both oscilloscope and signal generator features are controlled through the either the Capstone or SPARKvue software. Available output waveforms include sine, triangle, square and ramp (all with DC offset). Programmable frequency sweeps are an available feature. Oscilloscope traces are displayed on screen, and can be easily printed, or raw data exported for saving/plotting elsewhere.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-------------------------|----------|---------|
| PAS 080 010 | UI-5001 | 550 Universal Interface | EACH | £559.99 |

850 Universal Interface

The 850 interface is the most flexible and advanced interface option available, designed for use with the PASCO Capstone software.

Twinned with Capstone, they form the most powerful data acquisition, display and analysis system available for Science Education.

The interface boasts the following ports:

- 4 x digital inputs - for use with e.g. photogates, GM tube
- 4 x analogue inputs - for use with black Science Workshop analogue sensors
- 4 x PASPort inputs - for use with any blue PASPort sensors

And can replace your bench top kit by offering:

- 1 x AC/DC power supply - $\pm 15\text{ V}$ @ 1 A
- 3 x function generators - Output 1: 1 A at 15 V; DC to 100 kHz; Outputs 2 & 3: 50 mA at 10 V; DC to 500 kHz.
- 10 MHz, 4 channel oscilloscope - requires up to 4 x Voltage Sensors

Both oscilloscope and signal generator features are controlled through the Capstone software. Available output waveforms include sine, triangle, square and ramp (all with DC offset). Programmable frequency sweeps are an available feature. All three signal outputs can be controlled independently. All oscilloscope traces are displayed on screen, and can be easily printed, or raw data exported for saving/plotting elsewhere.

Key features:

- 12 sensor ports
- Signal generator, power supply and oscilloscope functionality
- Sampling rates of up to 10 MHz
- Only compatible with PASCO Capstone (not SPARKvue)
- USB connectivity only



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-------------------------|----------|----------|
| PAS 040 020 | UI-5000 | 850 Universal Interface | EACH | £1154.49 |



SPARK LX and SPARK LXi

The hub of your modern science classroom, the SPARK LX and LXi are the ideal platforms for PASCO sensors, both Wireless and PASPORT while providing a connected, easy-to-manage learning environment powered by SPARKvue software and the Lab Manager application.

Choose from Two Models:

The SPARK LXi: Designed for use with wired and wireless sensors, the SPARK LXi can simultaneously accommodate up to five wireless sensors. It also includes two ports for blue PASPORT sensors, plus two ports for the included Fast Response Temp Probe and the Voltage Probe.

The SPARK LX: Designed for use with PASCO Wireless sensors (or for use with PASPORT sensors + an AirLink or 550 Universal Interface) The SPARK LX can simultaneously connect up to five wireless sensors.

Spark LXi Datalogger

Designed for use with wired and wireless sensors, the SPARK LXi can simultaneously accommodate up to five wireless sensors. It also includes two ports for any of the more than 80 blue PASPORT sensors, plus two ports for the included Fast Response Temp Probe and Voltage Probe. The SPARK LXi can also connect wirelessly to the powerful 550 Universal Interface for advanced physics applications.

Special Features:

- 9.6" full color capacitive touchscreen (1200 x 800 pixels)
- 1.2 GHz quad-core processor
- 1.5 GB Ram
- 16 GB memory
- Pre-loaded software
- Lab Manager classroom management application
- Wi-Fi
- Bluetooth and USB connections
- Can export data to third-party apps
- Suitable for wet and dry labs
- Operates online or offline
- SPARKvue in-app proximity pairing
- 2 PASPORT sensor ports
- Voltage port (Voltage Probe included)
- Temperature port (Fast Response Temp Probe included)
- Built-in cameras (front and back), accelerometer, microphone, speaker and GPS



| Cat No. | Description | Quantity | Price |
|----------------|----------------------|----------|----------------|
| PS-3600 | Spark LXi Datalogger | EACH | £450.00 |

Spark LX Datalogger

Designed for use with PASCO Wireless sensors, the SPARK LX can simultaneously connect up to 5 wireless sensors. The SPARK LX can also connect to any of the more than 80, PASPORT sensors via a wireless PASPORT interface such as an AirLink, SPARKlink Air, or 550 Universal Interface.

Special Features:

- 9.6" full color capacitive touchscreen (1200 x 800 pixels)
- 1.2 GHz quad-core processor
- 1.5 GB Ram
- 16 GB memory
- Pre-loaded software
- Lab Manager classroom management application
- Wi-Fi
- Bluetooth and USB connections
- Can export data to third-party apps
- Suitable for wet and dry labs
- Operates online or offline
- Built-in cameras (front and back), accelerometer, microphone, speaker and GPS



| Cat No. | Description | Quantity | Price |
|----------------|---------------------|----------|----------------|
| PS-3601 | Spark LX Datalogger | EACH | £385.00 |



PASCO Dynamics System

Few investments in physics lab equipment provide more learning opportunities than PASCO Dynamics Systems - perfect for experiments and demonstrations in Kinematics, Newton's Laws, conservation laws, and much more.

CHOOSE THE SYSTEM THAT'S BEST FOR YOU

Basic System - Just Carts and Track



ME-5705

Basic System includes:

- Track
- 2 Carts
- 2 Feet
- 2 Endstops
- Rod clamp
- 2 Mass bars (4 with metal carts)

| | Plastic Track 1m | Metal Track 1.2m | Metal Track 2.2m |
|---------------|---------------------------|---------------------------|---------------------------|
| Plastic Carts | ME-5701 £202.49 | ME-5702 £230.99 | ME-5703 £346.49 |
| Metal Carts | ME-5704 £305.99 | ME-5705 £335.49 | ME-5706 £450.99 |
| Smart Carts | ME-5707 £467.99 | ME-5708 £496.99 | ME-5709 £611.99 |

OR

Standard System - Basic System + Accessory Pack



ME-5715

Standard System includes:

- Track
- 2 Carts
- 2 Feet
- 2 Endstops
- Rod clamp
- 2 Mass bars (4 with metal carts)
- Spring set
- Clamp-on super pulley
- Friction Block
- Angle Indicator

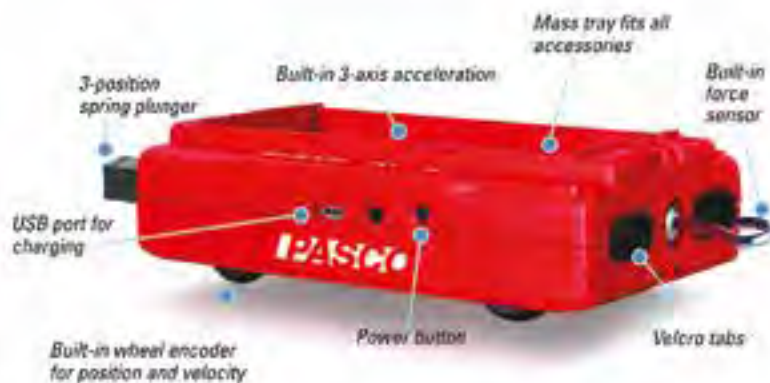
| | Plastic Track 1m | Metal Track 1.2m | Metal Track 2.2m |
|---------------|---------------------------|---------------------------|---------------------------|
| Plastic Carts | ME-5711 £260.49 | ME-5712 £288.99 | ME-5713 £404.49 |
| Metal Carts | ME-5714 £363.99 | ME-5715 £393.49 | ME-5716 £508.49 |
| Smart Carts | ME-5717 £525.99 | ME-5718 £554.49 | ME-5719 £669.99 |



Wireless Smart Carts

The **Wireless Smart Cart** is the ultimate tool for your Physics lab, with built-in sensors that measure force, position, velocity, acceleration and rotation.

The Smart Cart can make these measurements on or off a dynamics track and transmit the data wirelessly over Bluetooth. The most advanced Physics cart ever created and all without the hassle and restrictions of cables. Best of all, the Smart Cart represents a huge cost saving over having to purchase all the components (cart, several sensors, and interface) separately.



Typical applications:

- Measure cart velocity on a curved track where motion sensors cannot work as there is no straight line of sight
- Dynamics and kinematics
- Acceleration on an incline
- Newton's Laws
- Impulse and collisions
- Conservation of energy and momentum

Key features:

- Compatible with both PASCO Capstone and SPARKvue
- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 connectivity

Includes: Smart cart with on-board sensors, hook and rubber bumper, magnetic bumper, USB cable for charging.

Freefall Specification

| | |
|----------------------------|---|
| Force: | |
| Range | ± 100 N |
| Resolution | 0.1 N |
| Accuracy | ± 1% |
| Maximum sample rate | 500 Hz or 5 kHz in burst mode |
| Position: | Resolution ±0.2 mm |
| Velocity: | Maximum ±3 m/s; Maximum sample rate: 100 Hz |
| Acceleration: | Range ± 16 g; Maximum sample rate: 500 Hz |
| Battery: | Rechargeable Lithium Polymer |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| PAS 100 010 | Smart Cart - Red | EACH | £199.99 |
| PAS 100 020 | Smart Cart - Blue | EACH | £199.99 |
| PAS 020 590 | Cart Picket Fences | PK2 | £17.99 |
| PAS 020 500 | PAStrack Straight Track 0.5m | PK2 | £92.99 |
| PAS 020 510 | PAStrack Curved Track | EACH | £79.99 |
| PAS 200 030 | 10 Port USB Charging Station | EACH | £69.99 |
| ME-1246 | Smart Cart Vector Display | EACH | £89.99 |

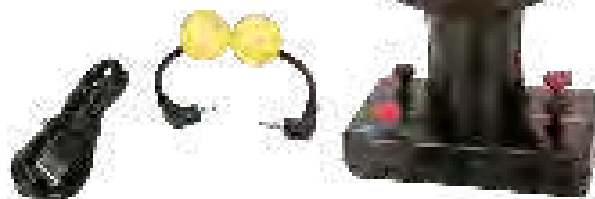


Smart Fan Accessory

The **Smart Fan Accessory** can be connected and used with any PASCO cart to demonstrate basic principles of motion.

It can be used as a simple fan in manual push button mode, adjusting between low, medium, and high speeds. However, the Smart Fan Accessory was specifically designed for use with the revolutionary Smart Cart. When connected to a Smart Cart a much greater degree of control, programmability, and functionality is available. When using SPARKvue software or app with the Smart Fan Accessory connected to a Smart Cart, a slider control allows for a variable amount of positive or negative thrust. When using PASCO Capstone with the Smart Fan Accessory connected to a Smart Cart the software allows adjustments to the level of thrust, the ability to set start/stop conditions, and even the use of calculations for precise control of the fan.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| PAS 011 800 | Smart Fan Accessory | EACH | £78.99 |



Smart Ballistic Cart Accessory

The **Smart Ballistic Accessory** mounts to any PASCO dynamics cart for a classic demonstration on the independence of X and Y motion.

Includes:

- 1x Smart Ballistic Cart Accessory
- 2x Plastic Ball
- 1x USB Charging Cable
- 1x Smart Cart Accessory Cable

| Cat No. | Description | Quantity | Price |
|----------------|--------------------------|----------|----------------|
| ME-1245 | Ballistic Cart Accessory | EACH | £259.99 |



Wireless Smart Gate

The most advanced photogate ever!

Dual photogate beams, laser switch, photogate tape slot, auxiliary photogate port, and wireless connectivity via Bluetooth. The Wireless Smart Gate has all the features of the wired Smart Gate. It has dual photogate beams spaced at 1.5 cm to accurately measure speed. The built-in laser switch (when used with any laser) allows you to time objects too large to fit through the standard photogate.

Use Photogate Tape passing through the photogate slot to measure the movement of objects. The auxiliary port is for adding an additional photogate head or Time-of-Flight.

Accessory Note: We do not recommend using two Wireless Smart Gates in the same experiment unless the measured times are relatively long (greater than one-half second) since synchronization is limited to 2 ms. For experiments requiring two photogates we instead recommend connecting our Photogate Head (PAS 020 520) to the auxiliary port of the Wireless Smart Gate for timing with no latency.



| Cat No. | Description | Quantity | Price |
|----------------|---------------------|----------|---------------|
| PS-3225 | Wireless Smart Gate | EACH | £72.49 |



Photogate Head

Monitors the motion of objects passing through its gate, counting events as the object breaks the infrared beam. A digital adaptor is required when using photogate heads without Smart Gates.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| PAS 020 520 | Photogate Head | EACH | £51.49 |
| PAS 020 580 | Digital Adaptor | EACH | £77.49 |

Photogate & Pulley System

Measure the motion of a pulley system using this combination photogate and low-friction pulley.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| PAS 020 530 | Photogate & Pulley System | EACH | £79.99 |



Photogate Brackets

The Photogate Bracket allows the Photogate Head to be attached directly to PASCO dynamics tracks. This eliminates the need for separate photogate stands and allows the photogate height to be easily adjusted relative to the track. Includes two Photogate Brackets.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| PAS 020 600 | Photogate Brackets | PK2 | £28.49 |

Picket Fence

Conduct free fall experiments by dropping this Picket Fence through the PASCO Photogate. The distance from the leading edge of each black bar to the leading edge of the next black bar is 5.0 cm. The Picket Fence has 8 black bars and is 40 cm long.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| PAS 020 610 | Picket Fence | EACH | £11.49 |

Wireless Motion Sensor

The Wireless Motion Sensor measures position, velocity, and acceleration of objects using ultrasound. Students can measure themselves and watch their motion graphed in real-time. The Wireless Motion Sensor can detect objects within a range of 15 cm to 4 m away. The fact that the sensor is wireless means no cables to get in the way which is key for hand held, or ceiling mounted applications and it connects directly to your devices via Bluetooth or USB. The Wireless Motion Sensor works with SPARKvue and Capstone software as well as PASCO's free MatchGraph software – an ideal way to teach the concepts of motion graphing, interpreting graphs, and rate of change or slope.

Optional accessories include: a magnetic bracket, which allows for the sensor to be hung from a suspended ceiling, or on a vertical surface; a guard to place over the sensor when dropping objects from above.

Typical applications:

- Study conservation of energy and momentum during collisions
- Monitor the sinusoidal motion of a mass on a spring
- Measure the motion of large objects, such as students
- Use the sensor's Ping Echo Time to confirm speed = distance/ time

| | |
|----------------------------------|---|
| Minimum range: | 0.15 m |
| Maximum range: | 8 m |
| Resolution: | 1 mm |
| Transducer rotation: | 360° |
| Cable length: | 1.8 m |
| Near/Far switch settings: | |
| Narrow | For distances up to 2 m to reject false target signals or ignore air track noise |
| Standard | For longer distances up to 8 m |
| Mounting options: | 12.7 mm diameter rod or smaller; Directly to the PASCO Dynamics Track; Non-skid rubber feet for table mount |



PS-3219

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------------|----------|---------|
| PS-3219 | Wireless Motion Sensor | EACH | £119.49 |
| PAS 010 791 | Magnetic Motion Sensor Bracket | EACH | £26.99 |
| PAS 010 792 | Motion Sensor Guard | EACH | £21.99 |

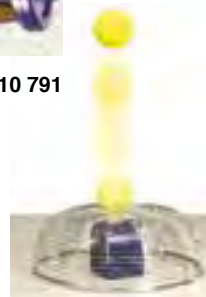
Motion Sensor

PASCO's ultra-sonic Motion Sensor is used to measure position, velocity and acceleration, down to a resolution of 1mm!

The Motion Sensor is complementary to Light Gates, as it provides continuous data in the form of motion profiles (i.e. how position, velocity and acceleration changes with time). Change the width of the ultra-sonic beam to track near or far objects using the switch on the side of the unit - this option enables cleaner data by rejecting false signals. The sensor sits firmly on a desktop or easily mounts to a rod stand, or PASCO dynamics track. The sensor has a fully rotatable face and can be used in any orientation.



PAS 010 791



PAS 010 792

Optional accessories include:

a magnetic bracket, which allows for the sensor to be hung from a suspended ceiling, or on a vertical surface; a guard to place over the sensor when dropping objects from above.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------------|----------|--------|
| PAS 010 790 | Motion Sensor | EACH | £99.49 |
| PAS 010 791 | Magnetic Motion Sensor Bracket | EACH | £26.99 |
| PAS 010 792 | Motion Sensor Guard | EACH | £21.99 |

Elastic Bumper

The Elastic Bumper protects the Motion Sensor from the carts, but doesn't interfere with the ultrasonic pulse. These brackets can also serve as photogate mounts with PASCO tracks.

Includes:

- 2 pairs of brackets
- 10 meters of elastic material



| Cat No. | Description | Quantity | Price |
|---------|----------------|----------|--------|
| ME-8998 | Elastic Bumper | EACH | £44.99 |

Cart Adapter Accessory

The Cart Adapter Accessory allows the Motion Sensor and many other sensors to be mounted to a Dynamics Cart or a PAScar. Mounting a Motion Sensor on a cart is ideal for the study of relative motion. The adjustment knob on the bracket allows the Motion Sensor to face any direction.

Includes:

- 2 M5 thumb screws to attach to cart
- 1/4"-20 screw at centre



| Cat No. | Description | Quantity | Price |
|---------|------------------------|----------|--------|
| ME-6743 | Cart Adapter Accessory | EACH | £33.49 |





Wireless Rotary Motion Sensor

The versatility of the Wireless Rotary Motion sensor allows it to be used in a wide range of physics experiments. Typically, it is used in mechanics to study the rotation of rigid objects. When used in combination with PASCO physics apparatus, this sensor also finds applications in studying advanced dynamics topics as well as electromagnetism and optics.

The Wireless Rotary Motion Sensor measures rotational kinematics as well as their linear analogues. The included three-step pulley allows different torques to be applied, rotating a rigid system at different rates of acceleration. The included rod mounting holes let you orient the sensor for different experiments. The Wireless Rotary Motion Sensor connects directly to your devices via Bluetooth® or USB.

| | |
|------------------------------|--|
| Three-step pulley: | 10 mm, 29 mm and 48 mm diameter |
| Sensor dimensions: | 9.2 cm x 6.6 cm x 4.1 cm, 6.35 mm diameter shaft |
| Maximum rotation rate | 30 revolutions per second |
| Optical encoder: | 2000 divisions/rev, Bidirectional |

| Cat No. | Description | Quantity | Price |
|----------------|-------------------------------|----------|----------------|
| PS-3220 | Wireless Rotary Motion Sensor | EACH | £204.99 |

Rotary Motion Sensor

Put a new spin on many common experiments with this highly versatile sensor. Use it to study not only rotary motion, pendulum motion and angular momentum, but a surprising variety of other topics as well. With the right accessories, it can be used to determine the acceleration of gravity, to study linear velocity and acceleration, and it can be used with a light sensor in the Optics lab to incrementally scan across diffraction and interference patterns.

The sensor comes complete with a rod clamp which can be attached on three sides of the sensor, allowing the unit to be mounted in almost any direction.



| | |
|---------------------------|--|
| Three-step pulley: | 10 mm, 29 mm and 48 mm diameter |
| Sensor dimensions: | 10 cm x 5 cm x 3.75 cm, 6.35 mm diameter shaft |
| Rotary motion: | Resolution: 0.09° / 0.0078 mm; Maximum speeds: 30 revs/sec |
| Optical encoder: | Bidirectional, indicates direction of motion; 4000 divisions/rev |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| PAS 010 800 | Rotary Motion Sensor | EACH | £194.99 |
| Accessories | | Quantity | Price |
| PAS 010 801 | Linear Motion Accessory | EACH | £67.99 |
| PAS 010 802 | Mini Rotational Accessory | EACH | £199.99 |

Wireless Force Acceleration Sensor

The Wireless Force Acceleration Sensor allows for live data collection in a moving frame of reference. This sensor can measure force, acceleration (in x, y and z axes and resultant) and rotation using the in-built gyroscope. You can mount the sensor on a rotating platform or on a moving cart to measure forces and accelerations of the constantly changing dynamic system. The wireless design offers improved measurements without a cable affecting the experiment outcome.



Typical applications:

- Ideal for experiments involving rotating platforms, moving carts, spring oscillations, collisions and impulse
- Investigate and measure angular velocity

Key features:

- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 and USB connectivity
- Remote logging capability using in-built memory

Includes: Bumper and hook attachments, cart/bracket thumbscrew, rod clamp thumbscrew, USB cable (for charging and optional wired connection).

| | |
|-----------------------------------|--|
| Force range: | ±50 N |
| Force resolution: | 0.03 N |
| Acceleration range: | ±16 g |
| Maximum sample rate: | 1000 Hz |
| Force overload protection: | Up to 75 N without damage |
| Battery: | Rechargeable Lithium Polymer. Expected life of 3-4 months on a single charge under normal use. |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------------|----------|----------------|
| PAS 200 500 | Wireless Force Acceleration Sensor | EACH | £114.99 |
| ME-1243 | Smart Cart Charging Garage | EACH | £132.99 |



Force Sensor

The Force Sensor is ideal for the student lab. Finger holes are provided for hand-held use. It will mount directly to a PASCO Dynamics Cart or 1.2 cm rod.

Typical applications:

- Measure force exerted by an oscillating mass
- Measure force during elastic and inelastic collisions
- Measure force of a swinging pendulum
- Investigate Newton's Third Law

Includes: Bumper Attachment, Hook Attachment, Cart/Bracket Thumbscrew and Rod Clamp Thumbscrew.

| | PAS 010 640 | PAS 010 650 |
|-----------------------------------|--|-------------|
| Range: | ±50 N | |
| Resolution: | 0.03 N | 0.002 N |
| Max sample rate: | 1000 Hz (5000 Hz with Xplorer GLX, 550 or 850 Universal Interface) | |
| Force overload protection: | Up to 75 N without damage | |
| Beam deflection: | 0.28 mm | |
| Mounting options | Mounts on PASCO carts; Mounts on standard 12.7 mm diameter rods | |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| PAS 010 640 | Force Sensor | EACH | £132.49 |
| PAS 010 650 | High Resolution Force Sensor | EACH | £159.99 |





Wireless 3-Axis Acceleration/Altimeter

The 3-Axis Acceleration/Altimeter includes a strap so that students can collect data during any number of physical activities without cables getting in the way. The sensor is surrounded by a rubberized case that protects it from impact. The 3-Axis Acceleration/Altimeter can also remotely log acceleration and altitude data, making it ideal for recording the motion of roller coasters or other rides.

Typical Applications:

- Launch or toss the sensor to record data during its flight
- Record the movement of amusement park rides such as roller coasters, free-fall drops and more
- Investigate the accelerations experienced during collisions
- Measure the angular velocity of a rotating platform or wheel

| | |
|------------------------------|---|
| Accelerometer ranges: | ± 16 g; ± 100 g; ± 200 g; ± 400 g |
| Measurements: | Acceleration (3 axes and resultant); Altitude; Angular velocity (3 axes) |

| Cat No. | Description | Quantity | Price |
|----------------|--|----------|---------------|
| PS-3223 | Wireless 3-Axis Acceleration/ Altimeter | EACH | £94.99 |

Alpha Beta Gamma Radiation Sensor

Measure total alpha, beta and gamma radiation levels using PASCO's Geiger-Muller Counter. The sensor will connect to any PASPort interface via the included Digital Adapter. The sensor produces a clear audible beep when a count is registered. The unit is compact and portable, and can be used both in the classroom and in the field.



Typical applications:

- Measure background radiation
- Discover the relationship between radiation intensity and distance from the source



| | |
|---|------------------------------------|
| Sensitivity: | Beta, gamma, alpha |
| Count detection: | Audio signal |
| Window thickness: | 1.5 to 2 mg/cm ² , mica |
| Gas filling: | Neon, Argon and Halogen |
| Starting / operating voltage for tube: | 450 VDC / 500 VDC |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|----------------|
| PAS 010 860 | Alpha Beta Gamma Radiation Sensor | EACH | £229.99 |
| PAS 010 863 | Absorbers | EACH | £196.99 |



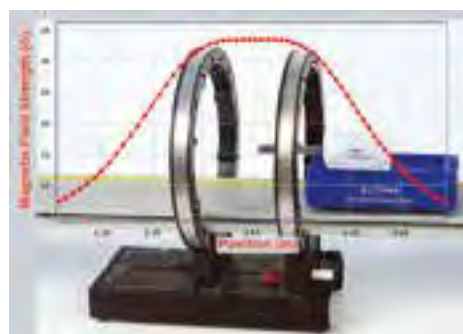
Wireless Sound Sensor

The PS-3227 Wireless Sound Sensor is two sensors in one wireless package: a sound wave sensor capable of measuring changes in relative pressure level as a function of time, and a sound level sensor with both dBA and dBC-weighted scales.

Includes:

- 1x USB charging cable
- 1x Threaded handle for mounting the sensor to a ring stand

| Cat No. | Description | Quantity | Price |
|----------------|-----------------------|----------|----------------|
| PS-3227 | Wireless Sound Sensor | EACH | £101.40 |



Wireless 3-Axis Magnetic Field Sensor

The 3-Axis Magnetic Field Sensor can sense the Earth's magnetic field as well as fields from coils and bar magnets and current carrying wires.

There are two ranges: ± 50 gauss and ± 1300 gauss that are user selectable. Measure the three components of the magnetic field as well as the resultant or, if desired, measure the field along a single axis or any two of the axes depending on your experiment. The sensor measures the X, Y, and Z components of the magnetic flux density in tesla, millitesla, and gauss. The arrangement of the X, Y, and Z components is shown on the top label.

| Cat No. | Description | Quantity | Price |
|----------------|--|----------|---------------|
| PS-3221 | Wireless 3-Axis Magnetic Field Sensor | EACH | £91.49 |





Wireless Pressure Sensor

With the new Wireless Pressure Sensor you can make accurate and consistent measurements of gas pressure, regardless of ambient conditions, and explore how chemical reactions affect gas pressure.

Reports pressure measurements in commonly used units: kPa, atm, psi, mmHg, N/m².

Typical applications:

- Use the included graduated syringe to study Boyle's Law
- Measure transpiration rates
- Measure osmosis and pressure changes inside a model cell
- Measure changes in elevation
- Measure chemical reaction rates
- Add the Wireless Temperature Sensor to investigate the empirical gas laws

Key Features:

- No interface required - sensor connects direct to computer/device
- Rechargeable lithium-polymer battery (included)
- Bluetooth 4.0 and USB connectivity
- Remote logging capability using in-built memory

Includes:

2 feet of polyurethane plastic tubing, 1 tube connector, 2 male barbed luer locks, 1 female barbed luer lock, 1 60 cc syringe, USB cable for charging.

| | |
|-----------------------------|-----------|
| Range: | 0-400 kPa |
| Resolution: | 0.1 kPa |
| Accuracy: | ± kPa |
| Maximum sample rate: | 1000 Hz |

Pressure Sensor Accessories Kit

A set of tubing and connectors for spares and add-ons. Complete in a 9 compartment box for storage. This optional accessory includes: 6 feet of polyurethane tubing (1/8 dia), 6 plastic tees for 1/8 tubing, 12 tubing connectors, 6 male luer locks, 6 one way stop cocks, 6 non-valved coupling inserts.



| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|---------------|
| PAS 200 520 | Wireless Pressure Sensor | EACH | £99.99 |
| PAS 200 525 | Wireless Pressure Sensor Accessories Kit | EACH | £54.49 |



Absolute Pressure Sensor

The Absolute Pressure Sensor measures the gas pressure in a container or the surroundings.

Typical applications:

- Measure chemical reaction rates
- Verify Gas Laws (Ideal, Charles, Boyle's)
- Study vapour pressure vs. temperature

Includes:

A 20 cc syringe and quick connect tubing for investigating the Gas Laws. The sensor's wide range makes it an excellent general purpose pressure device.

| | |
|-----------------------------|--------------|
| Range: | 0 to 700 kPa |
| Accuracy: | ±2 kPa |
| Resolution: | 0.1 kPa |
| Maximum sample rate: | 200 Hz |
| Repeatability: | 1 kPa |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| PAS 010 840 | Absolute Pressure Sensor | EACH | £109.99 |



Absolute Pressure Temperature Sensor

This multi-sensor is specifically designed for use in studying gas laws, and can directly measure temperature and absolute gas pressure.

The included thermistor temperature probe has both a fast response and very low thermal mass.

Typical applications:

- Extrapolate absolute zero
- Explore Gas Laws (Ideal, Charles, Boyle's)

Includes:

Fast response temperature probe, 60 cc syringe, tubing and quick-release connectors.

| | |
|---|---|
| Pressure: | 0 to 700 kPa with ±2 kPa |
| Accuracy: | 0.1 kPa resolution and 1 kPa repeatability (displays pressure in kPa, N/m ² , and psi) |
| Maximum sample rate: | 100 Hz |
| Temperature with included fast response probe: | -10 to 70°C with ±0.5°C accuracy (displays temperature in °C, °F and K). |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|----------------|
| PAS 010 850 | Absolute Pressure Temperature Sensor | EACH | £184.99 |



Wireless Voltage Sensor

Ideal for exploring the fundamental concepts of electricity and investigating circuit concepts. Measure voltages of up to 15 V with built-in protection for the sensor against overload. Combine with the Wireless Current Sensor to explore Ohm's Law, series and parallel circuits and much more.



Key features:

- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 and USB connectivity
- Remote logging capability using in-built memory

Includes: Shrouded-banana to alligator-clip test leads, USB charging cable.

| | |
|-----------------------------|--------------------------------------|
| Two ranges: | ±15 V, ±5 V |
| Resolution: | 7 mV (±15 A range); 2 mV (±5V range) |
| Maximum sample rate: | 1 kHz via Bluetooth, 100 kHz via USB |
| Battery: | Rechargeable lithium polymer |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| PAS 200 550 | Wireless Voltage Sensor | EACH | £63.99 |

Voltage Current Sensor

Measure both voltage and current simultaneously. With overload protection, audible overload notification and automatic reset.



Typical applications:

- Study circuit properties for both series and parallel electrical circuits
- Study the relationship of voltage and current in series-parallel circuits (Ohm's Law)

Includes: 2 pairs of voltage leads and 1 pair of alligator clips.

| | |
|-------------------------------|---|
| Charge range: | ± 0.1 µC |
| Voltage range: | ± 10 V |
| Input resistance: | 1012 Ω |
| Maximum input voltage: | 150 V |
| Maximum sample rate: | 100 Hz |
| Input connector: | BNC |
| Input cable: | 0.9 m length; shielded with alligator termination |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|----------------|
| PAS 010 980 | Voltage Current Sensor | EACH | £126.99 |

Charge Sensor

Measure the amount and polarity of electric charge present. The sensor is designed for experiments in electrostatics such as inductive charging, charge production/distribution, and charge on a capacitor. The sensor features automatic scaling, eliminating the need for a gain switch. The Charge Sensor can also be used as a high impedance voltmeter (1012Ω).



Typical applications:

- Measure charge by induction
- Quantify the charge on a capacitor plate
- Discover the charge distribution on a conducting sphere

Includes: A 0.9 m shielded cable with alligator clips to eliminate stray fields.

| | |
|-------------------------------|---|
| Charge range: | ± 0.1 µC |
| Voltage range: | ± 10 V |
| Input resistance: | 1012 Ω |
| Maximum input voltage: | 150 V |
| Maximum sample rate: | 100 Hz |
| Input connector: | BNC |
| Input cable: | 0.9 m length; shielded with alligator termination |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------|----------|----------------|
| PAS 010 570 | PS-2132 | Charge Sensor | EACH | £126.99 |

Wireless Current Sensor

Measure currents of up to 1 A with built-in protection for the sensor against overload and transmit the collected data wirelessly to your computer/device. The wide current range allows for introductory and advanced explorations of the fundamental concepts of electricity and basic circuits. Combine with the Wireless Voltage Sensor to explore Ohm's Law, series and parallel circuits and much more.



Key features:

- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 and USB connectivity
- Remote logging capability using in-built memory

Includes: USB charging cable.

| | |
|-------------------------------|---|
| Charge range: | ± 0.1 µC |
| Voltage range: | ± 10 V |
| Input resistance: | 1012 Ω |
| Maximum input voltage: | 150 V |
| Maximum sample rate: | 100 Hz |
| Input connector: | BNC |
| Input cable: | 0.9 m length; shielded with alligator termination |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| PAS 200 580 | Wireless Current Sensor | EACH | £74.99 |

High Current Sensor

The High Current Sensor has a low (0.01 Ω) resistance sensing element, can measure up to 10 A, and has an LED over-current indicator. Dynamic variable over-sampling greatly reduces the measurement noise at low sample rates. Use with large Farad capacitors or in other high-current situations.



| | |
|-------------------------------|---|
| Charge range: | ± 0.1 µC |
| Voltage range: | ± 10 V |
| Input resistance: | 1012 Ω |
| Maximum input voltage: | 150 V |
| Maximum sample rate: | 100 Hz |
| Input connector: | BNC |
| Input cable: | 0.9 m length; shielded with alligator termination |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| PAS 010 610 | High Current Sensor | EACH | £124.99 |

Sound Level Sensor

Designed to measure the intensity level of sound sources within proximity to the sensor. The sensor features three range switches to match the intensity range of the measured phenomena. The sensor measures sound levels in both the dBA and dBC scales. The sensor also reports a measurement of sound intensity in µW/m², which is calculated from the dBC measurement of the sound level.



Typical applications:

- Explore sound levels outside the classroom
- Discover the logarithmic relationship between sound level and sound intensity

| | |
|-----------------------------|---|
| Range: | Sound level intensity 30 dB to 70 dB; 10-3 µW/m ² to 10 µW/m ² 50 dB to 90 dB; 1 µW/m ² to 1000 µW/m ² 70 dB to 110 dB; 10 µW/m ² to 10,000 µW/m ² |
| Maximum sample rate: | 20 Hz |
| Accuracy: | ± 2 dB at 94 dB (1000 Hz) |
| Resolution: | 0.1 dB |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|----------------|
| PAS 010 880 | PS-2109 | Sound Level Sensor | EACH | £149.99 |



Ripple Tank System

- Integrated Strobe/Ripple Generator Simplifies Operation
- Foam 'Beach' Design Dramatically Reduces Reflections from Walls
- Silent Operation

The PASCO Ripple Tank System is easy to use, reliable and affordable. The strobe and rippler are controlled by the same unit, and a new feature makes it possible to introduce a small frequency difference between the strobe and the rippler to make the waves appear to move slowly.

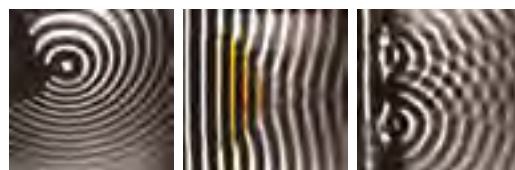
Typical Applications:

- Speed of Wave Propagation
- Effects of Varying Water Depth
- Superposition of Waves
- Reflection, Refraction, and Diffraction

Contents:

- Ripple Tank with Legs
- Projection Mirror and Screen
- Strobe Mounting Rod
- Refractors (convex, concave, rhomboid)
- Curved Reflector
- Diffraction Barriers (2 long, 1 short, 1 mini)
- Plastic Storage Box for components
- Surfactant
- Drainage Tube (30cm) with Clamp
- 1 litre Plastic Beaker
- Pipette
- Clear Plastic Ruler
- Water-Resistant Storage Box for entire system (64 x 52 x 17cm)
- Ripple Generator/Light Source with Ripple Generator/Strobe Driver and power adapter
- LED strobe assembly
- Plane Wave Generator with multi-point dippers and Point Sources (3 sizes)

| | |
|--|---|
| Viewing Area | 33 x 33cm |
| Usable Tank Depth | 1cm |
| Projection Screen | 35.6 x 38.8cm |
| Acrylic Mirror | 49.8 x 38.8cm |
| Light Source Support Rod | 46cm long |
| Drain Tube | 30cm long |
| Storage Box | Water resistant 64 x 52 x 17cm |
| Ripple Generator / Light Source: | |
| Voice Coil Actuator Frequency Range | 1 to 50 Hz with 0.1 Hz Resolution |
| Light Source | 5W White LED - Strobe or Steady Modes |
| Digital LED Display | Frequency/Delta |
| Adjustable Delta Frequency between | ±45% frequency setting in steps of 0.09 |
| Ripple Generator and Strobe | |
| Phase Switch | 0 or 180 degrees |
| Power Supply | 15 VDC at 1.5 A with On/Off Switch |
| Rippler Case Dimensions | 10.5 x 16.3 x 3.9cm |



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|----------------|
| XWV 100 020 | WA-9899 | Ripple Tank System | EACH | £959.99 |

NB: Stands and rods required but not included.

//code.Node

The //code.Node is a turnkey coding solution that combines real-world sensor inquiry, Blockly coding, and live data displays to drive computational thinking in STEM learning. It includes six interactive sensors and four device outputs that measure and respond to phenomena using code created in SPARKvue or Capstone software.

Today's students live in a digital world full of sensors and devices driven by code. From automatic nightlights to emergency braking systems, sensors play an integral role in everyday life. With the //code.Node and Blockly coding, students can learn about sensors, their applications, and the code that controls them. Each //code.Node activity challenges students to create an interactive program with external responses that bring their code beyond the screen to the real world.

The //code.Node has six built-in sensors, including a Temperature Sensor, Motion Sensor, Magnetic Field Sensor, Sound Sensor, Light Sensor, and two Momentary Switches. The //code.Node's four device outputs include a Speaker, 5x5 LED Array, and RGB LED Light. The user-friendly coding platform, Blockly is used within SPARKvue or Capstone software to program how the device collects and responds to data. Students can control how the //code.Node's sensor inputs collect and display data, as well as how the device's outputs respond to incoming sensor data.



| Cat No. | Description | Quantity | Price |
|-------------------|-------------|----------|----------------|
| PS-3231 | //code.Node | EACH | £99.99 |
| PS-3231-10 | Class Set | 10 | £850.00 |





Wireless Temperature Sensor

Students can access instant temperature readings but also continuously monitor, log and plot temperature data in SPARKvue on nearly any connected device. The sensor has a stainless steel probe which is ideal for a range of applications.

Typical applications:

- Use in place of a digital thermometer
- Monitor temperature changes due to chemical reactions
- Map skin temperature
- Explore convection currents
- Cooling curves
- Insulation experiments

Key features:

- No interface required - sensor connects direct to computer/device
- Coin cell battery (included)
- Bluetooth 4.0 connectivity
- Remote logging capability using in-built memory
- Dust/dirt/sand proof and water resistant (1 meter for 30 minutes)

| | |
|-----------------------------|--------------|
| Range: | -40 to 125°C |
| Resolution: | 0.01°C |
| Accuracy: | ±0.5°C |
| Maximum sample rate: | 10 Hz |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| PAS 200 530 | Wireless Temperature Sensor | EACH | £46.99 |



Wireless pH Sensor

Here's the best tool for measuring pH since litmus paper.

PASCO's Wireless pH Sensor measures the pH of a solution as discrete measurements or as a continuous reading. Calibration of the pH probe is performed quickly and easily within the software, using two or more buffer solutions.

Typical applications:

- Study household solutions
- Perform high-resolution acid-base titrations
- Monitor pH remotely over days using the on board memory
- Evaluate water quality

Key features:

- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Coin cell battery (included)
- Remote logging capability using in-built memory
- Dust, sand and water resistant (1 meter for 30 minutes)
- Compatible with ion-selective electrodes (ISE), flat pH probe and oxidation reduction probes (ORP)

| | |
|--------------------|---------|
| Range: | 0-14 pH |
| Resolution: | 0.02 pH |
| Accuracy: | ±0.1 pH |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| PAS 200 510 | Wireless pH Sensor | EACH | £75.99 |



Photosynthesis Tank

PASCO designed the Photosynthesis Tank specifically to improve the measurement of oxygen in photosynthesis. The photosynthesis tank has two concentric Plexiglas chambers. This unique design allows students to control the environment without interfering with the measurements. In addition, the rubber stopper seals the inner environment so oxygen is not exchanged between the atmosphere and the sample. Two back-bored openings in the stopper form a tight seal with the sensors, but also allow for easy insertion and removal.

Features:

- Measure O₂ Production Directly
- Control the Environment
- Study Changes in Photosynthesis/Respiration Rates

NB: Sensors are not included, must be bought separately.

| Cat No. | Description | Quantity | Price |
|-----------------|---------------------|----------|---------------|
| PS-2521B | Photosynthesis Tank | EACH | £82.99 |



EcoChamber

PASCO's EcoChamber is a polycarbonate chamber specially designed to accommodate up to three PASCO sensors in order to help students model and understand the workings of an ecosystem.

The EcoChamber can serve as:

- An additional chamber for an ecoZone system
- A fermentation chamber for yeast fermentation experiments
- A closed (and measured) system in photosynthesis and respiration experiments
- A chamber for modeling greenhouse gases
- A temperature regulation chamber which facilitates studies of endothermic and exothermic animals

NB: Sensors are not included, must be bought separately.

| Cat No. | Description | Quantity | Price |
|----------------|-------------|----------|---------------|
| ME-6667 | EcoChamber | EACH | £46.49 |



Temperature Sensor

PASCO's Stainless Steel Temperature Sensor offers a superior range, resolution and accuracy. It reports temperature (in °C, °F and K) whether it is immersed in liquids, held in the air, or touching a solid surface.

Typical applications:

- Conduct general temperature experiments
- Measure rapid temperature changes found in endothermic-exothermic reactions
- Conduct environmental studies

Specification:

Range: -35 to +135°C
 Accuracy: ± 0.5°C
 Resolution: 0.0025°C
 Maximum sample rate: 10 Hz



Fast Response Temperature Probes

- Observe endothermic/exothermic reactions
- Study temperature gradient of water in a freezer
- Measure evaporative cooling
- Measure the convection of air currents

Skin Surface Temperature Probe

- Compare skin temperature before and after exercise
- Map out temperature variations across the skin's surface
- Perform heating and cooling experiments with solids

Stainless Steel Temperature Probe

Simple and effective. Investigate melting and freezing points, or measure rapid temperature changes found in endothermic or exothermic reactions. Connects to PASPort temperature sensors, and the built-in temperature port on the SPARKlink Air.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| PAS 010 900 | Temperature Sensor | EACH | £39.99 |
| Accessories | | Quantity | Price |
| PAS 010 910 | Fast Response Temp. Probes | 3 | £34.99 |
| PAS 010 930 | Skin Surface Temp. Probes | EACH | £26.99 |
| PAS 010 940 | Stainless Steel Temp. Probes | EACH | £24.99 |

Wireless Light Sensor

PASCO's most versatile and most cost effective light sensor ever. With a variety of measurements for the Science classroom that is unmatched. The Wireless Light Sensor features two separate apertures – one for ambient measurements and the other for directional light measurements. The ambient sensor measures illuminance (lux), irradiance (W/m²), UVA, UVB and UV index. The spot aperture measures light level and has colour detection with channels for the relative intensity of Red, Green, Blue light and the ability to sum them for the level of White light.



Typical applications:

- Studying solar energy
- Monitoring UV light levels and ways to limit exposure
- Reflection, absorption and transmission of light through clear, opaque and different coloured translucent mediums
- Investigating polarisation and reflectivity
- Modelling planetary motion
- Verifying the inverse square law

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Remote logging capability using in-built memory

| | |
|-----------------------------|--|
| Sensing element: | Dual 5 channel radial photodiodes |
| Spectral response: | Approx. 300 – 1100 nm; UVA (350 – 375 nm); UVB (320 – 340nm) |
| Measurement options: | Light intensity, RGB, UVA, UVB, UV index |
| Range: | Approx. 0 – 130,000 lux |
| Maximum sample rate: | Ambient 2 Hz; Spot 20 Hz |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------|----------|---------------|
| PAS 200 570 | PS-3213 | Wireless Light Sensor | EACH | £79.99 |



Wireless Pressure Sensor

Make accurate and consistent measurements of gas pressure, regardless of ambient conditions, and explore how chemical reactions affect gas pressure. Reports pressure measurements in commonly used units: kPa, atm, psi, mmHg, N/m².

Typical applications:

- Measure transpiration rates
- Measure osmosis and pressure changes inside a model cell
- Measure changes in elevation
- Measure chemical reaction rates
- Add the Wireless Temperature Sensor to investigate the empirical gas laws

Key Features:

- No interface required - sensor connects direct to computer/device
- Bluetooth 4.0 and USB connectivity
- Rechargeable lithium-polymer battery (included)
- Remote logging capability using in-built memory

Includes: 2 feet of polyurethane plastic tubing, 1 tube connector, 2 male barbed luer locks, 1 female barbed luer lock, 1 60 cc syringe, USB cable for charging.

| | |
|-----------------------------|-----------|
| Range: | 0-400 kPa |
| Resolution: | 0.1 kPa |
| Accuracy: | ± kPa |
| Maximum sample rate: | 1000 Hz |

Pressure Sensor Accessories Kit

Complete in a 9 compartment box for storage. This optional accessory includes: 6 feet of polyurethane tubing (1/8 dia), 6 plastic tees for 1/8 tubing, 12 tubing connectors, 6 male luer locks, 6 one way stop cocks, 6 non-valved coupling inserts.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--|----------|---------------|
| PAS 200 520 | PS-3203 | Wireless Pressure Sensor | EACH | £99.99 |
| PAS 200 525 | PS-3503 | Wireless Pressure Sensor Accessories Kit | EACH | £54.49 |
| PAS 200 030 | | 10 Port USB Charging Station | EACH | £69.99 |

Light Sensor

PASCO's general purpose Light Sensor is ideal for indoor and outdoor relative light intensity experiments. Data is displayed in lux, a unit of illuminance that is a measure of luminous flux per unit of area. The Light Sensor can be used in three different ranges depending on the intensity level of the light source.

Typical applications:

- Compare light intensity vs. distance (inverse square law)
- Study interference/diffraction/polarisation
- Measure relative light intensities in daylight
- Monitor solar eclipse

| | |
|-------------------------------|---|
| Range: | 0 to 2.6 lux (candle); 0 to 260 lux (bulb); 0 to 26,000 lux (sun) |
| Accuracy: | > ± 1 db of max value of selected range |
| Resolution: | 1/10,000 of max value of selected range |
| Maximum sampling rate: | 1000 Hz |



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------|----------|---------------|
| PAS 010 720 | PS-2106A | Light Sensor | EACH | £80.49 |





Wireless Carbon Dioxide Gas Sensor

Use this wireless sensor to measure the concentration of CO₂ gas in a closed system or open environment. CO₂ data can be logged directly on to the device for long-term life science and environmental science studies.

Typical applications:

- Photosynthesis
- Respiration
- Carbon cycling

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 and USB connectivity
- Remote logging capability using in-built memory

Includes: 250 ml sampling bottle, USB charging cable.

| | |
|--------------------|---|
| Range: | 0-100,000 ppm |
| Resolution: | 2 ppm |
| Accuracy: | 0 to 1000 ppm: ± 100 ppm; 1000 to 10,000 ppm: ± 5% of reading + 100 ppm 10,000 ppm to 50,000 ppm: ± 10% of reading 50,000 to 100,000 ppm: ± 15% of reading |
| Battery: | Rechargeable lithium polymer |

| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|----------------|
| PAS 011 660 | Wireless Carbon Dioxide Gas Sensor | EACH | £222.49 |
| PS-3545 | Dissolved CO ₂ waterproof sleeve | EACH | £24.99 |

Carbon Dioxide Gas Sensor

The CO₂ Gas Sensor measures carbon dioxide concentration in the atmosphere or in an enclosed volume, such as a terrarium. Using the included 250 ml sample bottle, students can even measure the exhalation of small organisms such as crickets. PASCO's proprietary design uses infrared detection to measure the energy absorbed by carbon dioxide molecules.

Typical applications:

- Measure CO₂ uptake during photosynthesis in a terrarium
- Compare indoor vs. outdoor CO₂ levels
- Study cellular respiration of yeast
- CO₂ output of combustion engines

| | |
|-------------------------------|---|
| Range: | 0 ppm to 300,000 ppm |
| Accuracy: | For range of 0 to 10,000 ppm: 100 ppm or 10% of value, whichever is greater |
| Calibration: | User presses one button while sampling outside air |
| Default sample rate: | CO ₂ concentration updates once each second |
| Operating temperature: | 20°C to 30°C |
| Maximum sampling rate: | 10 Hz |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------|----------|----------------|
| PAS 010 560 | PS-2110 | Carbon Dioxide Gas Sensor | EACH | £289.00 |

Oxygen Gas Sensor

PASCO's Oxygen Gas Sensor accurately measures oxygen concentration in the atmosphere or in enclosed spaces, such as terrariums. The sensor can be used in any orientation, and its wide range (0-100%) means students can use it with any experiment or investigation. Use in combination with the CO₂ Gas Sensor to perform an even wider variety of environmental and physiology activities in the classroom or in the field. The sensor has in-built automatic temperature compensation to ensure consistent measurements.



Typical applications:

- Measure the respiration of animals, insects or germinating seeds
- Study the catalase breakdown of hydrogen peroxide
- Monitor O₂ level changes during photosynthesis in a terrarium
- Study cellular respiration of yeast

| | |
|-----------------------------|--|
| Flow range: | 0 to 100% oxygen concentration |
| Accuracy: | ± 1% (at constant temperature) |
| Resolution: | 0.025 % |
| Maximum sample rate: | 100 Hz |
| Probe shelf-life: | Three years |
| Includes: | Integrated rubber stopper and 250 ml sampling bottle with cap. |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------|----------|----------------|
| PAS 010 810 | PS-2126A | Oxygen Gas Sensor | EACH | £224.99 |



Wireless Optical Dissolved Oxygen Sensor

The Wireless Optical Dissolved Oxygen (ODO) Sensor is the perfect solution to monitor DO₂ in the lab or the field. Optical technology is accurate, fast, and does not need flow or calibration. The Wireless Optical DO Sensor actually contains three different probes. In addition to dissolved oxygen, there are also probes for atmospheric pressure and the water temperature. A PASCO exclusive feature allows you to log data using the sensor's built-in memory. After hours or even days, connect the sensor to your device and download the data. You can capture day/night nutrient cycles, changes in metabolic processes and more. With the included cover, the sensor has a waterproof design and is submersible to 10m.

| Cat No. | Description | Quantity | Price |
|----------------|--|----------|----------------|
| PS-3224 | Wireless Optical Dissolved Oxygen Sensor | EACH | £343.49 |





Spirometer

Measure how much air your students breathe in and out, and compare different subjects graphically with PASCO's Spirometer. With this easy-to-use sensor your students can investigate lung volume, airflow and the duration of breathing. Disposable mouthpieces increase student safety and encourage participation.

Typical applications:

- Compare a student's airflow before and after exercise
- Investigate the lung volume of different subjects
- Measure tidal volume and other ventilation characteristics
- Compare smokers vs. non smokers
- Determine total lung capacity

Includes: 2 Spirometer Sensor Disposable Mouthpieces.

Displays volume in litres

Minimal resistance to airflow Bi-directional air flow
Sample rate range: 50 to 100 Hz

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| PAS 010 890 | Spirometer | EACH | £184.99 |
| Accessories | Description | Quantity | Price |
| PAS 010 891 | Replacement Mouth Pieces | PK10 | £39.99 |



Wireless Hand Grip Heart Rate Sensor

The Hand-Grip Heart Rate Sensor is the easiest way to measure and compare resting, exercise and recovery heart rate.

PASCO's design allows students to measure heart rate without the restriction and inconvenience of belts or clips. Extra-long cords allow students to freely increase their physical activity in order to determine exercise heart rate. Simply grip the handles while the sensor measure cardiac muscle contraction in beats per minute. The sensor is equipped with an LED which flashes with each detected heart beat.

Typical applications:

- Measure and compare resting, exercise, and recovery heart rate to determine physical fitness levels

Range: 40 to 240 bpm
Time to acquire heart beat: 8 to 10 seconds

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|----------------|
| PAS 122 040 | Wireless Hand Grip Heart Rate Sensor | EACH | £107.99 |

ECG Sensor

Take the mystery out of that old medical show staple by letting students measure and record the electrical signals produced by the heart themselves. Students can use it to measure their heart rate and then explore



the effects of mild exercise on heart rate. As the cardiac muscle depolarisation and repolarisation occur, the ECG trace graphically illustrates the beating of the heart. Electrodes are contained in disposable and easy to remove stick-on pads, eliminating the need for messy gels. Three electrode design uses easy access locations on the arms of the subject.

Includes: 100 self adhesive electrode patches

Heart beat range: 47 to 250 bpm
Maximum sample rate: 200 Hz
Resolution: 1 bpm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| PAS 010 630 | ECG Sensor | EACH | £164.99 |
| Accessories | Description | Quantity | Price |
| PAS 010 631 | Electrode Patches | PK100 | £15.99 |



Wireless Heart Rate Sensor

Monitor heart rate without wires and cables to get in the way. Compare resting heart rate to the heart rate after exercise. The Wireless Exercise Heart Rate Sensor has a chest strap and will transmit data wirelessly up to 10 m away! The electrode belt fits around the ribcage (worn against the skin for best results but can be worn over a shirt if a saline solution is applied under the electrodes) and wirelessly transmits the cardiac signal to the sensor.

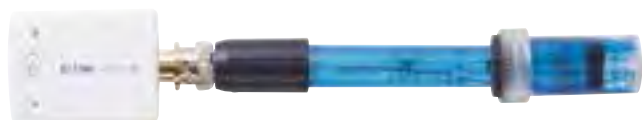
| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| PAS 122 050 | Wireless Heart Rate Sensor | EACH | £95.49 |



Wireless Blood Pressure

The Wireless Blood Pressure Sensor ships with a Standard sized cuff (PS-3592) but Small Cuffs (PS-3591) and Large cuffs (PS-3593) are also available to accommodate a range of arm sizes.

| Cat No. | Description | Quantity | Price |
|----------------|-------------------------------|----------|----------------|
| PS-3218 | Wireless Blood Pressure | EACH | £120.49 |
| PS-3591 | Blood Pressure Cuff, Small | EACH | £49.99 |
| PS-3592 | Blood Pressure Cuff, Standard | EACH | £54.99 |
| PS-3593 | Blood Pressure Cuff, Large | EACH | £56.99 |



Wireless pH Sensor

Here's the best tool for measuring pH since litmus paper. PASCO's Wireless pH Sensor measures the pH of a solution as discrete measurements or as a continuous reading. Calibration of the pH probe is performed quickly and easily within the software, using two or more buffer solutions.

Typical applications:

- Study household solutions
- Perform high-resolution acid-base titrations
- Evaluate water quality

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Coin cell battery (included)
- Remote logging capability using in-built memory
- Dust, sand and water resistant (1 meter for 30 minutes)
- Compatible with ion-selective electrodes (ISE), flat pH probe and oxidation reduction probes (ORP)

Includes: 1 coin cell battery and a direct-connect pH probe with storage bottle.

| | |
|--------------------|----------|
| Range: | 0-14 pH |
| Resolution: | 0.02 pH |
| Accuracy: | ± 0.1 pH |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|---------------|
| PAS 200 510 | PS-3204 | Wireless pH Sensor | | £75.99 |



Wireless Temperature Sensor Link

The Wireless Temperature Sensor Link enables wireless connection for any PASCO temperature probe with a 3.5 mm connection. The link comes with a Fast Response Temperature Probe, but it can also connect to the Stainless Steel Temperature Probe, Skin/Surface Temperature Probe, the Absolute Zero Sphere, and the Ideal Gas Law Apparatus.

Includes:

- 1x Fast Response Temperature Probe



| Cat No. | Supplier Code | Description | Quantity | Price |
|----------------|---------------|---------------------------|----------|---------------|
| PS-3222 | PS-3222 | Wireless temperature link | EACH | £99.99 |

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

EARLY LEARNING

EARTH & SPACE

FORCES & ENERGY

LIVING THINGS

MATERIALS & MATTER

WORKING SCIENTIFICALLY

Polarimeter

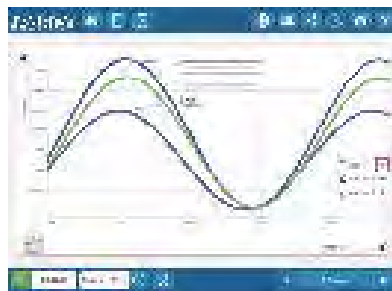
PASCO's new Polarimeter has both Bluetooth® and USB connectivity, so it works on your iPad®, Chromebook™, tablets, and computers. It is ideal for introductory Organic and Biochemistry experiments with chiral compounds.

In this new device, plane polarized light is passed through a sample, which contains a chiral compound, to an analyzer and a detector. The degree of optical rotation of the plane polarized light is based on the type and amount of sample present.

Determine the concentration of a sugar solution based on the optical rotation of plane polarized light.

Includes:

- 1x Sample Cell



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------|----------|----------------|
| PAS 011 600 | PS-2235 | Polarimeter | EACH | £547.55 |



Wireless Drop Counter

Titration experiments are core to any chemistry curriculum - now conducting a titration has never been easier!

The Wireless Drop counter counts drops of titrant added during a titration and converts the drops into a volume. Use the Wireless Drop Counter, with a Wireless pH sensor, Wireless Temp sensor or Wireless Conductivity Sensor to easily perform potentiometric, thermometric and conductometric titrations. Includes a Micro Stir Bar for even better titration data. The Micro Stir Bar connects to the end of your pH or Conductivity probe and maintains a constant flow of solution over the end of the electrode. Works with a standard stir plate. (Additional Micro Stir Bars are also available separately.)



| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------|-------------|----------------|-------|
| PS-3214 | Drop Counter Sensor | EACH | £127.49 | |
| Accessories | | Description | Quantity | Price |
| PAS 010 621 | Micro Stir Bar | PK5 | £17.99 | |



Wireless Sensor Starter Bundle

New to datalogging or looking to switch to PASCO?

Grow your sensor collection affordably using our Wireless Sensor Starter Bundle. This collection includes four of PASCO's most popular sensors:

- Wireless Temperature Sensor (PAS200530)
- Wireless Force Acceleration Sensor (PAS200500)
- Wireless Pressure Sensor (PAS200520)
- Wireless pH Sensor (PAS200510)

This range of sensors allows for the study of many topics within all scientific disciplines and is a great way to get started with the leading provider of datalogging equipment.

Key features:

- No interface required – sensors connect direct to computer/device
- Bluetooth 4.0 connectivity (and additional USB connectivity on Force and Pressure sensors)
- Batteries included – either coin cell or rechargeable depending on sensor
- Remote logging capability using in-built memory
- pH and Temperature sensors are dust/dirt/sand proof and water resistant (1 metre for 30 minutes)



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------|----------|----------------|
| PAS 200 540 | PS-3301 | Wireless Sensor Starter Bundle | EACH | £312.99 |



Colourimeter & Turbidity Sensor

The Wireless Colorimeter and Turbidity Sensor simultaneously measures the absorbance and transmittance of six different wavelengths. Each wavelength can be displayed graphically using PASCO software. The colorimeter can be used to study concentrations of solutions, the rates of chemical reactions and more. The Wireless Colorimeter and Turbidity Sensor is also resistant to splashes and spills, ensuring years of use in labs. Calibration is fast and easy. Additionally, this sensor functions as a high quality turbidimeter for water quality analysis. The sensor uses the industry standard method of using light scattered by a sample at 90 degrees resulting in more accurate and repeatable measurements.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|----------------|
| PAS 122 030 | PS-2121 | Colorimeter Sensor | EACH | £135.49 |

Wireless Spectrometer

With this one apparatus, you can measure intensity, absorbance, transmittance and fluorescence, making this a powerful and intuitive tool for your spectroscopy needs. **Includes:** 10 plastic cuvettes and lids.

PASCO's FREE Spectrometry Software and App walks you through the process of calibration, performing a full spectrum scan, determining the optimum wavelength for study.



Free Spectrometry Software and App

Scan or visit www.pasco.com/downloads/spectrometry/

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| SPE 500 010 | Wireless Spectrometer | EACH | £455.49 |
| SPE 500 500 | Fibre Optic Cable Accessory | EACH | £80.99 |





Wireless Weather Sensor

The Wireless Weather Sensor with GPS is an all-in-one instrument for monitoring environmental conditions. A built-in anemometer as well as sensing elements for temperature, humidity, pressure, light, and GPS the sensor provides up to 17 different measurements that can be used individually or simultaneously. Use the sensor in logging mode with the optional Weather Vane Accessory for long-term monitoring, or use it as a hand-held instrument to study microclimates and record ambient conditions relevant to many biological and environmental phenomena.

| | |
|-----------------------------|---|
| Barometric Pressure: | Range: 225 to 825 mmHg; Accuracy: ± 0.1 mmHg; Resolution: 0.02 mmHg |
| Ambient Temperature: | Range: -40 to 125 °C; Accuracy: ± 0.2 °C; Resolution: 0.1 °C |
| Wind Speed: | Range: 0.5 to 15 m/s (winds of up to ~ 33 mph); Accuracy: 3% of reading; Resolution: 0.1 m/s |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|----------------|
| PAS 122 010 | Wireless Weather Sensor | EACH | £199.99 |
| PAS 122 020 | Weather Vane Accessory | EACH | £39.99 |



PAS 010 900

PAS 010 930

Temperature Sensor

PASCO's Stainless Steel Temperature Sensor offers a superior range, resolution and accuracy. It reports temperature (in °C, °F and K) whether it is immersed in liquids, held in the air, or touching a solid surface.

Typical applications:

- Conduct general temperature experiments
- Measure rapid temperature changes found in endothermic-exothermic reactions
- Conduct environmental studies

Skin Surface Temperature Probe

- Compare skin temperature before and after exercise
- Map out temperature variations across the skin's surface
- Perform heating and cooling experiments with solids

| | |
|--------------------|--------------|
| Range: | 0-14 pH |
| Resolution: | 0.02 pH |
| Accuracy: | ± 0.1 pH |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| PAS 010 900 | Temperature Sensor | EACH | £39.99 |
| PAS 010 930 | Skin Surface Temperature Probe | EACH | £26.99 |



Wireless Conductivity Sensor

Wirelessly measure both conductivity and dissolved solids. Highly accurate with a fast response time and featuring built-in temperature compensation. The Wireless Conductivity Sensor measures the electrical conductivity of a water solution. Investigate the properties of solutions, perform conductometric titrations, model and measure water quality and more.

Typical applications:

- Water quality investigations
- Study effects of pollution on water
- Measure Total Dissolved Solids (TDS)
- Diffusion of ions through membranes

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Coin cell battery (included)
- Remote logging capability using in-built memory
- Dust/dirt/sand proof and water resistant (1 meter for 30 minutes)

| | |
|-----------------------------|---------------|
| Range: | -35 to +135°C |
| Accuracy: | ± 0.5 °C |
| Resolution: | 0.0025°C |
| Maximum sample rate: | 10 Hz |
| Displays: | °C, °F and K |
| Repeatability: | 0.1°C |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------------------|----------|----------------|
| PAS 200 560 | PS-3210 | Wireless Conductivity Sensor | EACH | £108.99 |



Wireless pH Sensor

Here's the best tool for measuring pH since litmus paper. PASCO's Wireless pH Sensor measures the pH of a solution as discrete measurements or as a continuous reading. Calibration of the pH probe is performed quickly and easily within the software, using two or more buffer solutions.

Typical applications:

- Study household solutions
- Perform high-resolution acid-base titrations
- Evaluate water quality

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Coin cell battery (included)
- Remote logging capability using in-built memory
- Dust, sand and water resistant (1 meter for 30 minutes)
- Compatible with ion-selective electrodes (ISE), flat pH probe and oxidation reduction probes (ORP)

Includes: 1 coin cell battery and a direct-connect pH probe with storage bottle.

| | |
|--------------------|--------------|
| Range: | 0-14 pH |
| Resolution: | 0.02 pH |
| Accuracy: | ± 0.1 pH |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|---------------|
| PAS 200 510 | PS-3204 | Wireless pH Sensor | EACH | £75.99 |



Wireless Light Sensor

PASCO's most versatile and most cost effective light sensor ever, with a variety of measurements for the Science classroom that is unmatched. The Wireless Light Sensor features two separate apertures – one for ambient measurements and the other for directional light measurements. The ambient sensor measures illuminance (lux), irradiance (W/m²), UVA, UVB and UV index. The spot aperture measures light level and has colour detection with channels for the relative intensity of Red, Green, Blue light and the ability to sum them for the level of White light.

Typical applications:

- Studying solar energy
- Monitoring UV light levels and ways to limit exposure
- Reflection, absorption and transmission of light through clear, opaque and different coloured translucent mediums
- Investigating polarisation and reflectivity
- Modelling planetary motion
- Verifying the inverse square law

Key features:

- No interface required – sensor connects direct to computer/device
- Bluetooth 4.0 connectivity
- Remote logging capability using in-built memory

| | |
|-----------------------------|--|
| Sensing element: | Dual 5 channel radial photodiodes |
| Spectral response: | Approx. 300 – 1100 nm; UVA (350 – 375 nm); UVB (320 – 340nm) |
| Measurement options: | Light intensity, RGB, UVA, UVB, UV index |
| Range: | Approx. 0 – 130,000 lux |
| Maximum sample rate: | Ambient 2 Hz; Spot 20 Hz |



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------|----------|---------------|
| PAS 200 570 | PS-3213 | Wireless Light Sensor | EACH | £79.99 |

Colourimeter & Turbidity Sensor

The Wireless Colorimeter and Turbidity Sensor simultaneously measures the absorbance and transmittance of six different wavelengths. Each wavelength can be displayed graphically using PASCO software. The colorimeter can be used to study concentrations of solutions, the rates of chemical reactions and more. The Wireless Colorimeter and Turbidity Sensor is also resistant to splashes and spills, ensuring years of use in labs. Calibration is fast and easy, eliminating wasted time during the lab activity. Additionally, this sensor functions as a high quality turbidimeter for water quality analysis. The sensor uses the industry standard method of using light scattered by a sample at 90 degrees resulting in more accurate and repeatable measurements.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|----------------|
| PAS 122 030 | PS-2121 | Colorimeter Sensor | EACH | £135.49 |

Mobile Water Quality Sensor Bundle

This bundle includes all the sensors needed to conduct sensor-based measurements of major water quality parameters. Key measurements such as temperature, pH, conductivity, dissolved oxygen, turbidity, and flow rate are covered by the sensors in this bundle. For chemical based measurements of water quality parameters, the ezSample test kits are available.

Includes:

- Wireless Temperature Sensor (PS-3201)
- Wireless pH Sensor (PS-3204)
- Wireless Conductivity Sensor (PS-3210)
- Wireless Colorimeter And Turbidity Sensor (PS-3215)
- Wireless Optical Dissolved Oxygen Sensor (PS-3224)
- PASPORT Flow Rate/Temperature Sensor (PS-2130)
- AirLink (PS-3200)



| | |
|-----------------------------|--|
| Sensing element: | Dual 5 channel radial photodiodes |
| Spectral response: | Approx. 300 – 1100 nm; UVA (350 – 375 nm); UVB (320 – 340nm) |
| Measurement options: | Light intensity, RGB, UVA, UVB, UV index |
| Range: | Approx. 0 – 130,000 lux |
| Maximum sample rate: | Ambient 2 Hz; Spot 20 Hz |

| Cat No. | Description | Quantity | Price |
|-----------------|------------------------------------|----------|----------------|
| PS-2612E | Mobile Water Quality Sensor Bundle | EACH | £647.49 |





Force Platform

Investigate the forces exerted by objects and people. PASCO's sturdy Force Platform is supported by four force beams that combine to measure the total vertical force on the platform. The platform also has two loops to hang it on a wall.

Typical applications:

- Determine hang-time during jumping and calculate jump height
- Measure force, impulse and power during jumping
- Investigate human balance using the information from each force beam
- Use two force platforms to investigate Newton's Third Law
- Study the impulse imparted by bouncing a ball
- Measure the normal force on a person riding in an elevator

| | |
|------------------------------|--|
| Range: | -1100 N to + 4400 N |
| Platform size: | 35 cm x 35 cm |
| Zero (tare) function: | Push-button |
| | Force overload protection |
| Maximum sample rate: | 1000 Hz (2000 Hz with the 850 Interface) |
| Resolution: | 0.1 N Mass: 4 kg |

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------|----------|----------------|
| PAS 010 660 | PS-2141 | Force Platform | EACH | £314.99 |



Load Cell and Amplifier Set

This set contains the 6 port load cell amplifier and four 100 N Load Cells.

| Cat No. | Description | Quantity | Price |
|----------------|-----------------------------|----------|----------------|
| PS-2199 | Load Cell and Amplifier Set | EACH | £726.99 |

Wireless Load Cell

The Wireless Load Cell and Accelerometer is designed for use with all PASCO Structures Systems. While it does not have the high resolution of the wired load cells, the Wireless Load Cell can be used for most structures related activities. It's wireless nature and the added accelerometer also make it ideal for studying the oscillations of structures. Because it does not require an interface or amplifier, the Wireless Load Cell also represents a great value.

| Cat No. | Description | Quantity | Price |
|----------------|--------------------|----------|----------------|
| PS-3216 | Wireless Load Cell | EACH | £114.99 |



Truss Set

This introductory Structures System set includes everything needed to quickly build a variety of trusses. A variety of I-beams give the flexibility to design and create many different structures. As with all Structures Systems sets, Load Cells (sold separately) can be placed anywhere in the structure, allowing you to measure tension and compression forces at that point. The Truss Set includes a total of 60 I-beams and all necessary connectors. Load cells, a load cell amplifier and an interface are required to collect and analyze data using PASCO software.

| Cat No. | Description | Quantity | Price |
|----------------|-------------|----------|---------------|
| ME-6990 | Truss Set | EACH | £75.99 |



Building Better Bridges Kit

The Building Better Bridges Kit provides fun, intuitive and lasting lessons about the construction of bridges. When a load is applied, which parts of the bridge are under tension and which parts are experiencing compression? Why do trusses have triangles? How do we predict failure? The real lessons of STEM are in the design-test-redesign cycle. Based on our successful Structures Systems, this kit uses various sized I-beams, connectors and truss screws to allow students to quickly assemble simple trusses as well as bridges. And with the new Wireless Load Cell (PS-3216) that comes included in the kit, students can measure forces under tension or compression anywhere on their structure and see the results in real-time with PASCO software.

| Cat No. | Description | Quantity | Price |
|----------------|-----------------------------|----------|----------------|
| ME-3581 | Building Better Bridges Kit | EACH | £205.99 |





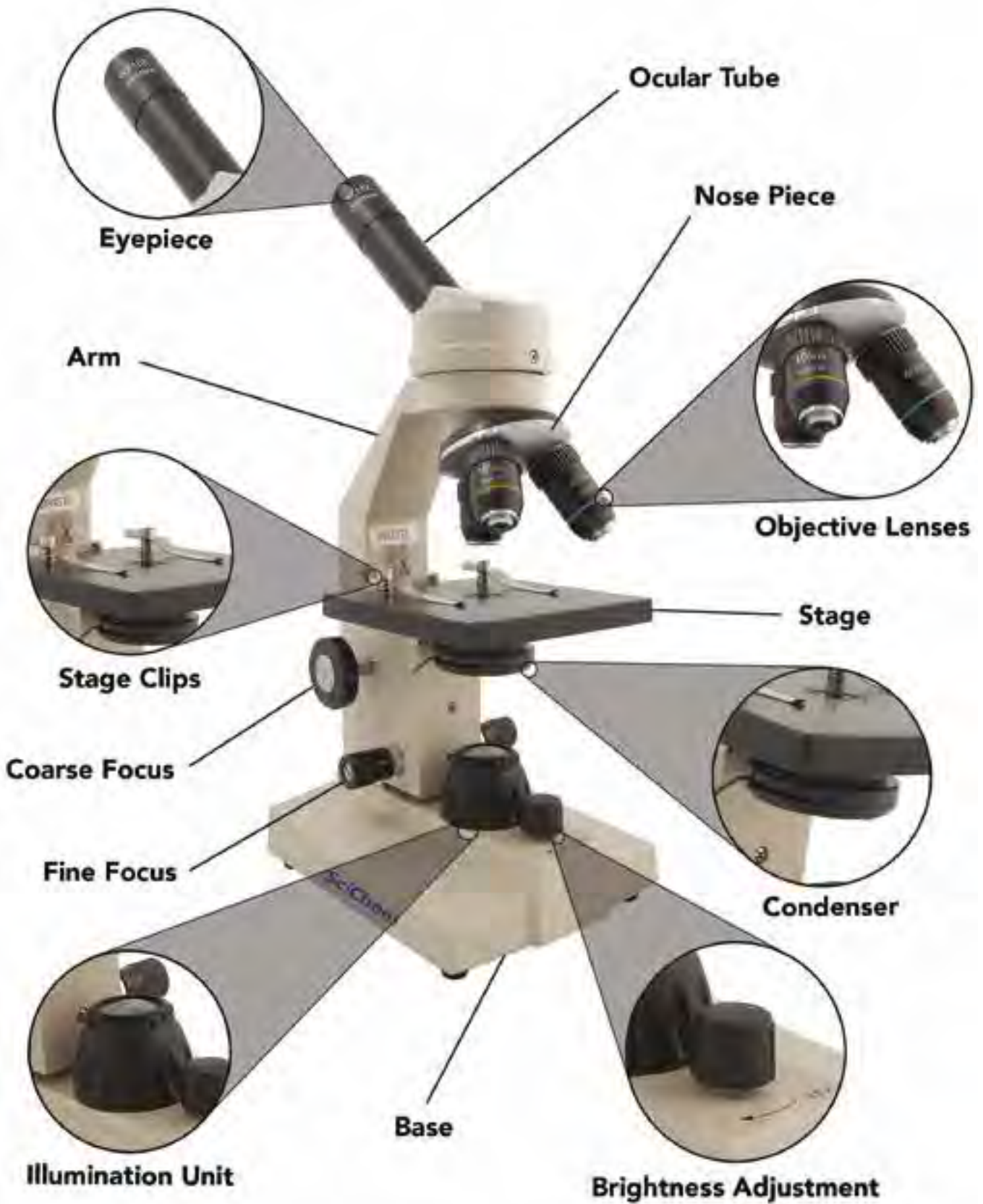
BIOLOGY

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Glossary - Compound Microscopes

A compound microscope normally comprises a range of higher magnification objective lenses viewing a slide mounted specimen, the working distance, specimen size and field of view is small and images two-dimensional.

Base

The base houses the illumination system.

Condenser

The condenser is a lens or set of lenses that concentrates and focuses the light on the specimen.

There are two types of condenser:

- The stage condenser of N.A. 0.65, this is fixed into a hole in the stage.
- The Abbe Condenser of N.A. 1.25, this is fixed under the stage and is adjustable helping in the focusing of light.

Diaphragm

There are two types of diaphragm used in microscopes:

- The disc diaphragm used with the stage condenser, a revolving plate with a series of different size holes fitted beneath the stage.
- The iris diaphragm is used with the Abbe condenser; a set of levers that can be adjusted to form a larger or smaller hole.

Rule of thumb is that the lower the magnification of the objective, the bigger the hole in the diaphragm; the higher the magnification, the smaller the hole.

DIN Standard

This stands for Deutsche Industrie Normen (an industry standard for optics indicating a high quality lens).

Eyepiece

A primary image is formed by the objective lenses; the eyepiece forms a secondary image, which is what you see.

Two types of eyepiece in the main:

- Widefield - allows a wide view of the specimen.
- Huyghenian - this eyepiece has a more narrow view of the specimen. Generally graticules can be fitted to both of these eyepieces however they may fit in different places.

Eyepiece, or Ocular, Tube

The eyepiece tube is the tube to which the eyepiece is fitted. This can be inclined by either 45 or 30 degrees; this tube in compound microscopes is normally 160mm.

Field of View

The area which is visible through the eyepiece when the microscope is in focus.

Focusing

There are two types of focusing mechanism:

- Rack and pinion - separate coarse and fine focusing controls are used.
- Coaxial focusing - combines both coarse and fine focusing controls around a common axis.

Head

The area that incorporates the eyepiece tube assembly. This could be monocular, binocular, trinocular or even stereo. The head on most of the angled eyepiece tube microscopes can rotate through 360 degrees.

Illumination

Illumination can be provided in several ways:

- Mirror - a plano-concave mirror situated on the base which collects light from a source, ie a lamp or natural light and adjusted to give the best illumination through the specimen.
- Bulb - a mains or low voltage lamp either tungsten or halogen (this is adjustable for brightness) which provides the illumination to the specimen.
- Fluorescent - a fluorescent type illumination, this gives an even white and cool light to the specimen.
- LED - offers long life illumination and produces no heat. Ideal for live specimens.

In some stereo microscopes both incident (top) and transmitted (bottom) light is available. The incident light will illuminate a solid object better.

Magnification

The factor by which the object is enlarged. Calculated by multiplying the magnification of the objective by the eyepiece.

Mechanical Stage

A mechanical stage replaces the stage clips and holds the slide in a sprung arm, the whole assembly is then moved via two controls, forward and back and side to side. This device is of most use when using a high magnification scanning a slide.

N.A. Numerical Aperture

This is a number that can be found on condensers and objective lenses - 0.25 on a x10 objective and 1.25 on a x100 objective. Generally the Abbe condenser N.A. number should be the same as or greater than that of the N.A. of the highest power objective lens on the microscope.

Nosepiece

The part of the microscope where all the objective lenses are screwed. The nosepiece rotates allowing different magnifications of objective lens to be used to view a specimen. The nosepiece of microscopes - depending on make - can hold 3 or more objectives.

Objective Lenses

The main objective lenses are x4, x10, x40 retractable and x100 (oil) retractable. The objective lens forms the primary image for further magnification by the eyepiece. Objective lenses will have certain markings on them, magnification, numerical aperture, tube length and working distance.

Objective Lens Types

Achromatic objectives are used in most instruments, however Semi-Plan (SP stamped on the objective), Economy-Plan (EP stamped on the objective and similar to SP) and Plan (PL stamped on the objective) lenses are available on certain models as an upgrade. The better the objective lens the more of the field of view is clearer.

Oil Immersion Objective

The x100 lens. The tip of the lens is lowered in a drop of special immersion oil placed on the slide; this helps to get more light into the lens. Oil immersion lenses should be used in conjunction with an Abbe condenser. Main use of this lens is viewing bacteria.

Parcentered

When the condenser, objectives and the eyepieces are aligned.

Parfocal

The ability of the microscope to stay in focus when the objectives are changed.

Retractable Objective

The end of the higher power objective lenses is sprung loaded and will retract a small amount, preventing damage to slides if the objective is lowered too far.

Slip Clutch

The slip clutch prevents the gears being damaged if you try to rack further than the normal stop position.

Stage

This is the part of the instrument that is flat, square and black and where the sample mounted on a slide would sit held in place by the stage clips.

Stage Clips

The clips that hold a slide in place on the stage. Stage clips can be replaced by a mechanical stage.





Microscopes



All SciChem and BMS microscopes in the catalogue come with a **five year warranty** against defects in materials or workmanship.

Microscope Servicing

SciChem's Microscope Servicing

The service includes:

- Cleaning of optics
- Full electrical check
- Adjustment of objective & stage if required
- Full repair service available including new parts

**Poor student experience?
Unsuccessful practicals?
Wasted resources?**

Our fully trained engineers will arrange your service at a time that is convenient for you. With your prior permission, they will carry out minor repairs.

Take advantage of our servicing plan and sign up for a service contract to enjoy the benefits of a scheduled annual service. Volume service discounts are available.



Common Problems

- Faults with illumination
- Focusing mechanism and/or mechanical stage difficult to move
- Scratched, cracked or dirty eyepiece and/or objective lens
- Damaged power cable
- Stage drift



BMS 3 AF Full Size Student Microscope

This full size microscope has both coarse and fine focussing for better image viewing for students. It combines ease of operation with mechanical strength and optical quality.



MIB 020 010



5 YEAR WARRANTY



MIB 030 630

| | |
|---------------------------|---|
| Eyepiece | WF10x/18 mm |
| Nosepiece | Triple |
| Objectives | DIN Achromatic 4x, 10x and 40x (spring loaded) |
| Focusing Mechanism | Coarse and fine focusing knobs with slip clutch |
| Stage | With 2 stage clips |
| Condenser | NA 0.65, Fixed with disc diaphragm |
| Illumination | Rotatable plano and concave mirror, 50mm diameter |
| Magnification | 40x, 100x and 400x |

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| MIB 020 010 | 3 AF Microscope | EACH | £67.72 |
| Accessories | Description | Quantity | Price |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |



BMS 037 LED Microscope

Two microscope types in one - incident and transmitted light microscope! This LED microscope is an ideal starter microscope. The microscope's stability is optimised by the robust stand and base construction. Because of its cleverly placed handle in the stand it will move effortlessly wherever you need it to be. The fixed condenser is provided with a six aperture disc diaphragm to adjust the amount of light coming through the specimen slide. This may be a basic starter microscope but its optics are far better than you might expect from its low price. It is very good value and will let you observe a hidden realm of detail and structure within everyday objects that is totally invisible to the unaided eye. Incident light only suited for 4x (40x) and 10x (100x) objective (total magnification).



MIB 510 010



MIB 030 630

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------|
| MIB 510 010 | 037 LED Microscope | EACH | £84.41 |
| Accessories | | | |
| | Description | Quantity | Price |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |



BMS 100 FL LED

The BMS 100FL is for many years the one stop solution for educational microscopy. We combine fantastic optics with an extremely strong microscope stand. All the parts are locked to the microscope. The microscope has anti-bacterial paint on the metal parts and anti-fungus coating on the optical (glass) parts. Has a LED indicator on the back to show if main power is switched on and if optional battery is charged.

The microscope offers standard 3 types of electrical use in one microscope:

1. 100~230V connection through the included power cable
2. Rechargeable batteries that charge automatically when connected to electrical power (3 x AA 1.5V available as an accessory)
3. Standard non-rechargeable batteries (AA 1.5V) DO NOT CONNECT TO MAINS POWER WHEN STANDARD BATTERIES ARE INSTALLED

- Lifespan LED: approx 50,000 hours
- Length x Width x Height: 175 x 133 x 358mm
- Including: dust cover, tension wrench and manual
- Warranty: 5 years
- Weight: 2,9kg



*DPDT (double pole, double throw) when switched off, the power is completely shut off.



MIB 333 010



MIB 030 630



MIB 030 650

| | |
|---------------------------------|--|
| Optical System | finite optical system, 160mm |
| Eyepiece | WF10x/18mm with pointer, locked |
| Head | monocular, 360° rotatable |
| Tube | 45° inclined |
| Anti-bacterial paint | yes |
| Anti-fungus optics | yes |
| Nosepiece | triple revolving nosepiece with click stops |
| Objectives | DIN achromatic 4x/0.10, 10x/0.25 and 40x/0.65 (spring loaded) |
| Focusing mechanism | coarse with slip clutch and fine focussing knobs with slide protection |
| Fine focus precision | 2µm minimum increment |
| Stage | 110 x 120mm metal plan stage with 2 stage clips and one finger touch lift |
| Stage limit stop | preset and adjustable |
| Condenser | fixed, N.A. 0.65 with built-in iris diaphragm and filter holder |
| Illumination | new generation High Power LED. Light intensity stepless adjustable through rotary potentiometer. |
| Magnification | 40x, 100x and 400x. Optional extendable up to 900x |
| Power | 100~230V/50Hz |
| Double electrical safety | full separation from the main power through DPDT* switch. |
| Multi power use | yes (main power cable, rechargeable batteries, non rechargeable batteries) |
| Cordless use | 3 hours charging time and 10 hours cordless working time (with optional rechargeable batteries) |

| Cat No. | Description | Quantity | Price |
|-------------|--|----------|---------|
| MIB 333 010 | BMS 100 FL LED | EACH | £120.49 |
| Accessories | Description | Quantity | Price |
| MIB 030 540 | Objective 4x | EACH | £20.59 |
| MIB 030 550 | Objective 10x | EACH | £30.77 |
| MIB 030 570 | Objective 40x Springloaded | EACH | £47.61 |
| MIB 030 590 | Objective 100x Springloaded, Oil Immersion | EACH | £77.54 |
| MIB 030 620 | Eyepiece Widefield 10x with Pointer | EACH | £28.82 |
| MIB 030 640 | Eyepiece Widefield 15x | EACH | £24.23 |
| MIB 030 650 | Immersion Oil 5ml | 5ML | £4.99 |
| MIB 030 690 | Grub Screw | EACH | £0.24 |
| MIB 030 630 | Eyepiece Graticule WF10x/18mm | EACH | £41.19 |
| MIB 180 010 | Pack of 3 Rechargeable Batteries | EACH | £6.49 |



BMS 100 FL LED Digital Head

These versions of the popular 100FL series offer all the features of the triple nosepiece models but with a built in digital camera. This would make the ideal teacher demonstration model to use alongside a class set of the 100F microscopes for your pupils.

DATA LOGGING

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| | |
|-------------------------------|--|
| Camera | Camera 3 megapixel |
| Resolution | 1/2" CMOS with DSP/MTF |
| Frame Rate | 2048x1536 pixels (horizontal/vertical) |
| Pixels | 11fps at 2048x1536 pixels |
| Communication Protocol | 3.1MP |
| Sensitivity | USB v2.0 |
| Dynamic Range | 1.0 lux |
| Operating System | >62 dB |
| PASCO Spark Compatible | Windows 7, W8, W10, Mac OS, Linux |
| | No |

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|---------|
| MIB 030 140 | 100FL Digital Head 3MP | EACH | £324.44 |



SciChem Student Microscopes

The Student Microscopes offer quality and value for schools and colleges. They are a sturdy design and offer student-proof features such as a slip clutch to prevent gear damage and slide protection to stop over focussing and contact between the slide and the objective. Available as new generation LED or tungsten illumination they will suit every requirement. LED version features a rechargeable battery system and charger.

5 YEAR WARRANTY



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| MIS 100 020 | Tungsten Student Microscope | EACH | £92.32 |
| Accessories | | Quantity | Price |
| MIB 030 500 | Tungsten Bulb 20W-220/230V | EACH | £5.31 |

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1001RMS Microscope

Designed for secondary schools in association with the Outreach and Education Committee of the Royal Microscopical Society.



Daphnia Bright Field



Daphnia Dark Field



Mica Bright Field



Mica Polarisation

Imaging modes:

1. Standard Bright Field
2. Dark Field - for the detection of fine detail in unstained specimens.
3. Polarised Light - for the detection of structural features in biological or mineral specimens.

| | |
|---------------------------|--|
| 1001RMS Microscope | |
| Eyepiece | Wide field 10x/18mm with pointer, locked |
| Head | 360° rotatable |
| | Incorporating an Analyser in/out slider for polarised light microscopy |
| Tube | 45° inclined, fully rotatable, allowing microscope to be used with stage towards or away from the user |
| Nosepiece | Quadruple for 4x, 10x, 20x objectives, and an optional objective |
| Objectives | DIN Achromatic Semi Plan 4x, 10x and 20x (spring loaded), with option for 40x, 60x and/or 100x |
| Focusing Mechanism | Coarse and fine focusing knobs with slip clutch |
| Stage | With 2 stage clips |
| Condenser | NA 0.65, Fixed, covering full field of 4x objective, and the full aperture of the 20x objective |
| Rotatable Disc | With three Bright-field apertures, one Dark-field stop and one polarising filter (Polariser) |
| Illumination | LED with adjustable brightness, powered by rechargeable battery |
| Magnification | 40x – 200x in standard form |
| Includes | Mains-powered battery charger Dust Cover, Tension Wrench, Manual |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|----------------|
| MIB 070 700 | 1001RMS Microscope | EACH | £199.00 |
| Accessories | | Quantity | Price |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |
| MIB 180 010 | Pack of 3 Rechargeable Batteries | | £6.49 |





BMS 145 Microscope

The BMS 145 is the starter model of the Advanced Plus range. It has the fine shape of the 146 with the reversed nosepiece. The main difference between the 145 and the 146 is the dual segregated coarse and fine focus controls of the table. All the parts are locked to the microscope. The microscope has anti-bacterial paint on the metal parts and anti-fungus coating on the optical (glass) parts. The microscope offers standard 3 types of electrical use in one microscope:

1. 100~230V connection through the included power cable
2. Rechargeable batteries that charge automatically when connected to electrical power (3 x AA 1.5V available as an accessory)
3. Standard non-rechargeable batteries (AA 1.5V) DO NOT CONNECT TO MAINS POWER WHEN STANDARD BATTERIES ARE INSTALLED



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|----------------|
| MIB 100 060 | BMS 145 LED Microscope | EACH | £142.50 |
| Accessories | Description | Quantity | Price |
| MIB 180 010 | Pack of 3 Rechargeable Batteries | EACH | £6.49 |



BMS 146 Series Compound Microscopes

The stable and sturdy student microscopes of this series have proven their value and quality at schools hundreds of times. They fulfil all of today's demands that one might expect from a student proof microscope, but they are not equipped with expensive and unnecessary extras.

Corded LED Microscopes

The new generation LED is easy on the eye. The variable intensity can be compared to a 30W halogen light source. The spectrum of the LED is equal to that of natural daylight. LED only uses a low voltage, so offers a safer option for students.

Digital Microscopes

These versions of the popular 100FL series offer all the features of the triple nosepiece models but with a built in digital camera. This would make the ideal teacher demonstration model to use alongside a class set of the 100F microscopes for your pupils.

NB: MIB 030 099 is compatible with the USB1.0 driver-less port of the PASCO Spark Science Learning System

Power and Charging Options

Has a LED indicator on the back to show if main power is switched on and if optional battery is charged.

The microscope offers standard 3 types of electrical use in one microscope:

1. 100~230V connection through the included power cable
2. Rechargeable batteries that charge automatically when connected to electrical power (3 x AA 1.5V available as an accessory)
3. Standard non-rechargeable batteries (AA 1.5V) DO NOT CONNECT TO MAINS POWER WHEN STANDARD BATTERIES ARE INSTALLED

- Lifespan LED: approx 50,000 hours
- Length x Width x Height: 175 x 133 x 358mm
- Including: dust cover, tension wrench and manual
- Warranty: 5 years
- Weight: 2,9kg

*DPDT (double pole, double throw) when switched off, the power is completely shut off.



MIB 070 021



MIB 070 031



MIB 070 041





MIB 570 520



MIB 070 520

| | | MIB070011 | MIB070021 | MIB070031 | MIB070041 |
|----------------------|---|-----------|-----------|-----------|-----------|
| Eyepiece | Wide field 10x/18mm with pointer, locked | • | • | - | - |
| | 2 Wide field 10x/18mm, one with pointer | - | - | • | • |
| Tube | IPD adjustable | - | - | • | • |
| | 45° inclined | • | • | - | • |
| | Siedentopf with dioptre adjustment on one tube | - | - | • | • |
| Head | Third tube for photo- and videorecording | - | - | - | • |
| | 360° rotatable | • | • | • | • |
| | Monocular | • | • | - | - |
| | Binocular | - | - | • | - |
| Nosepiece | Trinocular | - | - | - | • |
| | Quadruple | • | • | • | • |
| Objectives | DIN Achromatic 4x, 10x and 40x (spring loaded) | • | • | • | • |
| | Dual coaxial coarse, fine focus controls and slide protection | • | • | • | • |
| Focusing | | | | | |
| Mechanism | | | | | |
| | Stage | | | | |
| Condenser | With 2 stage clips | • | - | - | - |
| | Built-in mechanical stage with coaxial controls | - | • | • | • |
| | NA 1.25 Abbe condenser, Height Adjustable - Spiral | • | - | - | - |
| | Mounted | | | | |
| | NA 1.25 Abbe condenser, Height Adjustable - Rack & Pinion | - | • | • | • |
| | Built-in Iris Diaphragm | • | • | • | • |
| | LED | • | • | • | • |
| Illumination | | | | | |
| Magnification | 40x, 100x and 400x, optional expandable 1500x maximum | • | • | • | • |
| | 90 - 240V | • | • | • | • |
| Operating | | | | | |
| Voltage | | | | | |
| Includes | Detachable power cord, Dust Cover, Manual | • | • | • | • |

Camera Specifications

| | Camera 1.3 megapixel | Camera 3 megapixel |
|-------------------------------|--|--|
| Camera | 1/3" CMOS with DSP | 1/2" CMOS with DSP/MTF |
| Resolution | 1280x1024 pixels (horizontal/vertical) | 2048x1536 pixels (horizontal/vertical) |
| Frame Rate | 15fps at 1280x1024 pixels; 30fps at 640x480 pixels | 11fps at 2048x1536 pixels |
| Pixels | 1.3MP | 3.1MP |
| Communication Protocol | USB 2.0 | USB v2.0 |
| Sensitivity | 1.0 Lux | 1.0 lux |
| Dynamic Range | 71 dB | >62 dB |
| Operating System | Windows 7, W8, W10, Mac OS, Linux | Windows 7, W8, W10, Mac OS, Linux |

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|---------|
| MIB 070 011 | BMS 146 FLAs Q LED | EACH | £150.00 |
| MIB 070 021 | BMS 146 FLArQ LED Monocular | EACH | £177.99 |
| MIB 070 031 | BMS 146 FLArQ LED Binocular | EACH | £256.99 |
| MIB 070 041 | BMS 146 FLArQ LED Trinocular | EACH | £266.29 |
| Accessories | Description | Quantity | Price |
| MIB 070 520 | Teaching Head, 45° & 90 | EACH | £52.80 |
| MIB 070 570 | Eyepiece P 15x | EACH | £23.49 |
| MIB 570 510 | DIN Achromatic Semi Plan Objective 60x | EACH | £26.00 |
| MIB 570 520 | DIN Achromatic Semi Plan Objective 100x | EACH | £26.00 |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |
| MIB 570 520 | DIN Achromatic Semi Plan Objective 100x | EACH | £26.00 |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |



BMS EduLed Series

The EduLed microscopes are high quality, robust and well equipped microscopes ideal for school, study and hobby purposes. The microscope's stability is optimised by the robust stand and base construction. The stand is provided with a window and an integrated battery holder. Rechargeable batteries enable the EduLed to function as a portable field microscope. Eyepieces have built-in eye cups and are suitable for glasses wearers. 0.5W LED illumination with dimmer is comparable to 20W Halogen.

FLQ Monocular & Fixed Condenser

The transmitted light illumination of EduLed FLQ is performed by an LED with dimmer (for continuous variation of light intensity) and a fixed condenser with iris diaphragm. The EduLed microscope is equipped with three DIN achromatic Semi Plan objectives (4x, 10x and 40x). With the 10x wide field eyepiece you get a total magnification range of 40x - 400x. The optics provide sharp, clear and true-colour images with high contrast.

EduLed FLAsQ Monocular & Abbe Condenser

Added benefits of a height-adjustable spiral condenser with iris diaphragm. This allows the instrument to have not only the usual 4x, 10x and 40x objective but also a 100x oil immersion objective (not included).

EduLed FLArQ Monocular - Abbe Condenser & Mechanical Stage

Added benefits as the FLAsQ plus built-in mechanical stage with ergonomically arranged coaxial controls. Also available with a binocular or trinocular head.

Darkfield Ring

Darkfield ring for mounting in the condenser of BMS EduLed microscopes.



Power and Charging Options

Has a LED indicator on the back to show if main power is switched on and if optional battery is charged.

The microscope offers standard 3 types of electrical use in one microscope:

- 100~230V connection through the included power cable
- Rechargeable batteries that charge automatically when connected to electrical power (3 x AA 1.5V available as an accessory)
- Standard non-rechargeable batteries (AA 1.5V) **DO NOT CONNECT TO MAINS POWER WHEN STANDARD BATTERIES ARE INSTALLED**

*DPDT (double pole, double throw) when switched off, the power is completely shut off.

| | | MIB570011 | MIB570031 | MIB570041 | MIB570051 |
|-----------------------------|--|-----------|-----------|-----------|-----------|
| Eyepiece | Wide field 10x/18mm with pointer, locked | ● | ● | - | - |
| | 2 Wide field 10x/18mm, one with pointer | - | - | ● | ● |
| Tube | IPD adjustable | - | - | ● | ● |
| | 45° inclined | ● | ● | - | - |
| | Siedentopf with dioptre adjustment on one tube | - | - | ● | ● |
| Head | Third tube for photo- and videorecording | - | - | - | ● |
| | 360° rotatable with ball bearing movement | ● | ● | ● | ● |
| | Monocular | ● | ● | - | - |
| | Binocular | - | - | ● | - |
| Nosepiece Objectives | Trinocular | - | - | - | ● |
| | Quadruple | ● | ● | ● | ● |
| Objectives | DIN Achromatic Semi Plan 4x, 10x and 40x (spring loaded). | ● | ● | ● | ● |
| | You can opt for 60x and/or 100x | | | | |
| Focusing Mechanism | Dual coaxial coarse and fine focus controls | ● | ● | ● | ● |
| Stage | With 2 stage clips | ● | - | - | - |
| | Built-in mechanical stage with coaxial controls | - | ● | ● | ● |
| Condenser | NA 0.65, Fixed | ● | - | - | - |
| | NA 1.25 Abbe condenser, Height Adjustable - Spiral Mounted | - | - | - | - |
| | NA 1.25 Abbe condenser, Height Adjustable - Rack & Pinion | - | ● | ● | ● |
| | Built-in Iris Diaphragm | ● | ● | ● | ● |
| Illumination | LED (high power) | ● | ● | ● | ● |
| Magnification | 40x, 100x and 400x, optional expandable 1500x maximum | ● | ● | ● | ● |
| Includes | Dust cover, manual, 3x AA rechargeable batteries 1300mA, battery charger with LED indication light | ● | ● | ● | ● |

| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|----------------|
| MIB 570 011 | BMS EduLed FLQ | EACH | £160.99 |
| MIB 570 031 | BMS EduLed FLArQ Monocular | EACH | £239.00 |
| MIB 570 041 | BMS EduLed FLArQ Binocular | EACH | £308.99 |
| Accessories | Description | Quantity | Price |
| MIB 030 630 | Eyepiece Widefield 10x | EACH | £41.19 |
| MIB 570 510 | DIN Achromatic Semi Plan Objective 60x | EACH | £26.00 |
| MIB 570 520 | DIN Achromatic Semi Plan Objective 100x | EACH | £26.00 |
| MIB 180 010 | Pack of 3 Rechargeable Batteries | EACH | £6.49 |



Microscope Servicing

SciChem's Microscope Servicing

The service includes:

- Cleaning of optics
- Full electrical check
- Adjustment of objective & stage if required
- Full repair service available including new parts

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 01902 402402

 customerservices@scichem.com



Common Problems

- Faults with illumination
- Focusing mechanism and/or mechanical stage difficult to move
- Scratched, cracked or dirty eyepiece and/or objective lens
- Damaged power cable
- Stage drift

Poor student experience? Unsuccessful practicals? Wasted resources?

Our fully trained engineers will arrange your service at a time that is convenient for you. With your prior permission, they will carry out minor repairs.

Take advantage of our servicing plan and sign up for a service contract to enjoy the benefits of a scheduled annual service. Volume service discounts are available.

***UK Mainland only**

BMS D1 Advanced Microscopes

The BMS D1 series of microscopes are the ideal range for use from KS3 to KS5 and beyond. They all feature coaxial focusing, a built-in mechanical stage, foldable eye guard, anti-fungus coating on all optical parts and adjustable LED illumination. BMS D1 microscopes are equipped with a large stage and an integrated movable specimen holder. The large working surface, 140 x 150 mm, easily allows two slides at once. The integrated X-Y specimen holder is simple to operate thanks to the ergonomically placed coaxial controls.

Fine adjustment is supplied with a scale division. Each division equals 0.0015mm (0.30mm/rotation). The Abbe condenser with iris diaphragm comes complete with a slot for inserting various accessories such as dark field or phase contrast sliders. The condenser can be adjusted in height using the rack and pinion system. The new generation LED is easy on the eye and the variable intensity can be compared with a 30W halogen light source. They are available with Achromatic, ePlan or Plan objectives, with the choice of monocular, binocular or trinocular heads. 20x and 60x are also available.

NB: D1 digital microscopes are available either with 600x or 1000x magnification. These microscopes are all 1000x magnification. Please contact Customer Services if you are interested in the 600x versions; they are the same price as the 1000x magnification microscopes.

Achromatic Objectives

These objectives are made of lenses which are corrected for chromatic aberration. These objectives will produce an exact image, with natural colours and contrast.

Plan Objectives

These objectives are of a high quality. They are corrected for both chromatic and spherical aberrations. These images do not display any defects at all - they are very crisp and clear, with true colours, completely flat and in focus. A camera connected to a plan achromatic microscope will produce a flat and completely in focus image on a screen.

Digital Microscope

This binocular microscope has a built-in digital camera module, high resolution objectives and two wide field (WF) eyepieces with plan optics.

NB: D1 Digital Microscopes are compatible with both Mac and PC operating systems.



MIB 400 160

Camera Specification

| | |
|-------------------------------------|---------------------------------------|
| Camera | Integrated in head |
| CCD Sensor | 1/4" Colour CMOS sensor with DSP |
| Resolution | 1640 (h) x 1280 (v) |
| Frame Rate | 15 frames/sec @ 1280 x 960 |
| Pixels | 2.1MP |
| Communication Protocol | USB v2.0 |
| Sensitivity | 1.0 Lux |
| Dynamic Range | >62 dB |
| Scanning System | Progressive scan |
| Electronic Control | Exposure, white balance and gain |
| Iris Diaphragm | Automatic |
| Operating System Requirement | Windows™ XP (SP2/3), Vista or 7 |
| Includes | USB-cable, software CD (BMS PhotoLib) |

| | |
|-------------------------------------|--|
| Eyepiece | WFP 10x / 18mm WFP 10x / 20mm |
| Tube | 45° inclined, 160 mm tube length Extra 90° tube for photo and/or video use |
| Head | 360° rotation Monocular Binocular Siedentopf Trinocular Binocular, Siedentopf type with built-in digital camera |
| Nosepiece | Quintuple |
| Objectives | DIN Achromatic High Resolution DIN ePlan High Resolution DIN Plan High Resolution 4x (N.A. 0.10), 10x (N.A. 0.25), 40x (N.A. 0.65), 100x (N.A. 1.25) oil immersion ¹ |
| Focusing Mechanism | Coaxial coarse and fine adjustment on both sides |
| Stage | Built-in mechanical stage, 140 x 150 mm |
| Condenser | 1.25 NA Abbe condenser ² |
| Illumination | LED |
| Magnification | 40x, 100x, 400x and 1000x. Optional to be extended to 1500x |
| Includes | Detachable power cord, Dust Cover, Manual |
| Electronic Control | Exposure, white balance and gain |
| Iris Diaphragm | Automatic |
| Operating System Requirement | Windows™ XP (SP2/3), Vista or 7 |
| Includes | USB-cable, software CD (BMS PhotoLib) |



Camera Specification

| | |
|------------------------------|---------------------------------------|
| Camera | Integrated in head |
| CCD Sensor | 1/4" Colour CMOS sensor with DSP |
| Resolution | 1640 (h) x 1280 (v) |
| Frame Rate | 15 frames/sec @ 1280 x 960 |
| Pixels | 2.1MP |
| Communication Protocol | USB v2.0 |
| Sensitivity | 1.0 Lux |
| Dynamic Range | >62 dB |
| Scanning System | Progressive scan |
| Electronic Control | Exposure, white balance and gain |
| Iris Diaphragm | Automatic |
| Operating System Requirement | Windows™ XP (SP2/3), Vista or 7 |
| Includes | USB-cable, software CD (BMS PhotoLib) |

| MIB400060 | MIB400070 | MIB400050 | MIB400040 | MIB400160 |
|-----------|-----------|-----------|-----------|-----------|
| • | • | - | - | • |
| - | - | • | • | • |
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| - | - | - | • | • |
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| • | • | - | • | • |
| - | - | - | - | • |
| • | • | - | - | 2MP |
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| - | - | - | - | • |
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MIB 400 060



MIB 400 070



MIB 400 040

| Cat No. | Description | Quantity | Price |
|--|-------------------------------|----------|---------|
| MIB 400 060 | Monocular Achromatic | EACH | £302.84 |
| MIB 400 070 | Binocular Achromatic | EACH | £386.75 |
| MIB 400 050 | Monocular Plan | EACH | £473.84 |
| MIB 400 040 | Trinocular Plan | EACH | £624.89 |
| Accessories | Description | Quantity | Price |
| Spares & Accessories for Achromatic | | | |
| MIA 190 020 | Eyepiece Graticule WF10x/18mm | EACH | £91.19 |



BMS130 & BMS133 Stereo Microscopes

The BMS 130-133 range is a line of stereo microscopes. Ergonomic comfort was key to the development of this range. These are complete stereo microscopes offered at a very affordable price. The new generation LED will last for approximately 50,000 hours and is easy on the eye, for user comfort particularly when being used for long periods. The flat base, with a large working area gives stability and houses the bottom illumination. Top and bottom illumination is independently adjustable and can also be used in combination. The optics are anti fungus treated and deliver a crystal clear image. All microscopes in this range also feature dioptre compensation. The focussing mechanism is easily adjustable.

5 YEAR WARRANTY



MIB 700 020



MIB 700 030

| | | MIB700020 | MIB700030 |
|--------------------------------|--|-----------|-----------|
| Eyepieces | 2 WF10x/22mm with high eyepoint eyepieces | • | • |
| Tube | 45° inclined, with dioptic compensation on one tube | • | • |
| | Third tube for photo and video recording | - | • |
| Interpupillary Distance | 50mm to 76mm adjustable | • | • |
| Head | 360° rotatable | • | • |
| Objectives | 2x and 4x through rotatable turret | - | - |
| Zoom Objective | Stepless adjustable 0.7x to 4.5x | • | • |
| Magnification | 20x and 40x | - | - |
| | 7x to 45x | • | • |
| Working Distance | 100mm | - | - |
| | 108mm | • | • |
| Focusing | Coarse focusing knobs on both sides with tension control | • | • |
| | Height adjustment by rack and pinion | • | • |
| Illumination | Incident and/or transmitted adjustable LED illumination | • | • |
| | Top LED is comparable with 20W halogen and bottom LED with 20W halogen | - | - |
| | Top LED is comparable with 20W halogen and bottom LED with 15W halogen | • | • |
| Life Span LED | Approx. 50,000 hours | • | • |
| Power Supply | 220V-230V | • | • |
| | Detachable power cord | • | • |
| Includes | Dust cover and eyecaps, frosted glass disc and manual | • | • |

| Cat No. | Description | Quantity | Price |
|-------------|--|----------|---------|
| MIB 700 020 | BMS 133 LED Stereo Microscope | EACH | £294.00 |
| MIB 700 030 | BMS 133 Trinocular LED Stereo Microscope | EACH | £329.00 |



BMS S-05 Stereo Microscope

| | |
|-------------------------|-----------------------------------|
| Stand | pole stand |
| Eyepieces | two WF10x/20mm |
| Tube | 45° inclined |
| Interpupillary distance | 50mm to 76mm adjustable |
| Objective | objective 2x |
| Head | adjustable in height |
| Focussing | coarse focussing knobs |
| Illumination | incident illumination LED |
| Magnification | 20x |
| Visual range | 10mm |
| Working distance | 80mm |
| Connection | 2 x AA battery, included |
| Including | dust cover and Ø 50mm white plate |

5 YEAR WARRANTY



| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| MIB 520 011 | S-05 Stereomicroscope | EACH | £51.49 |

BMS ST-40 Stereo Microscope with 3Mp Digital Camera

This stereo microscope has 45° inclined tubes which are an advantage for users working for long periods of time as they become less tired. It has a 360° rotatable head, making it ideal for pupils working together or for teacher demonstrations. The focusing is via coarse focusing knobs with a slip clutch to prevent damage. The total magnification is 20x and 40x. This stereo microscope also features LED illumination and an integrated 3.0 megapixel camera.

| | |
|-------------------------|---|
| Stand | Stand with fixed arm |
| Eyepieces | 2 WF10x/20mm, locked |
| Tube | 45° inclined, one tube with adjustable dioptre |
| Interpupillary Distance | 50mm to 76mm adjustable |
| Objectives | 2x and 4x through rotatable turret |
| Head | 360° rotation Built-in 1.3MP camera |
| Focusing Mechanism | Coarse focusing knobs with slip clutch |
| Illumination | Incident and/or transmitted light, high power LED |
| Magnification | 20x and 40x |
| Visual Range | 10mm (2x) and 5mm (4x) |
| Working Distance | 48mm |
| Connection | 230V |
| Batteries | Integrated in base |
| Includes | Base with Ø 95mm frosted glass and black/white plate with 2 stage clips Detachable power cord, dust cover, tension wrench and eye caps |
| Camera Specification | |
| Built-in Camera | DSP, 3.0 megapixel |
| Resolution | 2048 x 1536 pixels (horizontal/vertical) |
| Pixels | 3.0MP |
| Digital Output | USB 2.0, cable 1.5m |
| Software | BMS Photolib |
| System Requirements | Windows 7, W8, W10, Mac OS & Linux |

5 YEAR WARRANTY



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|---------|
| MIB 250 010 | ST-40 with 3Mp Digital Camera | EACH | £310.73 |



BMS Eyepiece & C-Mount Camera

The BMS Eyepiece & C-mount Camera is a digital USB camera with an integrated WF 10x eyepiece, especially designed for use in combination with microscopes or stereo microscopes.



| | | MIB240020 | MIB240030 | MIB240040 | MIB240062 |
|--------------------------|--|-----------|-----------|-----------|-----------|
| Camera | 1/3" CMOS with DSP | ● | - | - | - |
| | 1/2" CMOS with DSP/MTF | - | ● | - | - |
| Resolution | 1/2.2" CMOS with DSP/MTF | - | - | ● | - |
| | 1/2.3" CMOS with DSP/MTF | - | - | - | ● |
| | 1280x1024 pixels (horizontal/vertical) | ● | - | - | - |
| | 2048x1536 pixels (horizontal/vertical) | - | ● | - | - |
| Frame Rate | 2592x1944 pixels | - | - | ● | - |
| | 3548x2478 pixels | - | - | - | ● |
| | 15fps at 1280x1024 pixels; 30fps at 640x480 pixels | ● | - | - | - |
| Pixels | 11fps at 2048x1536 pixels | - | ● | - | - |
| | 8 fps at 2592x1944 | - | - | ● | - |
| | 1.9 fps at 3584x2748; 27 at 896 x 684 | - | - | - | ● |
| Digital Port | USB 2.0, cable approx. 190cm | ● | ● | ● | ● |
| Operating Systems | Windows XP, Vista & 7. Also compatible with Mac OS | ● | ● | ● | ● |
| Includes | Windows 8 | ● | - | - | ● |
| | 0.4x compensation optics, calibration slide, BMS software, two metal adapters for stereomicroscopes 30.0mm and 30.5mm diameter | ● | ● | ● | ● |

| Cat No. | Pixels | Image Sensor | Quantity | Price |
|--------------------|-----------------|--------------|----------|----------------|
| MIB 240 020 | 1.3 Megapixels | CMOS | EACH | £134.94 |
| MIB 240 040 | 5.0 Megapixels | CMOS | EACH | £314.97 |
| MIB 240 062 | 10.0 Megapixels | CMOS | EACH | £308.00 |

BMS 5MP WiFi Camera Kit

The WiFi Camera is made from tough, zinc alloy, ensuring a heavy duty solution that is ideal for schools. The camera is designed with a high quality IR-CUT to protect the camera sensor. There aren't any moving parts resulting in a rugged, robust solution with an increased lifespan when compared with other camera solutions.



| | |
|----------------------------|--|
| Sensor Type | CMOS |
| Pixels | 5.0 Megapixels |
| Connection | WiFi, USB |
| Camera body | 68 x 68 x 45 mm with C/Cs mount connection |
| fps/resolution 1 | 10@ 1280x720 |
| Compensation optics | 0.5x |
| Operating System | Windows XP, Vista, W7, W8 (32 & 65 bit), Mac OS, Linux |
| Includes | Calibration slide, 1.8m USB Cable, Installation CD with Software |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| MIB 600 020 | BMS WiFi Camera Kit | EACH | £188.17 |



BMS Universal DigiTube Adaptor

Finally a solution to connect almost any digital photo camera to a microscope, stereo microscope or field scope. Just mount the camera on the camera platform and slide the eyepiece into the adaptor. A fine tuning system allows the platform to be moved into the X and Y direction to position the camera in line with the eyepiece. **NB:** Not suitable for C-Mount cameras.

Smartphone Holder for DigiTube Adaptor Upgrade your Universal DigiTube Adapter with this phone holder and take pictures straight away with your mobile phone camera.

Suitable Eyepiece Size 28 - 45mm (Ø)
Platform Load max. 2.0kg



NB: Microscope and computer not included.

| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|---------------|
| MIA 130 010 | Universal DigiTube Adaptor | EACH | £42.56 |
| Accessories | | Quantity | Price |
| MIA 130 500 | Smartphone Holder for DigiTube Adaptor | EACH | £18.24 |

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Deluxe Handheld Digital Microscope

An easy to use, low-power microscope offered at an affordable price. With magnification from 10x to 40x, this Handheld Digital Microscope is perfect for viewing stamps, coins, bugs, plants, rocks, skin, gems, circuit boards, and more. At the higher powers, you can even view specimens on microscope slides. Best of all, you can capture your discoveries using the built-in 2.0 MP camera. Press the shutter to save images and VGA-quality video directly to your PC. The LED illuminator ensures your specimens are clear and bright. A metal stand allows for steady shots and comes in handy when viewing at higher powers, minimising shaking and keeping your specimen in sharp focus. Use the included Windows software to capture images and video of your discoveries. Measure your specimens with built-in measurement tool. Computer requirements: CD/DVD drive and USB 2.0 port. UVC plug-and-play with Windows 7, Vista, and XP. Also compatible with Mac OSX 10.4.9 and above (without measurement feature).



| | |
|-------------------------------|---|
| | MIH 020 020 |
| Imaging Sensor | 2 MP CMOS (1600 x 1200 pixel array) |
| Magnification | 10 to 40x & 150x using a 19" Monitor |
| Software Compatibility | Windows XP or better, Mac 10.4.9 or better (using Photo Booth or iChat) |
| USB Connection | 2.0 (for power from a computer) |
| Illumination | 6 LED ring |
| Weight | 113g |
| Dimensions | 108mm x 32mm dia |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------------|----------|---------------|
| MIH 020 020 | Deluxe Handheld Digital Microscope | EACH | £62.90 |

Handheld Digital Microscope Pro

The Celestron Handheld Digital Microscope Pro is an easy to use, low-power microscope with a 5.0 MP sensor for capturing photos and video of your discoveries. At low magnification, the Handheld Digital Microscope Pro is ideal for viewing stamps, coins, bugs, plants, rocks, skin, gems, circuit boards, and more. You can even view traditional slides at high magnification. Create high-resolution images, VGA quality video, and time-lapse animations using the included Micro Capture Pro software. You can also take accurate measurements and make notes on your specimens using this intuitive software. An adjustable LED illuminator ensures your specimens are clear and bright, while the fully adjustable, professional stand allows for steady shots even at high magnification.

Features:

- True 5MP sensor to capture and save high-resolution images and videos of your specimens
- 5-Element IR cut high-quality glass lens ensures sharper images
- 20x to 200x powers, great for low-power observation of 3D specimens (Note: Final magnification determined by monitor size)
- Windows and Mac compatible

Included Accessories:

- High-quality adjustable height stand
- Celestron Micro Capture Pro Software CD with measuring feature
- Calibration ruler



| | |
|-----------------------------------|--|
| Imaging Sensor | 5 MP CMOS, 1600 x 1200 pixel array |
| Software Compatibility | Windows XP or better, Mac 10.6 or better |
| Software Features | Micro Capture Pro |
| USB Connection | 2 |
| Magnification (low power) | 20 x |
| Magnification (high power) | 200 x |
| Included Accessories | Adjustable height stand |
| Illumination | Adjustable 8 LED ring |
| Fine Focus | Yes |
| Coarse Focuser | Yes |
| Weight | 907g |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| MIH 030 010 | Handheld Digital Microscope Pro | EACH | £99.35 |



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HoverCam Solo 8

The HoverCam Solo 8 Plus possibly the World's best Visualiser. It is a stunning Ultra HD A3 document camera. It offers incredible 13MP clarity, crystal clear, lag-free imagery, and the ability to record snapshots and video, including slow motion and time-lapse video footage. The HoverCam Solo 8 Plus connects to your computer through USB 3.0 (USB 3.0 cable is included) and it runs through HoverCam's Flex software. This gives you the ability to capture images and video, adjust resolution, annotate, and control the camera from your interactive whiteboard. Compact and Versatile The camera has a very small footprint on your desk, and is very versatile, able to be positioned exactly where you want it to, using the 5 pivot points on the camera. It can even be positioned to look down a microscope (Adaptors available to purchase separately). It connects to your computer via USB 3.0, and does not need a separate mains cable, meaning it is very portable.



| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|---------|
| AUD 110 011 | HoverCam Solo 8 PLUS | EACH | £504.00 |



Microscopes

Accessories

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

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GENERAL LABWARE

SAFETY



Microscope and Power Supply Trolley

This Gratnells storage trolley makes the ideal storage solution for your microscopes and power supplies. With a fully adjustable shelf you can store at least 12 microscopes plus all of their leads and accessories neatly and safely in one place. Also great for transporting equipment around the science department.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|----------------|
| TLY 170 010 | Microscope and Power Supply Trolley | EACH | £243.57 |



Microscope Maintenance Toolbox Kit

Contents:

- Screwdriver - Philips head, 1
- Screwdriver - Philips head, 2
- Offset screwdriver, 1 + 2
- Precision screwdriver - Philips head, 2.4mm
- Precision screwdriver - Philips head, 3mm
- Precision screwdriver, 1.2mm
- Precision screwdriver, 2mm
- Allen key, 1.5mm
- Allen key, 2mm
- Allen key, 3mm
- Crescent shaped wrench for friction of coarse focussing
- Tube of grease to lubricate moving parts
- Alcohol to clean lenses
- Lens paper

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| MIB 070 551 | Microscope Maintenance Kit | EACH | £17.30 |



MIB 800 010



MIB 800 020

Microscope Dust Covers

| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|--------------|
| MIB 800 010 | For BMS 100FL, 146 and 136 Microscopes | EACH | £2.74 |
| MIB 800 020 | For BMS D1 Microscopes | EACH | £6.67 |



Eyepiece Graticules

To calibrate an eyepiece it is very helpful to have a mechanical stage. During the calibration procedure, one should line the scales. The eyepiece graticule has to be lined exactly with the scales of the stage micrometer. This asks for a precise handling of the stage micrometer. The help of a mechanical stage is almost essential.



| Cat No. | Description | Scale | Diameter | To Fit | Quantity | Price |
|--------------------|---|---------------------------------|----------|---|----------|---------------|
| MIB 030 630 | Eyepiece Graticule WF10x/18mm | 10mm in 0.01mm increments | 23.2mm | SciChem School Microscope, SciChem Student Microscopes, SciChem LED Microscopes, BMS 3AF, BMS 037, BMS 100FL, BMS 146, BMS EduLed Mon- ocular, Labomed CxL Monocular | EACH | £41.19 |
| MIA 190 010 | Eyepiece Graticule WF10x/18mm | 10mm in 0.01mm increments | 23.2mm | BMS EduLed | EACH | £37.51 |
| MIA 190 020 | Eyepiece Graticule WF10x/18mm with foldable eye guard | 10mm in 0.01mm increments | 23.2mm | BMS D1 Achromatic and E-Plan | EACH | £91.19 |
| Accessories | Description | Scale | | | Quantity | Price |
| MIA 180 010 | Stage Micrometer | 1mm in 0.01mm increments | | | EACH | £27.23 |
| MIB 030 530 | Mechanical Stage (Movable Specimen Holder) | | | | EACH | £36.17 |



Microscope Eyepiece Graticule

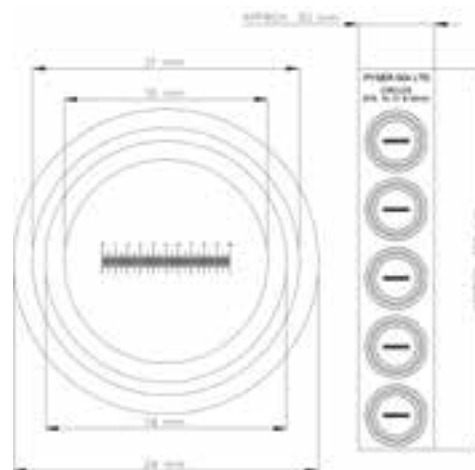
Eyepiece reticle with 10mm length horizontal scale subdivided into 100 x 0.1mm divisions.

NB: Other types and size are available on request. Please contact customer services for details.

Microscope Stage Micrometer

Transmitted light stage micrometers with a scale centred on a glass disc mounted in a black anodised aluminium slide 76 x 25 x 1.5mm. Intended for the routine calibration of eyepiece patterns, particularly when alternating between objectives on one microscope or when using the same reticle in different microscopes. Their robust construction makes them ideal for student use

| Cat No. | Diameter | Quantity | Price |
|----------------------------|----------|----------|----------------|
| Eyepiece Graticules | | | |
| MIA 040 010 | 16mm | EACH | £56.64 |
| MSD 100 010 | 19mm | EACH | £56.64 |
| MSD 100 020 | 21mm | EACH | £56.64 |
| Stage Micrometers | | | |
| MIA 050 010 | 10mm | EACH | £118.64 |
| MIA 050 020 | 1mm | EACH | £123.59 |



Plastic Measuring Reticles

Simple 10mm in 0.1mm divisions scale on polyester film that can be cut to size. The scale image is 10mm in length with 100 divisions of 0.1mm. The division lines at 0.5mm and 1mm are longer to enable measurements to be easily determined. Circles are marked around the scale image to give guidance when cutting. The spacing of the images allows diameters up to 27mm to be cut. 2 strips of 5 images in each pack. Overall size of film is 150mm x 30mm x 0.18mm thick.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| MIA 140 011 | Plastic Measuring Reticles | EACH | £16.47 |



Microscopes

Accessories

Microtome

Cylindrical hand microtome with table clamp and blade. 70mm diameter black stage. Adjustment of 10 micrometers.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| MCT 010 010 | Microtome | EACH | £65.65 |

Solid Glass Staining Block

With glass cover, 40mm x 40mm.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| SSE 010 010 | Solid Glass Staining Block | EACH | £2.90 |

Staining Jars & Troughs

Staining Trough

- Made from glass with a loose flat lid
- Accepts one staining rack (SSE 040 500)
- Overall dimensions: 85 x 105 x 75mm high

NB: Designed for use with cold water, and boiling water should not be added to these troughs.



SSE 040 500

Staining Rack

Glass staining rack to fit staining trough (SSE 040 010). Designed to accept 20 slides 76 x 26mm back to back horizontally.



SSE 040 010

Coplin Staining Jar

Designed to hold 10 slides 76 x 26mm back to back, vertically. Complete with lid.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| SSE 040 010 | Staining Trough | EACH | £11.74 |
| SSE 040 500 | Staining Rack | EACH | £11.82 |
| SSE 020 010 | Staining Jar | EACH | £6.80 |

Lens Tissues

Approximately 50 sheets per book, 75 x 50mm.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| MIA 160 011 | Lens Tissues | PACK | £3.77 |

Lens Cleaning Tissues

Lenses and other optical surfaces made from glass, quartz, or plastic can be easily scratched if they are not cleaned with a very soft tissue. High-quality Whatman Lens Cleaning Tissues provide the solution. The tissues are chemically pure and free from silicones and other additives. Most importantly, they can be relied on to carefully and thoroughly remove surface moisture and grease.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| MIA 010 011 | 100 x 150mm | 25SH | £7.99 |
| MIA 010 020 | 200 x 300mm | PK100 | £34.70 |

Microscope Slides

Glass slides with ground edges, 75 x 25mm.

NB: Other grades of microscope slide are available on request.



| Cat No. | Thickness | Quantity | Price |
|---------------------------|-------------|----------|---------------|
| Plain Glass | | | |
| MSL 230 011 | 1.0 - 1.2mm | PK50 | £1.49 |
| MSL 230 020 | 1.2 - 1.4mm | BX100 | £3.43 |
| Single Frosted | | | |
| MSL 240 011 | 1.0 - 1.2mm | PK50 | £1.57 |
| MSL 240 021 | 1.2 - 1.4mm | PK50 | £1.57 |
| Twin Frosted, 20mm | | | |
| MSL 250 020 | 1.2 - 1.4mm | BX100 | £5.90 |
| Glass with Cavity | | | |
| MSL 110 011 | 1.2 - 1.3mm | PK50 | £13.54 |





Plastic Microscope Slides

Slides Size: 75 x 25mm

Cover Slips

Safer than glass, these plastic cover slips will not break, scratch or cut fingers. No more cover slips stuck together! Tissue paper is layered between each slip to prevent static cling. Size: 22x22mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| MSD 220 010 | Plastic Microscope Slides | PK100 | £3.37 |
| MSD 220 020 | Plastic Cover Slips | PK100 | £3.61 |

Cover Slips



| Cat No. | Dimensions | Quantity | Price |
|--|------------|----------|--------------|
| o. 0 (Thickness 0.09 - 0.13mm) | | | |
| MCS 150 010 | 18 x 18mm | BX100 | £1.23 |
| MCS 150 020 | 22 x 22mm | BX100 | £1.24 |
| No. 1 (Thickness 0.13 - 0.17mm) | | | |
| MCS 160 010 | 18 x 18mm | BX100 | £0.99 |
| MCS 160 020 | 22 x 22mm | BX100 | £1.23 |
| MCS 160 030 | 24 x 50mm | BX100 | £1.64 |
| MCS 200 010 | 18mm Round | BX100 | £4.58 |



Cover Slip Forceps

Stainless steel.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| MIA 120 010 | Cover Slip Forceps | EACH | £1.34 |

Carolina Observation Gel

Now students can prepare customised "mini-aquaria" observation chambers on microscope slides for studying organisms such as hydra, planaria, and Daphnia. This exciting, reusable product permits gas exchange, allowing specimens to live in the wells for days. Complete with instructions and recommendations for use. In 1-oz. container; enough for preparing about 30 observation chambers.

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------|----------|---------------|
| CBL 140 010 | 132700 | Carolina Observation Gel | 1OZ | £21.00 |

Microscope Slide Dispenser

For fingerprint free dispensing of 75 x 25mm microscope slides. Up to 50 slides can be put in the magazine and they are protected from dust by a cover. Each slide is dispensed by rotating the knurled knob on either side of the moulded base. Rubber rollers at the sides of the slides ease out the slide which can then be handled by the edges.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| MSD 010 020 | Slide Dispenser | EACH | £34.73 |

Microscope Slide Box

Wooden slide boxes with hinged lids.



| Cat No. | Capacity | Quantity | Price |
|--------------------|------------|----------|---------------|
| MSD 060 010 | 50 Slides | EACH | £6.80 |
| MSD 060 020 | 100 Slides | EACH | £10.99 |



Microscopes

Accessories

SECONDARY

Microscope Slide Box

Each slide box has 25 well spaced slots for easy handling of 75 x 25mm slides. The slots are clearly numbered and can be cross referenced with corresponding index card in the lid. Supplied with a removable lid.



| Cat No. | Size | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| MSD 210 010 | 90 x 140 x 35mm | EACH | £1.75 |

DATA LOGGING

Neubauer Haemocytometer

For determining cell concentration in microbiology, cell culture, and other applications that require use of cell suspension. Set comprises 2 cell rhodium coated (bright-line) counting chamber, cover slips, pipettes (red cell and white cell), tubing and pipette holders and instructions on usage and cleaning, packaged in a sturdy plastic box. The chamber is moulded from a single piece of thermal and shock-resistant glass. The ruled surface is 0.1mm below the cover glass, limiting the volume of 1 sq.mm of blood or fluid over a sq.mm at 0.1 cu.mm.



BIOLOGY

CHEMISTRY

| Cat No. | Description | Lines | Quantity | Price |
|--------------------|-------------------------|-----------------------------|----------|----------------|
| HAE 010 010 | Standard Sight Chamber | Dark lines | EACH | £105.55 |
| MSD 150 010 | Clear Sight Chamber | Metallised and bright lines | EACH | £120.44 |
| Accessories | Description | | Quantity | Price |
| HAE 010 500 | Double Cell Cover Glass | | PK10 | £16.73 |
| MSD 150 500 | Cell Pipettes | | EACH | £5.65 |

PHYSICS

ENVIRONMENTAL SCIENCE

Microscope Servicing

SciChem's Microscope Servicing

The service includes:

- Cleaning of optics
- Full electrical check
- Adjustment of objective & stage if required
- Full repair service available including new parts

Take advantage of our servicing plan and sign up for a service contract to enjoy the benefits of a scheduled annual service. Volume service discounts are available.

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☎ **01902 402402**

✉ **customerservices@scichem.com**

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Algae Microscope Slide Sets

Beginner's Algae Microscope Slide Set

Seven slides of common freshwater algae. Includes one or more examples of blue-green algae, diatoms, desmids, filamentous green algae, and motile green algae.

Common Algae Microscope Slide Set

Sixteen slides selected to demonstrate the diversity of organisms from various taxonomic groups commonly called algae. Includes single-celled, colonial, and multicellular forms. Blue-green, golden, green, brown, and red algae are represented.

Algae in Water Supplies Microscope Slide Set

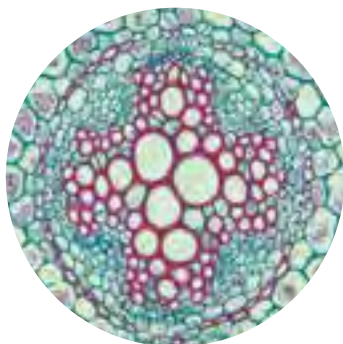
A reference set of 25 slides demonstrating various types of algae commonly found in surface-water reservoirs. Includes examples of taste- and odor-causing algae, filter-clogging algae, polluted-water algae, clean-water algae, plankton and surface algae, and algae that attach to reservoir walls.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------|----------|----------------|
| CBS 011 060 | 292422 | Beginner's Algae Set | EACH | £38.84 |
| CBS 011 070 | 292806 | Common Algae Set | EACH | £116.53 |
| CBS 011 080 | 292824 | Algae in Water Supplies Set | EACH | £146.50 |

Basic Biology Microscope Slide Set

Twelve microscope slides selected for introductory studies of biology. All 5 kingdoms of life are represented.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------------------------|----------|---------------|
| CBS 010 440 | 292130 | Basic Biology Microscope Slide Set | EACH | £88.73 |

Pathogenic Protozoa Microscope Slide Set

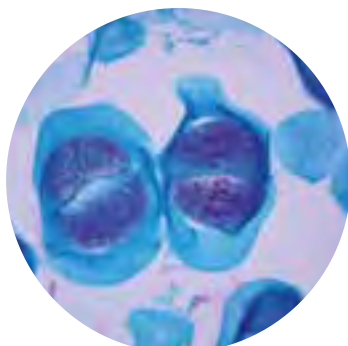
A selection of pathogenic forms commonly observed in man and domestic animals in 12 slides. Set includes Entamoeba, Giardia, Plasmodium, and other pathogenic protozoa.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------|----------|----------------|
| CBS 011 090 | 293696 | Pathogenic Protozoa Set | EACH | £153.16 |

Basic Meiosis Microscope Slide Set

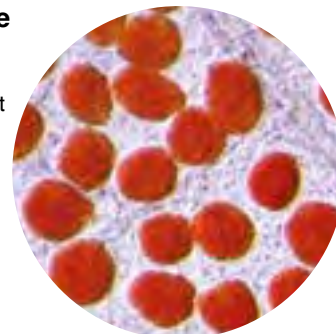
Examine meiosis in a lily anther cross section with this 5-slide set. Slides reveal the developmental stages of pollen from sporogenous tissue to pollen tetrads.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------|----------|---------------|
| CBS 101 040 | 308825 | Basic Meiosis Set | EACH | £41.00 |

Basic Connective Tissue Microscope Slide Set

The major types of connective tissue are represented in this set of 8 slides.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------|----------|---------------|
| CBS 010 710 | 312028 | Basic Connective Tissue Set | EACH | £57.71 |



Microscopes

Prepared Microscope Slides

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

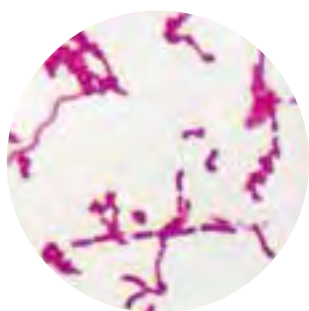
ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

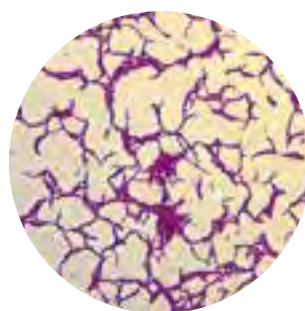
SAFETY



CBS 010 450



CBS 010 010



CBS 100 010



CBS 100 020

Microscope Slides - Bacterial Types

Bacteria Types w.m. Mixed Smear, Carbol-Fuchsin Stain Microscope Slide

Shows characteristic size and form of bacillus, coccus, and spirillum bacteria. Bacillus is represented by *Bacillus megaterium*, coccus by *Micrococcus luteum*, and spirillum by *Rhodospirillum rubrum*.

Bacteria Types, w.m. Separate Smears, Carbol Fuchsin Stain Microscope Slide

A microscope slide with separate smears showing characteristic size and form of bacillus, coccus, and spirillum bacteria. Bacillus is represented by *Bacillus megaterium*, coccus by *Micrococcus luteum*, and spirillum by *Rhodospirillum rubrum*. Carbol fuchsin stain.

Bacteria Types, w.m. Separate Smears, Gram Stain Microscope Slide

A microscope slide with separate smears showing characteristic size and form of bacillus, coccus, and spirillum bacteria. Bacillus is represented by *Bacillus megaterium*, coccus by *Micrococcus luteum*, and spirillum by *Rhodospirillum rubrum*. Gram stain.

Bacillus megaterium (Typical Bacillus), w.m. Microscope Slide

Shows characteristic shape and size of rod form.

Mixed Gram Positive and Gram Negative Bacillus, w.m. Gram Stain Microscope Slide

A microscope slide with a smear showing characteristic shape and size of bacillus (rod) bacteria. Mixed Gram negative and gram positive forms.

Gram Positive Coccus, w.m. Gram Stain Microscope Slide

A microscope slide with a smear showing characteristic shape and size of Coccus (spherical) bacteria. Gram positive stain.

Mixed Gram Positive and Gram Negative Coccus, w.m. Gram Stain Microscope Slide

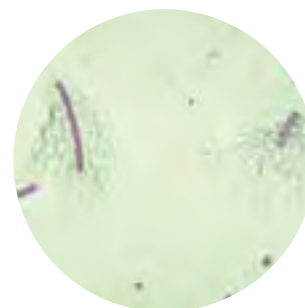
A microscope slide with a smear showing characteristic shape and size of Coccus (spherical) bacteria. Mixed gram negative and gram positive forms.

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|-------|
| CBS 010 450 | 293946 | Bacteria Types, w.m. Mixed Smear, Carbol Fuchsin Stain | EACH | £6.00 |
| CBS 010 010 | 293964 | Bacteria Types, w.m. Separate Smears, Gram Stain | EACH | £8.60 |
| CBS 100 010 | 293970 | Bacillus megaterium (Typical Bacillus), w.m. | EACH | £5.27 |
| CBS 100 020 | 293988 | Mixed Gram-Positive & Gram-Negative Bacillus, w.m. Gram Stain | EACH | £6.11 |
| CBS 100 040 | 294024 | Mixed Gram-Positive & Gram-Negative Coccus, w.m. Gram Stain | EACH | £6.11 |

Microscope Slides - Bacterial Structures

Bacterial Flagella - Peritrichous (*Proteus vulgaris*), w.m. Microscope Slide

Bacterial smear specially stained to demonstrate flagella. *Proteus vulgaris* demonstrates peritrichous flagella.



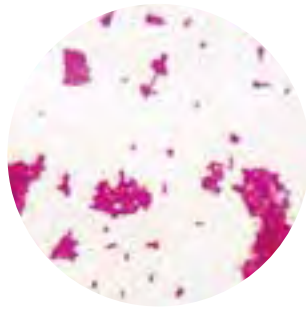
CBS 100 060

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|--------|
| CBS 100 060 | 294204 | Bacterial Flagella - Peritrichous (<i>Proteus vulgaris</i>), w.m. | EACH | £12.48 |

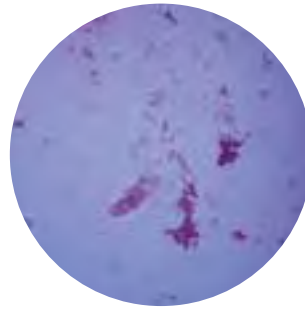




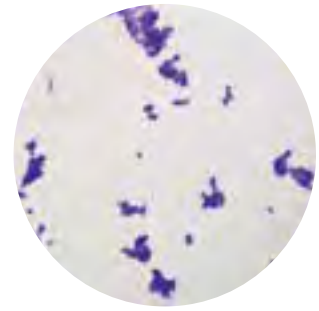
CBS 010 470



CBS 010 480



CBS 010 490



CBS 010 500

Microscope Slides - Individual Bacterial Preparations

Bacillus subtilis, w.m. Microscope Slide

Rods. Hay infusion organism.

Escherichia coli, w.m. Microscope Slide

Very short rods normally present in the intestine of animals. Sometimes pathogenic. Not recommended to demonstrate typical bacillus morphology.

Mycobacterium tuberculosis, w.m. Microscope Slide

Rods. Causes human tuberculosis.

Mycobacterium tuberculosis Sputum, Smear, Microscope Slide

Sputum from infected person showing bacteria.

Salmonella typhimurium, w.m. Microscope Slide

Rods. Pathogenic for rodents and other small animals. Causes food poisoning in man.

Staphylococcus aureus w.m. Microscope Slide

Spheres. Causes boils, abscesses, and pus in wounds.

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------------------|----------|-------|
| CBS 010 470 | 294474 | Bacillus subtilis, w.m. | EACH | £5.27 |
| CBS 010 480 | 294546 | Escherichia coli, w.m. | EACH | £5.55 |
| CBS 010 490 | 294600 | Mycobacterium tuberculosis, w.m. | EACH | £8.88 |
| CBS 100 090 | 294684 | Salmonella typhimurium, w.m. | EACH | £7.29 |
| CBS 010 500 | 294726 | Staphylococcus aureus w.m. | EACH | £5.27 |

Microscope Slides - Mixed Protists

Mixed Protozoa, w.m. Microscope Slide

Common forms including paramecium and amoeba.



CBS 010 510

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------|----------|-------|
| CBS 010 510 | 295276 | Mixed Protozoa, w.m. | EACH | £8.88 |

Microscope Slides - Sarcodines (Rhizopods)

Amoeba proteus, w.m. Microscope Slide

Typical specimens in a variety of shapes.



CBS 010 020

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------|----------|-------|
| CBS 010 020 | 295384 | Amoeba proteus, w.m. | EACH | £6.94 |

Microscope Slides - Euglenoids

Euglena, w.m. Microscope Slide

Stained to show general structures.



CBS 010 520

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------|----------|-------|
| CBS 010 520 | 295666 | Euglena, w.m. | EACH | £4.99 |



Microscopes

Prepared Microscope Slides

SECONDARY

Microscope Slides - Green Algae

Chlorella, w.m. Microscope Slide

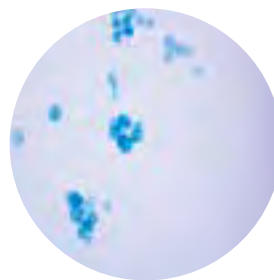
Non-motile unicellular algae.

Spirogyra Multiple Chloroplasts, w.m. Microscope Slide

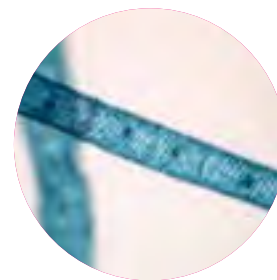
Distinctive spiral shaped chloroplasts. Demonstrates multiple chloroplast form.

Spirogyra Scalariform Conjugation, All Stages, w.m. Microscope Slide

Microscope slide with whole mount of Spirogyra showing all 4 stages of scalariform conjugation, a form of sexual reproduction. Stages include: vegetative filament, formation of conjugation tubes, transfer of cytoplasm from one filament to the other, and zygote formation. Stained to show general structure.



CBS 100 160



CBS 100 170

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|--------|
| CBS 100 160 | 296404 | Chlorella, w.m. | EACH | £5.55 |
| CBS 100 170 | 296548 | Spirogyra Multiple Chloroplasts, w.m. | EACH | £5.27 |
| CBS 100 180 | 296566 | Spirogyra Scalariform Conjugation, All Stages, w.m. | EACH | £11.38 |

DATA LOGGING

BIOLOGY

Microscope Slides - Ciliates

Paramecium, w.m. Microscope Slide

Stained to show general structures.

Paramecium Caudatum, w.m. Microscope Slide

Stained to show general structures.



Microscope Slides - Apicomplexans (Sporozoans)

Plasmodium falciparum, smear Microscope Slide

In human blood, causes malignant tertian malaria in humans.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------------------|----------|-------|
| CBS 010 530 | 296914 | Paramecium, w.m. | EACH | £4.72 |
| CBS 100 210 | 296962 | Paramecium Caudatum, w.m. | EACH | £4.72 |

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------------|----------|--------|
| CBS 010 040 | 297190 | Plasmodium falciparum, smear | EACH | £13.87 |

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

Microscope Slides - Zygomycetes (Zygospor-forming Fungi)

Rhizopus Sporangia, w.m. Microscope Slide

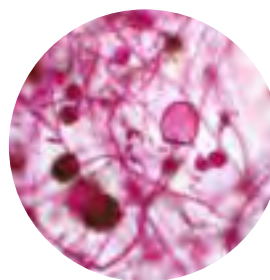
Sporangiophores and rhizoids of bread mould.

Rhizopus Conjugation, w.m. Microscope Slide

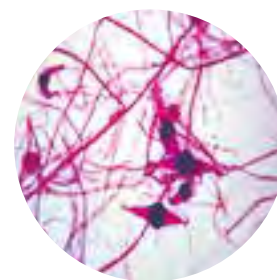
Microscope slide with whole mount of Rhizopus, commonly referred to as "bread mould." Sexual reproduction is demonstrated by the presence of mature zygotes. Stained for general study.

Rhizopus Sporangia and Zygotes Combination, w.m. Microscope Slide

Microscope slide with whole mount of Rhizopus, commonly known as "bread mould," showing both sporangia and mature zygotes. Stained for general study.



CBS 100 220



CBS 100 230

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--|----------|-------|
| CBS 100 220 | 297770 | Rhizopus Sporangia, w.m. | EACH | £6.39 |
| CBS 100 230 | 297776 | Rhizopus Conjugation, w.m. | EACH | £6.39 |
| CBS 010 540 | 297782 | Rhizopus Sporangia and Zygotes Combination, w.m. | EACH | £7.99 |

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

“ For excellent cell division when doing a root tip garlic practical, add 8 drops of baby bio to 500ml of water a few days before. ”



— Bilton School



Microscope Slides - Ascomycetes (Sac Fungi)

Penicillium, w.m. Microscope Slide

Blue mould. Shows mycelium and conidiophores with conidia.

Saccharomyces Budding Cells, w.m. Microscope Slide

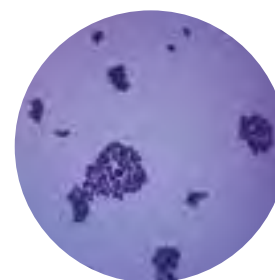
Yeast demonstrating asexual reproduction.

Penicillium, sec., 12 µm Microscope Slide

A microscope slide with a section of citrus fruit skin infected with Penicillium. Shows mycelia, conidiophores, and conidia. Blue mould. Quadruple stain.



CBS 010 560



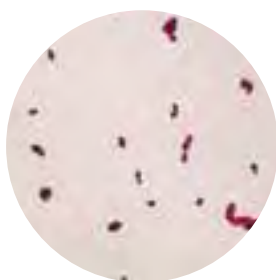
CBS 010 570

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------------------|----------|-------|
| CBS 010 560 | 297968 | Penicillium, w.m. | EACH | £6.39 |
| CBS 010 570 | 297992 | Saccharomyces Budding Cells, w.m. | EACH | £4.99 |
| CBS 100 240 | 297974 | Penicillium, sec. | EACH | £6.39 |

Microscope Slides - Deuteromycetes (Imperfect Fungi)

Candida Albicans, w.m. Microscope Slide

Smear showing filaments and yeast-like conidia. Causes vaginal yeast infections.



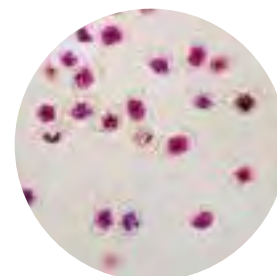
CBS 100 280

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------|----------|-------|
| CBS 100 280 | 298412 | Candida Albicans, w.m. | EACH | £7.77 |

Microscope Slides - Pines

Pine Mature Pollen, w.m. Microscope Slide

Pinus mature pollen stained to show the prothallial cells and tube nucleus.



CBS 100 420

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--------------------------|----------|-------|
| CBS 100 420 | 301448 | Pine Mature Pollen, w.m. | EACH | £4.99 |

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Microscopes

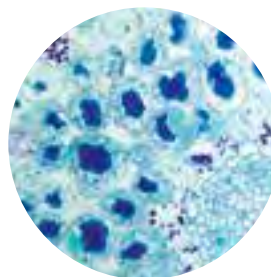
Prepared Microscope Slides

SECONDARY

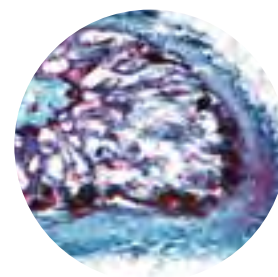
Microscope Slides - Root Demonstration

Typical Monocot and Dicot Roots, c.s., 12 µm Microscope Slide

Roots mounted together for comparison. Shows Carrion Flower (Smilax) and Buttercup (Ranunculus).



CBS 100 440



CBS 100 450

Endotrophic Mycorrhiza, c.s., 12 µm Microscope Slide

Orchid root showing numerous symbiotic fungal hyphae inside cells of the cortex.

Ectotrophic Mycorrhiza, c.s., 12 µm Microscope Slide

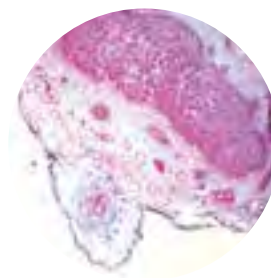
Pine roots showing symbiotic fungal hyphae.

Legume Nodule, sec., 12 µm Microscope Slide

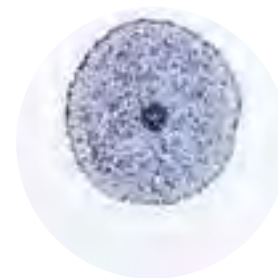
Nitrogen-fixing bacteria. Shows root nodule of leguminous plant with bacteria inside cells.

Buttercup Mature Root, c.s. Microscope Slide

Ranunculus. Demonstrates mature protosteele showing vascular tissues, endodermis, and cortex. Typical herbaceous dicot root.



CBS 010 590



CBS 010 060

Buttercup Young and Mature Roots, c.s. Microscope Slide

A microscope slide with cross-sections of young and mature Ranunculus (buttercup) roots mounted together for comparison. Typical herbaceous dicot root. Quadruple stain.

DATA LOGGING

BIOLOGY

CHEMISTRY

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--|----------|-------|
| CBS 010 050 | 301892 | Typical Monocot and Dicot Roots, c.s. | EACH | £8.32 |
| CBS 010 590 | 301976 | Legume Nodule, sec. | EACH | £5.27 |
| CBS 010 060 | 302090 | Buttercup Mature Root, c.s. | EACH | £6.39 |
| CBS 100 460 | 302114 | Buttercup Young and Mature Roots, c.s. | EACH | £7.75 |

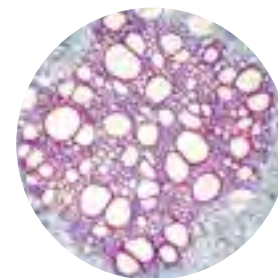
PHYSICS

ENVIRONMENTAL SCIENCE

Microscope Slides - Dicot Roots

Sunflower Root, c.s., 12 µm Microscope Slide

Helianthus. Dicot root.



CBS 010 600

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------|----------|-------|
| CBS 010 600 | 302150 | Sunflower Root, c.s. | EACH | £6.66 |

FORENSIC SCIENCE

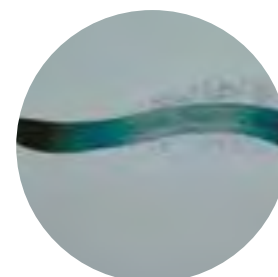
CHEMICALS

Onion Mitosis, squash mount, Feulgen Stain Microscope Slide

A microscope slide with a squash mount preparation of an Allium (onion) root tip selected to show all stages of mitosis. Feulgen stain.



CBS 010 070



CBS 010 080

Root Hairs, w.m. Microscope Slide

Root tip stained to show root hairs.

GENERAL LABWARE

SAFETY

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--|----------|--------|
| CBS 010 070 | 302396 | Onion Mitosis, I.s., 10 □, Hematoxylin Stain | EACH | £7.27 |
| CBS 100 490 | 302432 | Onion Mitosis, Squash Mount | EACH | £13.87 |
| CBS 010 080 | 302498 | Root Hairs, w.m. | EACH | £6.94 |

“ Use a compression spring as a drying stand for microscope slides. ”

— Saltash.net Community School



Microscope Slides - Stem Demonstration

Corn Stem, c.s., 12 µm Microscope Slide

Zea. Typical monocot stem demonstrating scattered vascular bundles.

Typical Monocot and Dicot Stems, c.s., 12 µm Microscope Slide

Sunflower (dicot) stem showing secondary tissues and mature stem of corn (monocot) mounted together for comparison.



CBS 010 630

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------------------------------|----------|-------|
| CBS 010 630 | 303296 | Corn Stem, c.s. | EACH | £6.66 |
| CBS 010 090 | 302642 | Typical Monocot and Dicot Stems, c.s. | EACH | £8.32 |

Microscope Slides - Dicot Stems

Basswood Two-Year Stem, c.s., 12 µm Microscope Slide

Microscope Slide of Basswood (Tilia) Two-Year Stem. 12-micrometer cross section.

Buttercup Stem, c.s., 12 µm Microscope Slide

Ranunculus. Dicot stem with cambial activity confined to the vascular bundles.

Pumpkin Stem, c.s., 12 µm Microscope Slide

Cucurbita stem demonstrating sieve plates in phloem.

Pumpkin Stem, l.s., 12 µm Microscope Slide

Cucurbita; stem demonstrating sieve plates in phloem.

Sunflower Stem, c.s., 12 µm Microscope Slide

Showing distinct vascular bundles in a circle around a large central pith. Typical annual dicot stem. Quadruple stain.

Sunflower Older Stem, l.s., 12 µm Microscope Slide

Demonstrating typical dicot stem anatomy. Quadruple stain.



CBS 100 500



CBS 010 610

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------------|----------|-------|
| CBS 100 500 | 302816 | Basswood Two-Year Stem, c.s. | EACH | £6.11 |
| CBS 010 610 | 302870 | Buttercup Stem, c.s. | EACH | £6.11 |
| CBS 100 520 | 303062 | Pumpkin Stem, c.s. | EACH | £5.83 |
| CBS 100 530 | 303068 | Pumpkin Stem, l.s. | EACH | £6.39 |
| CBS 100 540 | 303092 | Sunflower Stem, c.s. | EACH | £5.83 |
| CBS 100 550 | 303104 | Sunflower Older Stem, l.s. | EACH | £6.11 |

Microscope Slides - Monocot Stems

Corn Stem, c.s. and l.s., 12 µm Microscope Slide

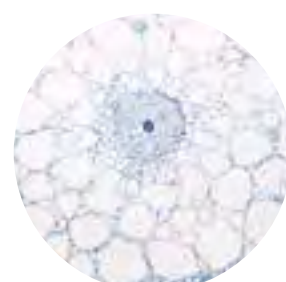
A microscope slide with a cross-section and longitudinal section of a Zea (corn) stem mounted together for comparison. Demonstrates typical monocot stem anatomy. Quadruple stain.

Elodea Stem, c.s. Microscope Slide

Demonstrates structure of aquatic plant.



CBS 100 560



CBS 100 570

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--------------------------|----------|-------|
| CBS 100 560 | 303314 | Corn Stem, c.s. and l.s. | EACH | £8.88 |
| CBS 100 570 | 303332 | Elodea Stem, c.s. | EACH | £5.83 |

Microscopes

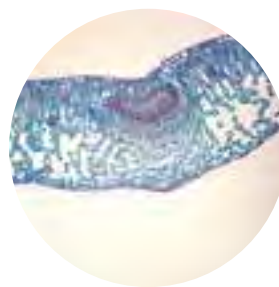
Prepared Microscope Slides

SECONDARY

Microscope Slides - Leaf Demonstration

Privet Leaf, c.s., 12 µm Microscope Slide

Ligustrum; typical mesophytic dicot leaf. Showing epidermis, palisade and spongy mesophyll, and midvein.



CBS 010 100



CBS 010 640

Typical Monocot and Dicot Leaves, c.s., 12 µm Microscope Slide

Corn (Zea) and privet (Ligustrum) leaves mounted together for comparison.

Dicot Leaf Types, c.s., 12 µm Microscope Slide

Hydrophytic (water lily), mesophytic (privet), and xerophytic (rubber tree) mounted together for comparison.

Sun and Shade Leaves, c.s., 12 µm Microscope Slide

Sections of leaves collected from different environments to show effects of light intensity.

DATA LOGGING

BIOLOGY

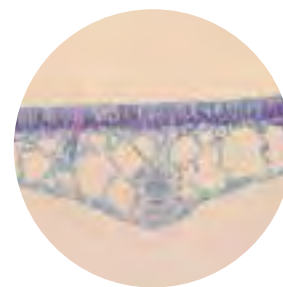
| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--|----------|-------|
| CBS 010 100 | 303838 | Privet Leaf, c.s. | EACH | £6.39 |
| CBS 010 640 | 303514 | Typical Monocot and Dicot Leaves, c.s. | EACH | £7.99 |
| CBS 100 580 | 303520 | Dicot Leaf Types, c.s. | EACH | £9.99 |
| CBS 100 590 | 303556 | Sun and Shade Leaves, c.s. | EACH | £7.99 |

CHEMISTRY

Microscope Slides - Dicot Leaves

Water Lily Leaf, c.s., 12 µm Microscope Slide

Nymphaea. Hydrophytic leaf demonstrating large air spaces, stellate sclerids, and numerous stomata in upper epidermis.



CBS 100 640

PHYSICS

ENVIRONMENTAL SCIENCE

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------|----------|-------|
| CBS 100 640 | 303892 | Water Lily Leaf, c.s. | EACH | £5.83 |

FORENSIC SCIENCE

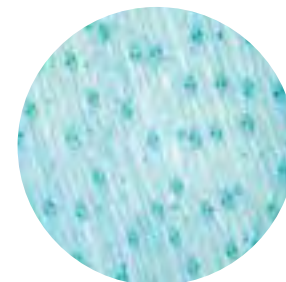
Microscope Slides - Leaf Epidermis

Dicot Leaf Epidermis, w.m. Microscope Slide

Dicot Leaf Epidermis, w.m., Sedum. Usual form of dicotyledon epidermal cells with numerous stomata. Each with guard cells encircled by subsidiary cells.



CBS 100 600



CBS 100 610

Monocot Leaf Epidermis, w.m., Onion Microscope Slide

Onion (Allium) leaf epidermis with stomata arranged in longitudinal rows.

Onion Bulb Epidermis, w.m., Microscope Slide

Onion Bulb Epidermis, w.m., Allium. Widely used to demonstrate simple cell structure. Nuclei, cell walls, and cell shape are clearly shown.

CHEMICALS

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------------|----------|-------|
| CBS 100 600 | 303650 | Dicot Leaf Epidermis, w.m. | EACH | £6.11 |
| CBS 100 610 | 303662 | Monocot Leaf Epidermis, w.m. | EACH | £5.55 |
| CBS 100 620 | 303680 | Onion Bulb Epidermis, w.m. | EACH | £5.27 |

GENERAL LABWARE

SAFETY

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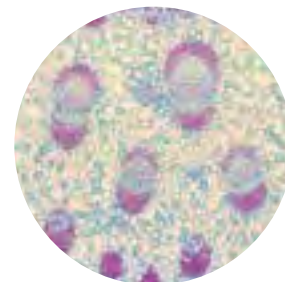




CBS 100 650



CBS 010 650



CBS 100 660

Microscope Slides - Monocot Leaves

Beach Grass Leaf, c.s., 12 μ m Microscope Slide
Ammophila. Demonstrates characteristic of a xerophyte.

Yucca Leaf, c.s., 12 μ m Microscope Slide
"Spanish Bayonet." Xerophytic monocot.

Corn Leaf, c.s., 12 μ m Microscope Slide
Corn (Zea) leaf showing epidermis, mesophyll, and parallel veins.

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------|----------|-------|
| CBS 100 650 | 304042 | Beach Grass Leaf, c.s. | EACH | £5.83 |
| CBS 010 650 | 304054 | Corn Leaf, c.s. | EACH | £5.27 |
| CBS 100 660 | 304114 | Yucca Leaf, c.s. | EACH | £5.83 |

Microscope Slides - Flowers

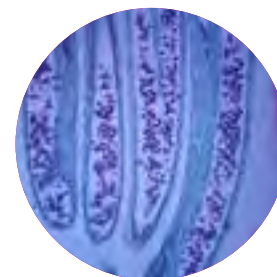
Mixed Pollen Grains, w.m. Microscope Slide
Mixed pollen grains showing a variety of shapes and sizes.

Buttercup Flower Bud, l.s., 12 μ m Microscope Slide
Ranunculus, demonstrating conical receptacle with floral parts.

Lily Young Flower Bud, l.s., 12 μ m Microscope Slide
Lilium. Typical monocot anatomy with floral parts in multiples of 3.



CBS 010 110



CBS 100 680

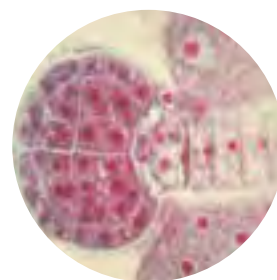
| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------------|----------|-------|
| CBS 010 110 | 304264 | Mixed Pollen Grains, w.m. | EACH | £7.99 |
| CBS 100 680 | 304352 | Buttercup Flower Bud, l.s. | EACH | £7.99 |
| CBS 100 690 | 304526 | Lily Young Flower Bud, l.s. | EACH | £6.66 |

Microscope Slides - Fruits & Seeds

Shepherd's Purse (Capsella) Young Embryo, l.s., 12 μ m Microscope Slide
A microscope slide with a longitudinal section of Capsella (shepherd's purse) young embryo. Demonstrates pre-cotyledon stage. Quadruple stain.

Shepherd's Purse (Capsella) Mature Embryo, l.s., 12 μ m Microscope Slide
Capsella fruit showing sections of embryo. Shows mature embryo with bending cotyledons.

Corn Grain, l.s., 12 μ m Microscope Slide
Zea; Demonstrates structure of graminous fruit, showing embryo.



CBS 100 710

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|-------|
| CBS 100 710 | 304882 | Shepherd's Purse (Capsella) Young Embryo, l.s. | EACH | £6.03 |
| CBS 100 720 | 304888 | Shepherd's Purse (Capsella) Mature Embryo, l.s. | EACH | £6.66 |
| CBS 100 730 | 305090 | Corn Grain, l.s. | EACH | £6.66 |



Microscopes

Prepared Microscope Slides

Microscope Slides - Turbellarians (Planarians)

Planaria, c.s., General Structure 7 µm H&E Microscope Slide

A microscope slide showing a cross-section of planaria. Stained with hematoxylin and eosin to show general structures of a simple triploblastic animal.



CBS 101 310

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------|----------|-------|
| CBS 101 310 | 306342 | Planaria, c.s. | EACH | £6.94 |

Microscope Slides - Trematodes (Flukes)

Rediae and Cercariae, w.m. Microscope Slide

Larval stages of Trematodes (flukes).

Fasciola hepatica (Sheep Liver Fluke) Eggs, w.m. Microscope Slide

Microscope slide with whole mount of eggs from Fasciola hepatica, the sheep liver fluke.



CBS 010 690



CBS 010 700

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--|----------|--------|
| CBS 010 690 | 306394 | Fasciola hepatica (Sheep Liver Fluke), w.m. | EACH | £13.32 |
| CBS 010 700 | 306406 | Fasciola hepatica (Sheep Liver Fluke) Eggs, w.m. | EACH | £7.77 |

Microscope Slides - Cestodes (Tapeworms)

Dipylidium Canium Scolex, w.m. Microscope Slide

Microscope slide with whole mount of scolex of Dipylidium caninum, dog tapeworm. Shows scolex and a few proglottids.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--------------------------------|----------|--------|
| CBS 100 800 | 306646 | Dipylidium Canium Scolex, w.m. | EACH | £12.21 |

Microscope Slides - Crustaceans

Daphnia, w.m. Microscope Slide

General structures of a cladoceran.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------|----------|-------|
| CBS 100 870 | 307390 | Daphnia, w.m. | EACH | £7.99 |

Microscope Slides - Arachnids

Mite, w.m. Microscope Slide

General external features.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-------------|----------|-------|
| CBS 100 880 | 307560 | Mite, w.m. | EACH | £6.11 |



Microscope Slides - Insects

Insect Spiracle, w.m. Microscope Slide
Flat mount of body wall showing opening.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------|----------|--------------|
| CBS 100 890 | 307698 | Insect Spiracle, w.m. | EACH | £5.55 |

Microscope Slides - Anoplurans (Lice)

Pediculus Humanus Capitis, w.m. Microscope Slide
Human head louse.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------------|----------|--------------|
| CBS 101 010 | 307876 | Pediculus Humanus Capitis, w.m. | EACH | £6.66 |

Microscope Slides - Dipterans (True Flies)

Aedes Adult, w.m., Microscope Slide Culex Male and Female, w.m. Microscope Slide
Microscope slide with whole mount of male and female specimen of Culex pipiens, house mosquito, mounted together on same slide for comparison.

Musca domestica Head, w.m. Microscope Slide
Housefly.



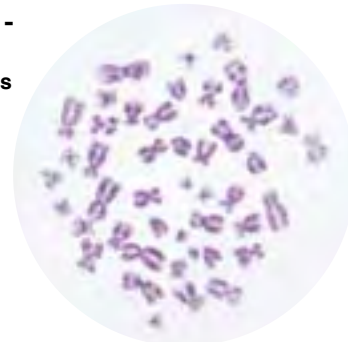
| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------|----------|---------------|
| CBS 011 050 | 308076 | Aedes Adult, w.m. | EACH | £11.38 |
| CBS 101 020 | 308094 | Culex Male and Female, w.m. | EACH | £17.20 |
| CBS 101 030 | 308136 | Musca domestica Head, w.m. | EACH | £6.11 |

Microscope Slides - Human

Human Female Chromosomes - 46, XX, spread Microscope Slide
Cultured from blood.

Human Male Chromosomes - 46, XY, spread Microscope Slide

A microscope slide of normal male chromosomes from cultured blood.

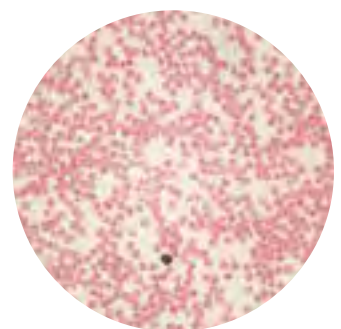


| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------|----------|---------------|
| CBS 010 140 | 309140 | Human Female Chromosomes | EACH | £33.24 |
| CBS 010 150 | 309146 | Human Male Chromosomes | EACH | £33.24 |

Microscope Slides - Human Pathology Preparations

Human Sickle Cell Anemia, Smear Microscope Slide

An inherited blood disease which affects the red blood cells. People who have sickle cell disease have red cells which contains mostly haemoglobin S. This type of haemoglobin causes the red blood cells to take on a curved (sickle) shape.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------------|----------|--------------|
| CBS 010 430 | 317374 | Human Sickle Cell Anemia, Smear | EACH | £8.88 |



Microscopes

Prepared Microscope Slides

SECONDARY

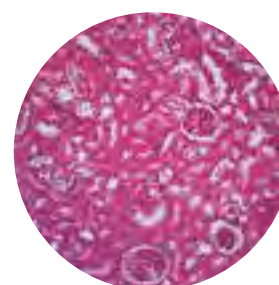
Microscope Slides - Epithelial Tissues

Mammal Simple Squamous Epithelium, w.m. Microscope Slide

Epithelial tissue covers or lines body surfaces as well as serving to absorb, filtrate, protect, and secrete various substances. The tissue is classified by the number of cell layers it has (simple=1 cell layer, stratified = more than 1 cell layer) and the shape of the cells (squamous=flat, cuboidal=cube shaped, columnar=column-shaped).



CBS 101 050



CBS 010 720

Mammal Simple Cuboidal Epithelium, sec. 7 μm H&E Microscope Slide

From mammal kidney.

Human Simple Columnar Epithelium, sec.7 μm, H&E Microscope Slide

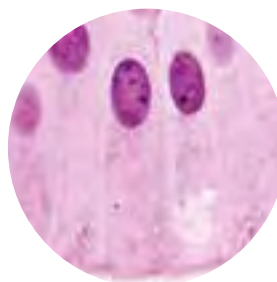
Section of intestine.

Human Simple Ciliated Epithelium, c.s., H&E Microscope Slide

Section of fallopian tube.

Mammal Transitional Epithelium, sec. 7 μm H&E Microscope Slide

From cat or dog ureter.



CBS 010 730



CBS 010 200

Human Stratified Squamous Epithelium, Smear Microscope Slide

Smear of human cheek cells stained to show general structures of animal cells.

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|--------|
| CBS 101 050 | 312336 | Mammal Simple Squamous Epithelium, w.m. | EACH | £11.38 |
| CBS 010 720 | 312366 | Mammal Simple Cuboidal Epithelium, sec. | EACH | £7.21 |
| CBS 010 730 | 312426 | Human Simple Columnar Epithelium, sec. | EACH | £9.99 |
| CBS 010 740 | 312438 | Human Simple Ciliated Epithelium, c.s. | EACH | £8.32 |
| CBS 010 750 | 312462 | Mammal Transitional Epithelium, sec. | EACH | £5.27 |
| CBS 010 200 | 312534 | Human Stratified Squamous Epithelium, Smear | EACH | £6.66 |

FORENSIC SCIENCE

Microscope Slides - Connective Tissues

Mammal Areolar Tissue, sec., 7 μm, Verhoeff stain Microscope Slide

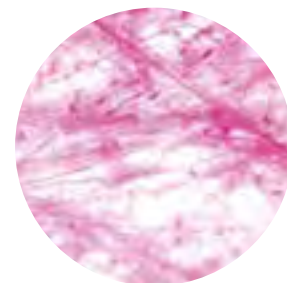
Stained with Verhoeff stain to show general structures.

Human Adipose Tissue, sec., 7 μm, H&E Microscope Slide

Stained to show general structures.

Human Elastic Tissue, sec., 7 μm, Verhoeff stain Microscope Slide

Skin section stained to show elastic fibres.



CBS 010 210

CHEMICALS

GENERAL LABWARE

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------------|----------|-------|
| CBS 010 210 | 312686 | Mammal Areolar Tissue, sec. | EACH | £7.49 |
| CBS 010 780 | 312728 | Human Adipose Tissue, sec. | EACH | £7.49 |
| CBS 101 070 | 312764 | Human Elastic Tissue, sec. | EACH | £8.32 |

SAFETY



Microscope Slides - Cartilage & Bone

Mammal Hyaline Cartilage, sec. 7 μm , H+E Microscope Slide

From cat or dog trachea.

Mammal Elastic Cartilage, sec. 7 μm Verhoeff's stain Microscope Slide

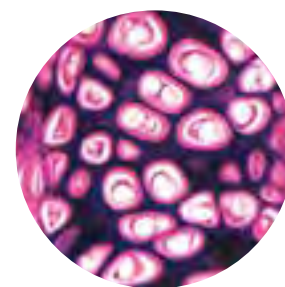
From cat or dog. Stained to show elastic fibres. Section of epiglottis or outer ear.

Mammal Fibrocartilage, sec. 10 μm Luxol Fast Blue Microscope Slide

Intervertebral disc or pubic symphysis. Stained to show general structures.



CBS 010 800



CBS 010 220

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------|----------|---------------|
| CBS 010 800 | 312886 | Mammal Hyaline Cartilage, sec. | EACH | £7.21 |
| CBS 010 220 | 312910 | Mammal Elastic Cartilage, sec. | EACH | £13.56 |
| CBS 101 090 | 312922 | Mammal Fibrocartilage, sec. | EACH | £9.99 |

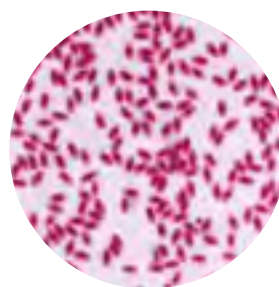
Microscope Slides - Blood

Human Blood Smear H+E Stain Microscope Slide

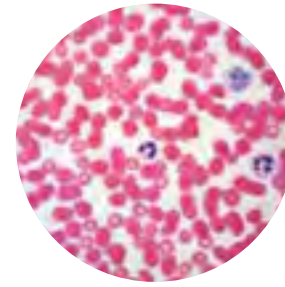
Microscope slide of normal (healthy) human blood. Stained with hematoxylin and eosin to show general structure of red and white blood cells.

Human Blood Smear, Wright's Stain Microscope Slide

Stained in Wright's stain and is our most popular blood smear.



CBS 010 820



CBS 010 240

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------------|----------|--------------|
| CBS 010 240 | 313152 | Human Blood Smear | EACH | £6.11 |
| CBS 010 250 | 313158 | Human Blood Smear, Wright's Stain | EACH | £6.11 |

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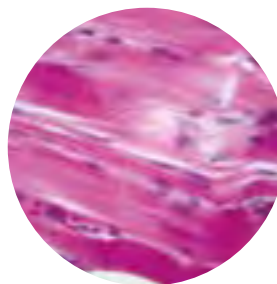
Microscope Slides - Muscle

Mammal Skeletal Muscle, General Structures sec. 7 μ m, H&E Microscope Slide

Muscle, Skeletal, Human, Cross Section & l.s., Microscope Slide

Mammal Smooth Muscle, c.s. 7 μ m H&E Microscope Slide

From cat or dog intestine. Smooth muscle is found in the walls of hollow organs such as the intestinal tract and the uterus and is under involuntary control. The fibres have a single nucleus and lack any striations.



CBS 010 260



CBS 010 270

Human Smooth Muscle - Uterus, sec. 7 μ m H&E Microscope Slide

Smooth muscle is found in the walls of hollow organs such as the intestinal tract and the uterus and is under involuntary control. The fibres have a single nucleus and lack any striations.

Mammal Cardiac Muscle, sec. 7 μ m H&E Microscope Slide

Mammal Intercalated Disks, sec. 7 μ m Mallory's Microscope Slide

Human Cardiac Muscle, sec. 7 μ m H&E Microscope Slide

Cardiac muscle is found only in the heart and is involuntarily controlled. Like skeletal muscle, the fibres are striated, however they only contain one nucleus per fibre. Cardiac muscle also contains intercalated discs which allow for undeviated electrical connection between two muscle fibres. This is essential for heart contractions.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBS 010 280 | 313570 | Mammal Neuron Motor Nerve Cells | EACH | £8.32 |
| CBS 010 880 | 313594 | Human Nerve sec. | EACH | £13.32 |
| CBS 101 140 | 313636 | Human Cerebral Cortex, sec. | EACH | £6.94 |
| CBS 101 150 | 313660 | Mammal Cerebellum, sec. | EACH | £6.39 |
| CBS 010 890 | 313708 | Mammal Spinal Cord, c.s. | EACH | £7.21 |
| CBS 010 290 | 313864 | Mammal Motor Nerve Endings and Plates, Teased | EACH | £27.19 |

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CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

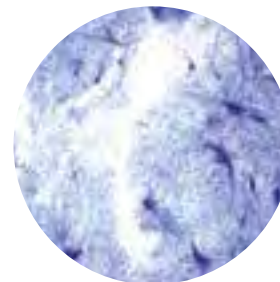
GENERAL LABWARE

SAFETY

Microscope Slides - Nervous Tissues

Mammal Neuron Motor Nerve Cells, Smear Microscope Slide

Giant Multipolar nerve cells found in the grey matter of the spinal cord.



CBS 010 280

Human Nerve sec., 7 μ m H&E Microscope Slide

Stained to show general structures.

Human Cerebral Cortex, sec. 7 μ m H&E Microscope Slide

Stained to show general structures.

Mammal Cerebellum, sec. Microscope Slide, 7 μ m H&E

From cat or dog. Stained to show general structures.

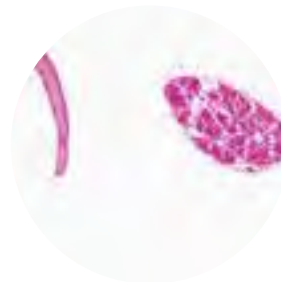
Mammal Spinal Cord, c.s. 7 μ m H&E Microscope Slide

From cat or dog. Stained to show general structures

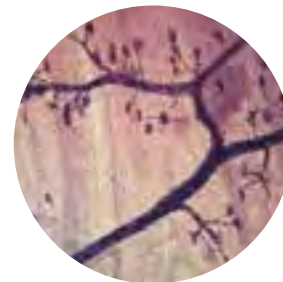
Mammal Motor Nerve Endings and Plates, Teased Microscope Slide

Microscope slide with whole mount of teased mammal skeletal muscle.

Stained with gold chloride to show motor nerve endings with plates.



CBS 010 880



CBS 010 290

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBS 010 280 | 313570 | Mammal Neuron Motor Nerve Cells | EACH | £8.32 |
| CBS 010 880 | 313594 | Human Nerve sec. | EACH | £13.32 |
| CBS 101 140 | 313636 | Human Cerebral Cortex, sec. | EACH | £6.94 |
| CBS 101 150 | 313660 | Mammal Cerebellum, sec. | EACH | £6.39 |
| CBS 010 890 | 313708 | Mammal Spinal Cord, c.s. | EACH | £7.21 |
| CBS 010 290 | 313864 | Mammal Motor Nerve Endings and Plates, Teased | EACH | £27.19 |



Microscope Slides - Circulatory System

Human Aorta c.s. 7 µm Verhoeff's Stain Microscope Slide

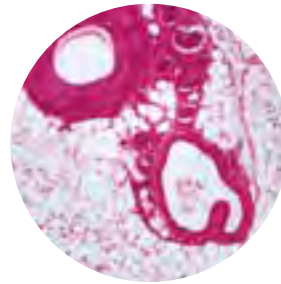
Verhoeff's stain. Human aorta stained with Verhoeff's stain to show general structures.

Mammal Artery and Vein c.s. 7 µm H+E Microscope Slide

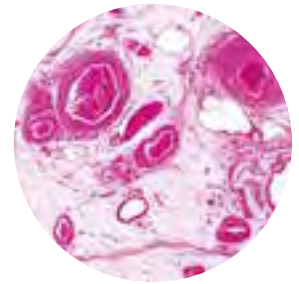
From cat or dog. Stained to show general structures.

Human Artery and Vein c.s. 7 µm H+E Stain Microscope Slide

Stained to show general structures.



CBS 010 900



CBS 101 180

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------------------------------|----------|-------|
| CBS 101 170 | 314010 | Human Aorta c.s. | EACH | £8.88 |
| CBS 010 900 | 314082 | Mammal Artery & Vein c.s. | EACH | £6.11 |
| CBS 101 180 | 314094 | Human Artery and Vein c.s., H&E Stain | EACH | £9.99 |

Microscope Slides - Skin

Human Nonpigmented Skin sec. 7 µm H&E Stain Microscope Slide

Stained to show general structures.



CBS 010 910

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------------------|----------|-------|
| CBS 010 910 | 314522 | Human Nonpigmented Skin sec. | EACH | £7.49 |

Microscope Slides - Digestive System

Mammal Tongue, Foliate Papillae with Taste Buds, sec. 7 µm, H&E Microscope Slide

Section of rabbit tongue showing the foliate papillae or taste buds.

Mammal Cardiac Stomach, sec. 7 µm, H&E Microscope Slide

From cat or dog. Stained to show general structures.

Mammal Small Intestine, c.s. 7 µm, H&E Microscope Slide

From cat or dog. Stained to show general structures of small intestine.

Mammal Duodenum, sec. 7 µm, H&E Microscope Slide

Contain Brunners glands which secrete an alkaline fluid to protect the intestine from stomach and optimise pH for intestinal enzymes.

Mammal Liver, sec. 7 µm, H&E Microscope Slide From pig. Stained to show general structures.

Human Liver, sec. 7 µm, H&E Microscope Slide

Stained to show general structures.

Mammal Pancreas, sec. 7 µm, H&E Microscope Slide

From cat or dog. Stained to show general structures.



CBS 101 200



CBS 010 220

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---|----------|-------|
| CBS 101 200 | 314758 | Mammal Tongue, Foliate Papillae with Taste Buds, sec. | EACH | £6.66 |
| CBS 101 220 | 315082 | Mammal Fundic Stomach, sec. | EACH | £6.51 |
| CBS 101 230 | 315142 | Mammal Small Intestine, c.s. | EACH | £5.83 |
| CBS 010 960 | 315358 | Mammal Liver, sec. | EACH | £6.11 |
| CBS 010 330 | 315388 | Human Liver, sec. | EACH | £6.91 |
| CBS 010 970 | 315442 | Mammal Pancreas, sec. | EACH | £5.27 |



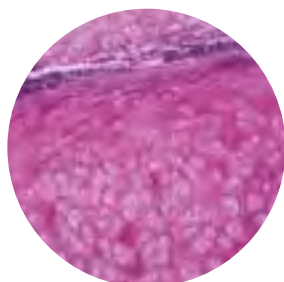
Microscopes

Prepared Microscope Slides

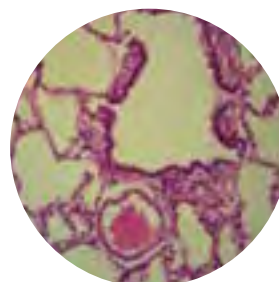
SECONDARY



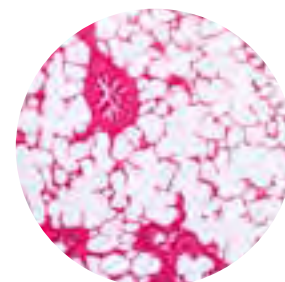
CBS 010 340



CBS 010 350



CBS 010 980



CBS 010 630

DATA LOGGING

Microscope Slides - Respiratory System

Mammal Trachea, c.s. 7 µm H&E Microscope Slide

From cat or dog stained to show general structures. Shows hyaline cartilage and pseudostratified epithelium.

Mammal Lung, sec. 7 µm H&E stain Microscope Slide

From cat or dog. Stained to show general structures.

Mammal Trachea, c.s. Microscope Slide, Thin

Microscope slide of a thin (1.5-2 microns) section of mammal (cat or dog) trachea. Stained with hematoxylin and eosin to show hyaline cartilage, pseudostratified columnar ciliated epithelium, glands, and connective tissue.

Human Lung, sec. 7 µm H&E stain Microscope Slide

Section of normal healthy lung.

BIOLOGY

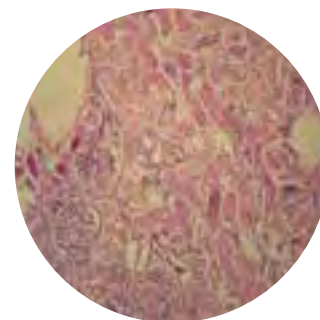
| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------------------|----------|---------------|
| CBS 010 340 | 315612 | Mammal Trachea, c.s. | EACH | £7.21 |
| CBS 010 350 | 315618 | Mammal Trachea, c.s., Thin | EACH | £10.27 |
| CBS 010 980 | 315648 | Mammal Lung, sec. | EACH | £6.11 |
| CBS 010 360 | 315670 | Human Lung, sec. | EACH | £8.32 |

CHEMISTRY

Microscope Slides - Excretory System

Mammal Kidney, Median c.s. 7 µm H&E Microscope Slide

From rat or other small mammal. Entire specimen mounted and stained to show general structures.



PHYSICS

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------------------|----------|--------------|
| CBS 010 380 | 315770 | Mammal Kidney, Median c.s. | EACH | £6.66 |

ENVIRONMENTAL SCIENCE

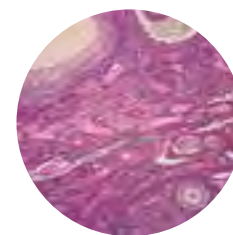
Microscope Slides - Female Reproductive System

Mammal Ovary Follicles, sec. 7 µm, H&E Microscope Slide

Microscope slide of a section of mammal (cat or rabbit) ovary. Stained with hematoxylin and eosin to show general structures.

Human Ovary, sec. 7 µm H&E Microscope Slide

General structures including follicles are shown.



CBS 010 400

FORENSIC SCIENCE

Mammal Graafian Follicles, sec. 7 µm H&E Microscope Slide

One or more follicles showing cumulus oophorus (germ hill) and ovum.

Mammal Corpus Luteum, sec. 7 µm H&E Microscope Slide

Cat ovary. Following ovulation the ruptured follicle collapses, fills with blood and the three layers of the follicular wall re-organise to form a temporary endocrine gland known as the corpus luteum.

CHEMICALS

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------------|----------|--------------|
| CBS 010 400 | 316012 | Mammal Graafian Follicles, sec. | EACH | £9.71 |
| CBS 101 260 | 316024 | Human Ovary, sec. | EACH | £7.99 |
| CBS 101 270 | 316030 | Mammal Corpus Luteum, sec. | EACH | £7.99 |

GENERAL LABWARE

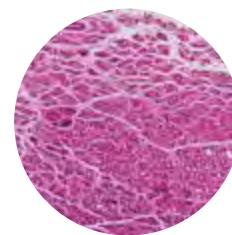
SAFETY



Microscope Slides - Male Reproductive System

Human Sperm, Smear Microscope Slide

Stained to show general structure.



CBS 010 420

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|--------------------|----------|-------|
| CBS 010 420 | 316590 | Human Sperm, Smear | EACH | £9.99 |

Microscope Slides - Endocrine System

Mammal (Pituitary) Hypophysis, sec. 7 µm, H&E Microscope Slide

From cat or dog. Stained to show general structures.

Mammal Thyroid, sec. 7 µm H&E Microscope Slide

From cat or dog. Stained to show general structures.

Human Thyroid, sec. 7 µm H&E Microscope Slide

Stained to show general structures.

Mammal Thyroid Gland and Parathyroid Gland, sec. 7 µm

H&E Microscope Slide

From cat or dog. Stained to show general structures.

Human Adrenal Gland, 7 µm H&E Microscope Slide

Stained to show general structures.



CBS 011 020

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-------------------------------------|----------|--------|
| CBS 011 020 | 316670 | Mammal (Pituitary) Hypophysis, sec. | EACH | £9.16 |
| CBS 011 030 | 316682 | Mammal Thyroid, sec. | EACH | £6.66 |
| CBS 011 040 | 316754 | Human Adrenal Gland | EACH | £10.45 |

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SAFETY

Economy Microscope Slides

Prepared Slides.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| YPS 300 010 | Amoeba | EACH | £3.99 |
| YPS 300 020 | Euglena | EACH | £2.21 |
| YPS 300 030 | Penicillium w.m. | EACH | £2.21 |
| YPS 300 330 | Bacteria | EACH | £2.68 |
| YPS 300 340 | Escherichia Coli | EACH | £2.68 |
| YPS 300 040 | Artery and Vein t.s. | EACH | £2.21 |
| YPS 300 050 | Artery and Vein c.s. | EACH | £2.21 |
| YPS 300 060 | Blood Smear Giemsa | EACH | £2.21 |
| YPS 300 070 | Blood Smear Human | EACH | £2.21 |
| YPS 300 090 | Compact Bone | EACH | £2.21 |
| YPS 300 100 | Human Ovary | EACH | £2.88 |
| YPS 300 190 | Ovary Mammal t.s. | EACH | £2.68 |
| YPS 300 110 | Human Sperm sm | EACH | £2.63 |
| YPS 300 210 | Rat Sperm | EACH | £2.68 |
| YPS 300 120 | Kidney | EACH | £2.63 |
| YPS 300 170 | Mammalian Kidney Sec | EACH | £2.63 |
| YPS 300 130 | Liver c.s. | EACH | £2.21 |
| YPS 300 150 | Lung Section | EACH | £2.21 |
| YPS 300 220 | Small Intestine | EACH | £2.21 |
| YPS 300 230 | Squamous Epithelium sm | EACH | £2.68 |

| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|--------------|
| YPS 300 420 | Eyeball I.s. | EACH | £8.50 |
| YPS 300 240 | Striated Muscle Section | EACH | £2.21 |
| YPS 300 380 | Smooth Muscle Teased w.m. | EACH | £0.99 |
| YPS 300 390 | Cardiac Muscle sec. | EACH | £1.21 |
| YPS 300 180 | Nerve Cell | EACH | £2.21 |
| YPS 300 160 | Mammal Spinal Cord Nerve Cell sm | EACH | £2.21 |
| YPS 300 410 | Rabbit Motor Nerve Endings w.m. | EACH | £4.12 |
| YPS 300 250 | Dicot Leaf | EACH | £2.21 |
| YPS 300 260 | Dicot Leaf Maple | EACH | £2.68 |
| YPS 300 270 | Dicot Root Buttercup t.s. | EACH | £2.21 |
| YPS 300 280 | Dicot Stem Sunflower t.s. | EACH | £2.68 |
| YPS 300 290 | Hydrophytic, Mesophyte & Xerophyte Leaf Types | EACH | £2.68 |
| YPS 300 310 | Monocot & Dicot Leaves | EACH | £2.68 |
| YPS 300 360 | Privet Leaf c.s. | EACH | £0.91 |
| YPS 300 300 | Mitosis Onion Root Tip I.s. | EACH | £2.68 |
| YPS 300 320 | Root Mitosis | EACH | £2.68 |
| YPS 300 370 | Lily Pollen w.m. | EACH | £0.99 |
| YPS 300 400 | Pollen Germination w.m. | EACH | £0.99 |

Economy Microscope Slide Set

Set of 25 assorted slides

Contents:

- Human blood smear
- Human skin v.s.
- Monocot root c.s.
- Monocot stem c.s.
- Dicot root t.s.
- Human bone c.s.
- Mammal brain c.s.
- Mammal kidney t.s.
- Mammal oesophagus t.s.
- Plant cells w.m.
- Human ovary t.s.
- Squamous epithelium
- Columnar epithelium
- Human liver t.s.
- Mammal lung t.s.
- Dicot stem t.s.
- Human cartilage t.s.
- Mammal pituitary gland c.s.
- Mammal thyroid gland c.s.
- Mammal adrenal gland c.s.
- Striated muscle
- Cardiac muscle
- Nerve cells sm
- Adipose tissue c.s.
- Human bone marrow sm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YPS 300 350 | Microscope Slide Set | KIT | £53.41 |

Economy Microscope Slide Sets

Includes slides of blood, epithelial tissue, connective tissue, bone, cartilage, muscle and nerve tissue.



| Cat No. | Description | Pk Qty | Quantity | Price |
|--------------------|------------------|--------|----------|---------------|
| YPS 300 430 | Animal Histology | 24 | PK24 | £38.40 |
| YPS 300 440 | Plant Histology | 24 | PK24 | £26.16 |
| YPS 300 450 | Life Cycles | 14 | PK14 | £24.30 |
| YPS 300 460 | Genetics | 5 | PK5 | £15.24 |
| YPS 300 480 | Insect Anatomy | 24 | PK24 | £30.55 |
| YPS 300 490 | Microorganisms | 13 | PK13 | £16.99 |



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A cost effective micro slide viewer giving super quality images. Lightweight and easy to use. Teachers can be sure that the entire class will see the key features quickly. Each slide strip comes complete with its own set of notes. No power needed.



MSP 010 040



MBV 200 010

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------------------|-------------|--------------|-------|
| MBV 200 010 | Micro Slide Viewer | EACH | £8.22 | |
| Accessories | | Description | Quantity | Price |
| Slide Strips | | | | |
| MBV 200 500 | Plants and Animals | EACH | £2.99 | |
| MBV 200 010 | Micro Slide Viewer | EACH | £8.22 | |
| MBV 200 520 | Human Blood | EACH | £2.99 | |
| MBV 200 530 | The Circulatory System | EACH | £2.99 | |
| MBV 200 540 | Plants | EACH | £2.99 | |
| MBV 200 550 | Animal Mitosis | EACH | £2.99 | |
| MBV 200 560 | The Animal Kingdom | EACH | £2.99 | |
| MBV 200 570 | Harmful Bacteria | EACH | £2.99 | |
| MBV 200 580 | Helpful Bacteria | EACH | £2.99 | |
| MBV 200 590 | The Virus | EACH | £2.99 | |
| MBV 200 610 | Evolution under the Microscope | EACH | £2.99 | |
| MBV 200 620 | Pond Life | EACH | £2.99 | |
| MBV 200 630 | Cell Structure | EACH | £2.99 | |
| MBV 200 640 | Meiosis | EACH | £2.99 | |
| MBV 200 650 | Animal Cells | EACH | £2.99 | |
| MBV 200 660 | Cells of your Body | EACH | £2.99 | |
| MBV 200 670 | Chromosomes & Genes in Action | EACH | £2.99 | |
| MBV 200 680 | Human Reproduction | EACH | £2.99 | |
| MBV 200 690 | The Endocrine System | EACH | £2.99 | |
| MBV 200 710 | Photosynthesis | EACH | £2.99 | |
| MBV 200 720 | Plant Mitosis | EACH | £2.99 | |
| MBV 200 730 | Flowering Plant | EACH | £2.99 | |
| MBV 200 740 | The Fungi Kingdom | EACH | £2.99 | |
| MBV 200 750 | The Plant Kingdom | EACH | £2.99 | |

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When ordering living cultures please give at least one weeks notice. Please specify your required by date and we will endeavour to have the cultures with you a couple of days prior to this. Cultures will work at their optimum between 1 and 2 weeks after delivery but will last up to 2 months depending upon the type. We recommend that cultures are refrigerated to achieve maximum life. To further extend the life of subcultures it is possible to subculture using relevant media. Please contact customer services on +44(0)1902 402 402 for further information.

Tech Info 2

Anti-immunoglobulin A serum should be stored in a refrigerator upon receipt.

Tech Info 3

Ready prepared media should be stored at 20°C.

Order Info 4

Please order jem embalmed specimens for delivery 3-4 days prior to use. Please specify your required by date on your order. If specimens are not used within 3-4 days of receipt, remove from bag and place in a sealed container with Opresol preservative. They may be stored in this for up to 3 months. For other specimens please order for delivery 3-4 days prior to use. Please specify your required by date on your order. Store specimens in the refrigerator where they will keep for approximately 1 week.

Tech Info 5

To maintain optimum performance all enzymes should be stored in a refrigerator.

Tech Info 6

For enzymes supplied as a liquid, treat the liquid as 100% and dilute to concentration required for final working volume. For enzymes supplied as a powder mix 1g per 100ml as 1% and use at the concentration required for final working volume.

Tech Info 7

On receipt, specimens should be removed from the polystyrene containers and stored in their cryo-vacuum packaging in a refrigerator between 2 and 5°C. They should be used within five days. If longer storage is required, the specimens should be removed from the polystyrene containers and stored in their cryo-vacuum packaging in a freezer set at -18°C for a maximum of 12 months. Once defrosted they should be used within three days.

Tech Info 8

To extend the life of subcultures it is possible to subculture on relevant media.

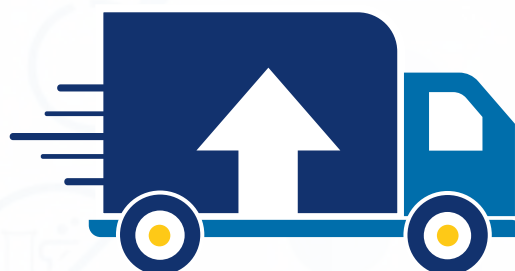
Tech Info 9

Due to the nature and availability of some items there may be occasion to substitute with an alternative.

LIVE CULTURES CONTAINED



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Sach's Water Culture Set

This set contains one tube each lacking: phosphorus, nitrogen, calcium, potassium, magnesium, iron, sulphur and a complete medium. Each tube is sufficient to prepare 4 litres of liquid medium.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| YPP 610 010 | Sach's Water Culture Set | KIT | £32.00 |

Protozoa

Our high quality protozoa are sold in two jar sizes for your convenience. The small jar is designed for groups of 10 students while the large jar contains sufficient for up to 50 students.

Protozoan Pellets

Add 1 pellet to 1 litre of previously boiled water, then divide into culture dishes of approx. 150-200ml. Full instructions provided.

Protoslow

A viscose solution used to slow mobile organisms making them easier to observe. Sold in an easy-to-use dropper bottle.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

GAROLINA



CBP 010 510

| Cat No. | Supplier Code | Description | Jar Size | Quantity | Price |
|-------------|---------------|-------------------|----------|----------|--------|
| CBP 010 010 | LZA005 | Amoeba Proteus | Small | | £13.94 |
| CBP 010 020 | LZA010 | Amoeba Proteus | Large | | £19.02 |
| CBP 010 030 | LZA025 | Euglena Gracilis | Small | | £13.94 |
| CBP 010 040 | LZA030 | Euglena Gracilis | Large | | £19.02 |
| CBP 010 050 | LZA015 | Paramecium | Small | | £13.94 |
| CBP 010 060 | LZA020 | Paramecium | Large | | £19.02 |
| Accessories | Supplier Code | Description | Jar Size | Quantity | Price |
| CBP 010 500 | CBA053 | Protozoan Pellets | 25 | | £23.07 |
| CBP 010 510 | ACS020 | Protoslow | 30ml | | £8.95 |



CBP 010 040



Basic Protozoa Set, Living

Includes Amoeba, Euglena, and Paramecium in 3 separate cultures. With culturing instructions.

- Must be used upon arrival
- Store at room temperature
- Loosen caps on live jars as soon as they arrive

Please allow up to 3 weeks for delivery on this item. Please contact Customer Services to discuss your required delivery date.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

GAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------------|----------|--------|
| CBL 550 010 | 131000 | Basic Protozoa Set, Living | EACH | £49.42 |

Physarum Culture Kit

For a class of 30. What is it? A protist? An animal? Despite its confusing taxonomic status, the creeping slime mould *Physarum polycephalum* is still an attention getter for your students. Students can follow through the life cycle observing the active plasmodial stage and the inactive sclerotial stage. With teacher instructions.

Note: Upon receipt of kit, break seal on plate culture and store at room temperature away from direct light. For best results, use plate culture within 2-3 days of receipt.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

Contents:

- 30x Physarum Life Cycle Bioreview® Sheets
- Physarum polycephalum Plate Culture (plasmodial stage)
- Physarum Sclerotium
- 4x Bottles Agar, Non-Nutrient (2%)
- 20x Sterile Petri Dishes
- Old-Fashioned Oat Flakes
- Sterile Disposable Scalpel
- Autoclave Disposal Bag



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------------|----------|--------|
| CBL 590 010 | 155825/CBK031 | Physarum Culture Kit | EACH | £83.43 |



Microbiology

Cultures

Algae

Algae are sold in two jar sizes for your convenience. The small jar is designed for groups of 10 students, while the large jar is suitable for up to 50 students.

Scenedesmus Quadracauda

Used for algae balls.

Dunaliella

Salt water algae. Ideal for brine shrimp.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Jar Size | Quantity | Price |
|--------------------|---------------|-------------------------|----------|----------|---------------|
| CBA 010 010 | LZA235 | Scenedesmus Quadracauda | Small | EACH | £13.94 |
| CBA 010 020 | LZA240 | Scenedesmus Quadracauda | Large | | £19.02 |
| CBA 010 030 | LZA065 | Chlorella | Small | | £13.94 |
| CBA 010 040 | LZA070 | Chlorella | Large | | £19.02 |
| CBA 010 050 | LZA075 | Spirogyra Vegetative | Small | | £13.94 |
| CBA 010 060 | LZA080 | Spirogyra Vegetative | Large | | £19.02 |
| CBA 010 070 | LZA225 | Dunaliella | Small | | £13.94 |
| CBA 010 080 | LZA230 | Dunaliella | Large | | £19.02 |

Prokaryota Living Cultures

Cultures are supplied on agar slopes in screw top vials.
Culture Media: Nutrient Agar.



| Cat No. | Organism | Culture Medium | Quantity | Price |
|--------------------|------------------------------------|----------------|----------|---------------|
| LCT 050 040 | Bacillus Megaterium | Nutrient Agar | EACH | £15.70 |
| LCT 050 060 | Bacillus Subtilis | Nutrient Agar | EACH | £15.70 |
| LCT 050 090 | Escherichia Coli K12 | Nutrient Agar | EACH | £15.70 |
| LCT 050 100 | Escherichia Coli B | Nutrient Agar | EACH | £15.70 |
| LCT 050 130 | Micrococcus Luteus (Sarcina Lutea) | Nutrient Agar | EACH | £15.70 |
| LCT 050 180 | Staphylococcus Albus | Nutrient Agar | EACH | £15.70 |

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LIVE CULTURES CONTAINED



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Dehydrated Culture Media

Dehydrated culture media powders should be stored at an even temperature in closed containers in a cool dry place away from direct sunlight.

Blood Agar Base

A non-selective general purpose medium, which may be enriched with blood or serum.

Blood Agar Base No.2

An improved blood agar base possessing enhanced nutritional properties suitable for the cultivation of fastidious organism.

Corn Meal Agar

A mycological medium for identifying *Candida albicans* and maintaining fungal stock cultures.

MacConkey Agar

A differential medium for isolating coliforms and intestinal pathogens in water, dairy products and biological specimens.

MacConkey Agar No.3

A selective medium giving excellent differentiation between coliforms and non-lactose fermenters with inhibition of gram positive micrococci.

MacConkey Broth

A differential medium containing neutral red for detecting coliform organisms in water and milk.

Malt Extract Agar

For identifying yeasts and moulds in sterility testing.

Malt Extract Broth

For identifying yeasts and moulds in sterility testing.

Nutrient Agar

A basic culture medium used to sub-culture organisms for maintenance purposes or to check the purity of sub-cultures.

Nutrient Broth

A general purpose fluid medium for cultivating micro-organisms not exacting in their nutritional requirements.

Nutrient Broth No.2

A nutritious medium suitable for cultivating fastidious pathogens and other microorganisms.

Sabouraud Dextrose Agar

An acid pH medium for isolating dermatophytes, other fungi and yeasts.

Tryptone Soya Agar

A general purpose agar medium, containing two peptones, which will support the growth of a wide variety of organisms. It is suitable for cultivating both aerobes and anaerobes.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MBM 010 010 | Blood Agar Base | 100GM | £16.47 |
| MBM 010 020 | Blood Agar Base No.2 | 100GM | £17.50 |
| MBM 010 040 | MacConkey Agar | 100GM | £16.47 |
| MBM 010 070 | MacConkey Broth | 100GM | £17.05 |
| MBM 010 080 | Malt Extract Agar | 100GM | £18.53 |
| MBM 010 090 | Malt Extract Broth | 100GM | £17.74 |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| MBM 010 110 | Nutrient Agar | 100GM | £12.35 |
| MBM 010 160 | Nutrient Agar Tablets | PK100 | £28.10 |
| MBM 010 120 | Nutrient Broth | 100GM | £14.41 |
| MBM 010 130 | Nutrient Broth No.2 | 100GM | £15.44 |
| MBM 010 140 | Sabouraud Dextrose Agar | 100GM | £13.38 |
| MBM 010 145 | Tryptone Soya Agar | 500GM | £72.00 |
| MBM 010 190 | Agar | 250GM | £27.80 |

Agar Powder



| Cat No. | Description | Quantity | Price |
|---------------|-------------|----------|--------------|
| AGO 05 | Agar Powder | 100GM | £8.23 |

MRS Agar

Dehydrated culture media powder should be stored at an even temperature in their closed containers in a cool dry place away from direct sunlight.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| MED 210 240 | MRS Agar | 500GM | £32.99 |

Dehydrated Powder

Dehydrated culture media powder should be stored at an even temperature in their closed containers in a cool dry place away from direct sunlight.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| MED 700 120 | Milk Agar Powder | 100GM | £25.70 |
| MED 700 210 | Yeast Extract | EACH | £3.50 |

Alga-Gro Concentrated Medium Tubes

Sterile enrichment for seawater and springwater. Almost a universal algal medium. Product comes in a pack of 12 tubes. One tube makes 1L.

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------------------------|----------|---------------|
| CBL 160 010 | 153751 | Alga-Gro Concentrated Medium Tubes | PK12 | £47.17 |



Hand Soap Evaluation Kit

For a class of 30. Do those antibacterial hand soaps work as well as the advertisements promise? Are they as effective as the old standby soaps in killing the bacteria on our hands? Students collect bacteria from their hands and then test various hand soaps for their effectiveness in killing these bacteria. The exercise requires 3 days from setup to completion. Note: The soaps to be tested must be supplied by the instructor. With teacher instructions.

- Shelf life: approx 2-3 months

Please allow up to 3 weeks for delivery on this item. Please contact Customer Services to discuss your required delivery date.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

Contents:

- 3x Bottles Nutrient Agar
- 15x Tubes Nutrient Broth
- 15x Alcohol Preps
- 30x Differently Coloured Paper Discs
- 15x Sterile Petri Dishes
- 5x Pairs Forceps
- 10x Packs Sterile Applicator Sticks
- Autoclave Disposal Bag
- Teacher Instructions

NB: Soap not included



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------|----------|----------------|
| CBL 560 010 | 154731 | Hand Soap Evaluation Kit | EACH | £130.98 |



Bioluminescent Bacterium Kit

Light up your students' understanding of bioluminescent organisms. Students transfer *Vibrio fischeri* onto photobacterium agar, incubate the cultures in the dark at room temperature, and observe the bioluminescence the next day.

Note: Store at room temperature, do not refrigerate or incubate. Use bacteria within 1 to 2 days of receipt for best results. Keep bacteria culture in envelope until use.

Please allow up to 3 weeks for delivery on this item. Please contact Customer Services to discuss your required delivery date.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------------------|----------|---------------|
| CBL 570 010 | 154750 | Bioluminescent Bacterium Kit | EACH | £46.93 |



Bioluminescent Fungus Kit

For a class of 30. Dubbed "foxfire" by hunters in the Appalachian Mountains, the fungus *Armillariella mellea* emits a low-level bioluminescence. The phenomenon can be observed 1 to 2 weeks after subculturing and lasts about 8 weeks. Room must be completely dark to observe the bioluminescence.

- For best results use kit within 1 week of delivery.

Please allow up to 3 weeks for delivery on this item. Please contact Customer Services to discuss your required delivery date.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------|----------|---------------|
| CBL 580 010 | 155798 | Bioluminescent Fungus Kit | EACH | £69.97 |



Glo Germ™

Glo Germ™ Kit

How clean are your hands? This kit is excellent for teaching aseptic techniques such as proper hand washing and surface cleaning. Apply liquid or powder directly to hands or to a work surface. The student works through a normal cleaning routine and then views the hands or surface area under an ultraviolet lamp for remaining "germs". Kit contains a battery-operated LED UV lamp. The lamp uses 3 AAA batteries (included) and is 95mm long. No electrical outlet is required, so the kit can be used anywhere. The wavelength of this ultraviolet light is not adequate for germicidal use.

CAUTION: UV light can cause damage to the eyes if looked at directly. It should only be used to indirectly observe the effectiveness of this test.

Glo Germ Liquid

Oil-based liquid for demonstrating proper hand washing technique. Apply a small amount to hands, perform a normal hand washing procedure, and then view hands under ultraviolet light for remaining "germs". Each 8-oz bottle is provides 75 to 100 applications.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------|----------|----------------|
| CBL 370 010 | 154680 | Glo Germ™ Kit | | £101.48 |
| CBL 370 020 | 154681 | Glo Germ™ Liquid | | £23.87 |
| Accessories | | Description | Quantity | Price |
| BAT 010 020 | AAA Size 1.5V | | PK4 | £2.99 |

Gram Stain Kit

For in vitro diagnostics. Includes all chemicals needed for Gram differentiation of bacteria.

GAROLINA



Contents:

- Crystal Violet Stain, 30ml
- Safranin Counterstain, 30ml
- Gram Iodine, 30ml
- Ethanol, 95%, 120ml

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------|----------|---------------|
| CBL 520 010 | 821050 | Gram Stain Kit | EACH | £32.47 |

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LIVE CULTURES CONTAINED



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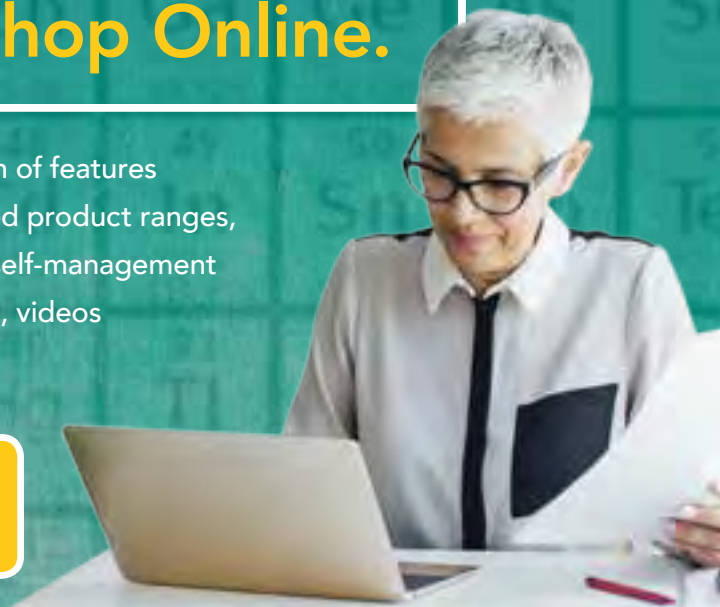
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Microbiology

Petri Dishes

Polystyrene Petri Dishes

Petri dish, 30mm, 50mm, 60mm

- Ideal for use when savings in media or incubator space is required
- 50mm deep form dish is over 20mm deep and designed for use with liquid media

Petri Dish, 90mm, standard

- Ideal for use in automatic plate pourers and general microbiology culture

Petri dish, 90mm, coloured

- Aids ease of identification

Petri dish, 90mm, compartmented

- Ideal with different media or when savings in media/incubator space are required




| Cat No. | Code | Description | Vents | Inner | Quantity | Price |
|--------------------|---------|-------------|--------|-------|----------|---------------|
| PDP 050 070 | 101R20 | 90mm | Single | 20 | PK500 | £43.99 |
| PDP 050 080 | 101VR20 | 90mm | Triple | 20 | PK500 | £40.74 |

Polystyrene Petri Dishes

Material: Polystyrene
Diameter: 90mm
Vents: 3



| Cat No. | Diameter | Vents | Quantity | Price |
|--------------------|----------|-------|----------|---------------|
| PDP 010 006 | 90mm | 3 | PK33 | £2.99 |
| PDP 010 011 | 90mm | 3 | PK99 | £9.99 |
| PDP 200 011 | 90mm | 3 | PK825 | £77.24 |

Polystyrene Petri Dishes

Material: Polystyrene
Diameter: 55mm
Vents: 6



| Cat No. | Diameter | Vents | Price |
|--------------------|----------|-------|--------------|
| PDP 040 021 | 55mm | 6 | £6.57 |

Resistance Glass Petri Dishes

| Cat No. | Size | Pk Qty | Quantity | Price |
|--------------------|------------|--------|----------|---------------|
| PDG 040 010 | 60 x 12mm | 10 | PK10 | £10.71 |
| PDG 040 020 | 80 x 15mm | 10 | PK10 | £10.51 |
| PDG 010 010 | 90 x 15mm | 10 | PK10 | £10.92 |
| PDG 040 030 | 100 x 15mm | 10 | PK10 | £12.15 |



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Antimicrobial Susceptibility Discs

Discs must be stored at -20°C if kept for long periods. Storage at 2-8°C is suitable for discs currently being used or to be used very soon. Discs should be returned to the refrigerator as quickly as possible after use.



| Cat No. | Agent | Level | Quantity | Price |
|--------------------|----------------------------------|----------|----------|---------------|
| MBM 020 010 | Penicillin G | 1 unit | PK50 | £5.44 |
| MBM 020 020 | Penicillin G | 2 units | PK50 | £5.44 |
| MBM 020 030 | Penicillin G | 5 units | PK50 | £5.44 |
| MBM 020 040 | Penicillin G | 10 units | PK50 | £5.44 |
| MBM 020 050 | Streptomycin | 10µg | PK50 | £5.44 |
| MBM 020 060 | Streptomycin | 25µg | PK50 | £5.44 |
| MBM 020 070 | Non Impregnated Discs | n/a | PK100 | £24.31 |
| MBM 020 500 | Ejector for Susceptibility Discs | 6 | PK6 | £54.18 |

Mast Rings

A paper ring device for the convenient simultaneous testing of 8 antibiotic discs. Each tip is impregnated with a different antibiotic and functions as an individual disc.



| Cat No. | Description | Pk Qty | Quantity | Price |
|--------------------|-------------|--------|----------|---------------|
| MBM 050 011 | Mast Rings | 100 | PK100 | £77.24 |

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Microbiology

Colony Counters | Loops

SECONDARY

Colony Counter, SC6PLUS

- Pressure sensitive counting
- Average count facility
- Bright white energy saving LED lighting
- With BioCote antimicrobial protection
- Audible count confirmation
- Choice of light or dark background
- Connectivity to printer or computer

Touch pressure with felt tip marker on petri dish registers cumulative count on the digital display with confirmation by audible tone (can be turned on or off). The pressure required to register a count can be adjusted to suit Each user. Averaging facility calculates average count over multiple plates. Counting results as well as useful statistics including SD can be sent directly to the accessory printer or to a computer via a USB cable supplied. Sub-stage illumination by low energy bright LEDs allows glare-free optimum viewing. A switchable black background is provided to enhance viewing of translucent and difficult to see colonies. Supplied with two Wolffhuegel graticules and dish centering adapters to facilitate use with 50mm to 90mm dishes. A choice of magnifiers are available as optional accessories.



DATA LOGGING

BIOLOGY

| Cat No. | Model | Description | Quantity | Price |
|-------------|---------|----------------|----------|---------|
| CLY 030 011 | SC6PLUS | Colony Counter | EACH | £552.08 |

CHEMISTRY



Platinum Wire Holders

Aluminium body with a nickel plated collar, suitable for wire up to 0.56mm (24swg).

| Cat No. | Length | Quantity | Price |
|-------------|--------|----------|-------|
| DSN 200 011 | 200mm | EACH | £2.14 |
| DSN 200 020 | 150mm | EACH | £1.99 |

PHYSICS

ENVIRONMENTAL SCIENCE

Inoculating Loops

Wire loops manufactured from Nichrome wire. These loops are accurately formed and glide smoothly across the agar surface producing good isolated colonies.



| Cat No. | Volume | Loop Dia. | Quantity | Price |
|-------------|--------|-----------|----------|-------|
| MBY 070 010 | 2µl | 2.2mm | PK25 | £5.54 |

FORENSIC SCIENCE

CHEMICALS

L-Shaped Spreaders

L-Shaped blue spreader with a curved end, which helps avoid damage to the media surface.

| Cat No. | Description | Pk Qty | Quantity | Price |
|-------------|--------------------|--------|----------|-------|
| PRT 160 010 | L-Shaped Spreaders | 20 | PK20 | £0.99 |

GENERAL LABWARE

SAFETY

Inoculating Loop

The wire at the tip is made of Nichrome and forms a small loop with a diameter of about 5mm. The inoculation loop is sterilised in fire until it becomes hot before and after each use. By doing this, the same tool can be reused in different experiments without fear of cross-contamination.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|-------|
| MBY 030 010 | Inoculating Loop | EACH | £2.27 |

Inoculating Loops

Flexible polystyrene, sterile loops. 20 loops per sleeve.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| MBY 100 013 | 10µl Medium Loops | PK1000 | £29.00 |
| MBY 100 023 | 1µl Medium Loops | PK1000 | £22.65 |



Classic Media Autoclave

- Two models, choose either 9 or 12 litre capacity models
- Fits neatly on a work bench
- Easy to operate & fully automatic - Load your equipment into one of the special baskets and set the programme with the one-touch button
- Reliable - Special in-built software ensures exact temperatures are reached for the correct duration
- Interlock safety mechanism, built-in safety mechanism that prevents the unit being opened until the temperature inside has fallen to a safe level
- Eliminates the risk of super heated vessels exploding
- Prevents the escape of gas or vapour
- Removes the potential of accidental overbalance whilst sterilising
- Supplied with basket



| Model | Standard | Extended |
|------------------------------------|-------------|-------------|
| Sterilising Temperature | 121°C | 121°C |
| Min Sterilising Time | 22 min | 22 min |
| Operating Pressure | 1.05 bar | 1.05 bar |
| Chamber Capacity | 9L | 12L |
| Max Instrument Length | 200mm | 290mm |
| Chamber Dims (Dia x H) | 210 x 228mm | 210 x 318mm |
| Overall Dims (W x H) | 340 x 335mm | 340 x 420mm |
| Max Load Weight (Unwrapped) | 3kg | 4kg |
| Max Net Weight | 3.8kg | 4.3kg |

| Cat No. | Model | Description | Quantity | Price |
|--------------------|--------|------------------------------------|----------|-----------------|
| AUT 280 010 | 210047 | Standard 9 Litres | EACH | £1029.00 |
| AUT 280 020 | 210048 | Extended 12 Litres | EACH | £1335.00 |
| Accessories | | Description | Quantity | Price |
| AUT 280 500 | | Gasket for Classic Media Autoclave | EACH | £40.23 |

Express Range Autoclave

The ST 1528 is made from stainless steel with a polished exterior for easier cleaning. The lid is removable for full width access. Items to be sterilised can be placed in the inner liner provided with the machine. The lid locking device is comprised of six wing nuts and six lid locking lugs. This ensures that the lid cannot be opened while the vessel is under pressure. After the sterilising period, a condensing vacuum is drawn to aid drying. The ST 1528 is particularly suitable for destructive sterilisation. The operator is not restricted to a set sterilising period. This can be adjusted to suit the application.



| | |
|---------------------------------------|--|
| Capacity | 15L |
| Internal Diameter | 280mm |
| Internal Height (useable) | 245mm |
| Internal Height (total) | 280mm |
| Material | Stainless Steel 316 |
| Heat Source | 2kW Heater with Electronic Thermostatic Controller |
| Design Pressure | 1.3 bar (18 psi) |
| Design Temperature | 0 - 125°C |
| Hydraulic Test Pressure | 2.0 bar (30 psi) |
| Standard Working Pressure | 1.3 bar (18 psi) |
| Maximum Working Temperature | 121°C |
| Standard Working Temperature | 121°C |
| Overall Dimensions (W x D x H) | 370 x 390 x 485mm |
| Net Weight | 19kg |

| Cat No. | Model | Quantity | Price |
|--------------------|---------|----------|-----------------|
| AUT 080 011 | ST 1528 | EACH | £2370.59 |



Microbiology

Autoclave Accessories

SECONDARY

Self Seal Autoclave Pouches

Self Seal Autoclave Pouches, peel back, fold over and seal. Colour changing indicator.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------|
| AUC 220 010 | 135 x 255mm | PK200 | £21.86 |

StrateLine™ Autoclave Indicator Tape

Roll of tape approximately 55m in length. The cream strip turns black to indicate proper sterilisation temperature. Excellent adhesive properties, but still easy to remove, without leaving a residue.



| Cat No. | Width x Roll Length | Quantity | Price |
|--------------------|---------------------|----------|-------|
| AUC 030 020 | 18mm x 55m | EACH | £4.11 |
| AUC 030 030 | 24mm x 55m | EACH | £5.14 |

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS



Autoclave Indicator Tape

Specifically for use with disposable wraps. Should not be used with linen or muslin. The white strips turn black when autoclaving temperature is reached.

| Cat No. | Width x Roll Length | Quantity | Price |
|--------------------|---------------------|----------|-------|
| AUC 040 010 | 18mm x 55m | EACH | £4.11 |
| AUC 040 020 | 24mm x 55m | EACH | £5.14 |



Autoclave TST Strips

The TST (Time, Steam and Temperature) Steriliser Control is the most sophisticated Chemical device produced, being an integrated control system that registers a Pass only when it has been subjected to the required heat and time ratio in saturated heat steam (when exposed to steam for 3.5 minutes at 134°C or 15 minutes at 121°C). Can be placed throughout the load for thorough checking.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------|
| AUC 300 010 | Autoclave TST Strips | BX100 | £30.89 |

Browne Steriliser Control Tubes

Effective and immediate visual check on sterilisation conditions

- Integrated 2 criteria control of temperature and time
- Ideal for fluid and dry heat sterilisers

Select the Control Tube to match your sterilisation parameters (time/temperature) and distribute them throughout the load prior to sterilisation.



| Cat No. | Description | Criteria | Quantity | Price |
|-------------------------------|-------------|------------------------------|----------|--------|
| Dry Heat Sterilisation | | | | |
| AUC 160 020 | Green Spot | Working at 160°C for 60 Mins | PK100 | £24.00 |
| Fluid Sterilisation | | | | |
| AUC 160 030 | Black Spot | Working at 121°C for 15 Mins | PK100 | £29.18 |
| Steam Sterilisation | | | | |
| AUC 160 040 | Yellow Spot | Working at 134°C for 3 Mins | PK100 | £29.18 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Autoclave Bags

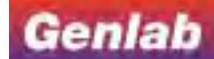
Polypropylene bags with Biohazard symbol for autoclaves, ideal for Petri-dishes, tubes and other contaminated products.

Thickness: 40µm
+151°C



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------|
| AUC 150 031 | 413 x 632mm | PK200 | £22.65 |
| AUC 150 035 | 413 x 632mm | PK100 | £15.64 |
| AUC 150 041 | 610 x 810mm | PK200 | £41.19 |





General Purpose Incubator

Genlab General Purpose Incubators offer a range of highly efficient, reliable, cost effective units to suit most biological analysis, research and general laboratory applications.

- Easy clean powder coated body; aluminium coated mild steel chamber
- Direct reading thermostat
- Safety overheat thermostat
- C.E. compliant
- Full two year warranty

All units have CLAD interior with thermostatic control as standard. The incubators have a solid steel door as standard or as an alternative a door with an integral viewing window can be fitted. Please ask for details about additional options.

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.



| | | | | | |
|--|---|-------------------|-------------------|-------------------|-------------------|
| Temperature Range | ambient +5 to 100°C without fan ambient +5 to 60°C with window | | | | |
| Temperature Fluctuation | ±0.25°C @ 37°C | | | | |
| Capacity | 18L | 30L | 40L | 50L | 75L |
| Internal Dimensions (HxWxD) | 260 x 260 x 270mm | 240 x 360 x 350mm | 320 x 360 x 350mm | 330 x 490 x 330mm | 330 x 490 x 450mm |
| External Dimensions - Without Fan (HxWxD) | 520 x 380 x 410mm | 500 x 480 x 490mm | 580 x 480 x 490mm | 590 x 610 x 470mm | 590 x 610 x 600mm |
| External Dimensions - With Fan (HxWxD) | N/A | 500 x 480 x 620mm | 580 x 480 x 620mm | 590 x 610 x 590mm | 590 x 610 x 720mm |
| No. of Shelves | 2 | 2 | 2 | 2 | 2 |
| No. of Shelf Positions | 2 | 2 | 3 | 3 | 3 |
| Weight | 14kg | 20kg | 23kg | 26kg | 34kg |

| Cat No. | Capacity | Quantity | Price |
|---|----------|----------|---------|
| Vertical Style, Analogue, Without Fan, Solid Steel Door | | | |
| INC 125 020 | 18L | EACH | £614.00 |
| INC 125 030 | 30L | EACH | £660.00 |
| INC 125 040 | 40L | EACH | £730.00 |
| INC 125 050 | 50L | EACH | £787.95 |
| INC 125 060 | 75L | EACH | £886.00 |
| Vertical Style, Analogue, Without Fan, Door with Integral Viewing Window | | | |
| INC 125 035 | 30L | EACH | £684.00 |



Molecular Biology

Enzymes

Molecular Model Set for Biological Sciences

This set is designed for use by students working on their own or in pairs, in a classroom under the supervision of a teacher, or as a revision aid.

This new molymod® set contains a total of 34 atoms and comes with both standard open and compact links to make either open or compact models. Also included are three flat pink paddles to represent "R" groups.

Contents: 34 Atoms and 88 links.

14 Hydrogen, 7 Oxygen, 3 Nitrogen, 6 Carbon, 2 Sulphur, 1 Copper, 1 Phosphorus, 3 Pink R-Groups 26 grey single bond links, 12 grey multiple bond links, and 50 compact model links



| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|--------------|
| MMD 190 010 | Molecular Model Set for Biological Sciences | EACH | £9.28 |

Enzymes

Alpha-Amylase, Granules

Fungal. Granules. Breaks starch into the form of maltose. Commercial grade enzyme. May be stored at 5°C for up to 1 year without appreciable loss of activity.

Bacterial Amylase

Liquid. Breaks starch into dextrins. Commercial grade enzyme. May be stored at 5°C for up to 1 year without appreciable loss of activity.

Pectinase

Liquid. Used to break down fruit into fruit juice. Commercial grade enzyme. May be stored at 5°C for up to 1 year without appreciable loss of activity.

Bacterial Protease

Converts protein to amino acid. Commercial grade enzyme. May be stored at 5°C for up to 1 year without appreciable loss of activity.

Urease, Powder, Reagent Grade

Catalyses the hydrolysis of urea into ammonia and carbon dioxide. Contains 140-180 units per gram. Keep refrigerated.

Pancreatin, Powder, Laboratory Grade

Keep refrigerated.



CBL 460 030



CBL 460 010

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------------|----------|---------------|
| CBL 460 010 | 202350 | Alpha-Amylase, Granules | 100GM | £39.90 |
| CBL 460 020 | 202360 | Bacterial Amylase | 100ML | £18.31 |
| CBL 460 030 | 202380 | Pectinase | 100ML | £31.63 |
| CBL 460 041 | 202390 | Bacterial Protease | 100ML | £18.45 |
| CBL 460 060 | 897690 | Urease, Powder, Reagent Grade | 10GM | £20.75 |

Catalase

Catalase, Laboratory Grade

Dilute 1ml catalase to 715ml with distilled water for a final concentration of 400 I.U./ml; converts hydrogen peroxide to oxygen and water; keep refrigerated; oxidising enzyme.

Lyophilized (freeze-dried) Catalase

Reconstitutes to yield about 120ml of the enzyme. Please allow up to 3 weeks for delivery on this item. Please contact Customer Services to discuss your required delivery date.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



CBL 460 090



CBL 460 080

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------------------|----------|---------------|
| CBL 460 080 | 853530 | Catalase, Laboratory Grade | 1ML | £36.06 |
| CBL 460 090 | 746821 | Lyophilized (freeze-dried) Catalase | EACH | £21.94 |



SciChem Enzymes Set

A set comprising 8 x 10g tubes of the following enzymes:

- Amylase
 - Diastase
 - Invertase
 - Lipase
 - Pancreatin
 - Pepsin
 - Trypsin
 - Urease
- Teacher's notes included.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| ENZ 080 010 | SciChem Enzymes Set | EACH | £65.00 |

Restriction Enzyme and DNA Kit with CarolinaBLU™

This kit features Instant Enzymes and Instant DNA. No more pipetting errors when adding enzyme to DNA; no more freezer storage or frozen samples; no more next day and ice pack shipping charges. The stable Instant DNA is simply rehydrated with distilled or deionised water.

After hydration, DNA is added to the tubes containing the Instant Enzymes (BamHI, EcoRI, and HindIII) and incubated at 37°C. After incubation, the DNA samples are electrophoresed on an agarose gel and stained.

The kit contains sufficient materials for 6 teams of students.



Contents:

- DNA and Restriction Enzymes
- TBE Buffer
- Loading Dye
- Staining Solution (CarolinaBLU™)
- Agarose
- Microcentrifuge Tubes
- Staining Trays
- Disposable Gloves
- 2x Dry Labs
- Foam Microcentrifuge Rack
- Instructions

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------|----------|----------------|
| CBL 300 010 | 211185 | Restriction Enzyme and DNA Kit | EACH | £129.85 |



20 Natural L-Amino Acid Kit

Kit containing 20 amino acids, 1g each.

Contents:

- L-Alanine
- L-Arginine HCL
- L-Asparagine H2O
- L-Aspartic Acid
- L-Cysteine
- L-Cystine
- L-Glutamic Acid
- L-Glycine
- L-Histidine HCL
- L-isoleucine H2O
- L-Leucine
- L-Lysine HCL
- L-Methionine
- L-Phenylalanine
- L-Proline
- L-Serine
- L-Threonine
- L-Tryptophan
- L-Tyrosine
- L-Valine

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------|----------|---------------|
| CBL 127 010 | 843600 | 20 Natural L-Amino Acid Kit | EACH | £84.00 |



Amino Acid Model Kit

This kit is designed to demonstrate the 8 groups of L-configuration amino acids. This kit allows the user to build individual stand alone examples of the eight groups or reconfigure them into a small peptide chain. This kit is ideal for showing the structure and function of the different groups of amino acids.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MMD 110 010 | Amino Acid Model Kit | PACK | £35.54 |



Amino Acid Starter Kit

Using these captivating models and tools, students explore proteins' primary, secondary, and tertiary structures. They learn the chemical properties of the 20 amino acid side chains using dynamic side chain models. These models still feature dual-colouring schemes - a coloured band at the base indicates chemical properties - but new embedded plastic balls show atomic structure. Since understanding the structural and chemical properties of the amino acid side chains is essential to grasping the basics of protein structure, working with the side chain models helps students comprehend protein structure. An additional protein-folding activity further deepens students' understanding as they explore the role of the side chains' properties in creating secondary structure.

Contents:

- 22x Amino Acids
- Circular Magnetic Board (for sorting amino acids by chemical properties)
- Amino Acid Side Chains List
- 4-ft Mini-Toober®
- 15x Metal Clips (for attaching amino acids to the Mini-Toober®)
- 6x Hydrogen Bond Connectors
- Instructional CD-ROM

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|------------------------|----------|---------------|
| CBL 470 010 | 211126 | Amino Acid Starter Kit | EACH | £88.73 |

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Introductory Gel Electrophoresis Student Kit

Excellent for teaching basic electrophoresis principles. Students become familiar with general techniques, such as preparing agarose gels, loading samples into sample wells, using gel chambers and power supplies, observing results, and measuring migration distances. This is an 8-Station kit.

Contents:

- Agarose Powder, 4g
- TBE Buffer, 200ml
- Bromophenol Blue, 500µl
- Methyl Orange, 500µl
- Ponceau G, 500µl
- Xylene Cyanol, 500µl
- Pyronin Y, 500µl
- Unknown #1, 500µl
- Unknown #2, 500µl
- Unknown #1, 30µl
- Unknown #2, 30µl
- Unknown #3, 30µl
- 8x Plastic Trays
- Teacher's Manual and Reproducible Student Guide

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------------|----------|---------------|
| CBL 290 010 | 211148 | Introductory Gel Electrophoresis Kit | EACH | £72.00 |

Carolina Gel Electrophoresis Chamber

Safety interlock lid prevents operation unless lid is securely in place. Includes heavy, nonwarping, gel-casting tray, marked to assist in easy sample loading, and two 8-tooth combs for running 8 or 16 samples. With instructions.

Features:

- Durable 6mm acrylic construction
- Safe - unit will not operate without lid securely in place
- Easy to use - heavy, nonwarping gel-casting tray is marked for easy loading
- Notches in the centre of the tray and two 8-well combs offer the option of running 16 samples per gel
- Run 32 samples at one time using Carolina™ Stackable Casting Trays
- Tray makes a gel 82 x 95mm (W x L)

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------------|----------|----------------|
| CBL 350 010 | 213668 | Gel Electrophoresis Chamber | EACH | £299.61 |

Electrophoresis Gel Tank

This SciChem Gel Tank is leak proof and made from a single piece polycarbonate moulding. The electrodes are pure platinum (purity 99.95%) and are corrosion resistant, withstand high temperature and have excellent electric conduction.

Contents:

- Tank
- Lid with plugs
- 2 Casting trays
- 4 End dams
- 2 Combs



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| EPE 150 010 | Electrophoresis Gel Tank | EACH | £109.06 |

Electrophoresis Power Supply

- Regulated DC Power supply
- Provides three different ranges - 0-50 V, 0-100V and 0-125 V at 300 mA capacity.
- Output voltage is selected with the help of Band-switch.
- On/off
- 6 total DC output terminals - 3 positive 3 negative

This electrophoresis power supply provides low voltage electrophoresis. It provides three different ranges - 0-50 V, 0-100V and 0-125 V DC at 300 mA capacity. Output voltage is selected with the help of band-switch. Equipped with On / Off switch and voltage dial. 6 total DC output terminals - 3 positive 3 negative



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| EPE 150 021 | Electrophoresis Power Supply | EACH | £100.30 |



Molecular Biology

Electrophoresis

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

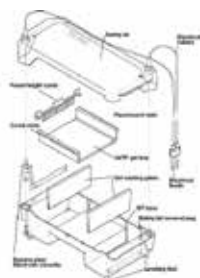
SAFETY

Horizontal DNA Electrophoresis Mini-Sub Cell GT

Fast and flexible, the Mini-Sub Cell GT is a very popular classroom gel box. The Mini-Sub Cell GT will hold a 7 x 10cm gel tray. A 10cm gel poured with two 8-well combs easily accommodates two student groups at a time. At 100V, this cell resolves DNA fragments of 20-20,000 base pairs in just under 30 minutes.

Features:

- Drop-in combs - Save time and eliminate sample loading errors with large 8-well, fixed height combs that drop into place for easy gel casting (combs to form 15 smaller wells are also available)
- Tape-free gel casting - No tape, no mess! Now cast agarose gels using the tape-free casting stand
- Casting tray with fluorescent ruler - Etched into each tray and coloured with fluorescent ink, the ruler enhances monitoring of DNA migration distance during a run and is handy for gel documentation after a run
- Safety certification - All Bio-Rad electrophoresis equipment is IEC1010-1 certified. You are assured that their Sub-Cell systems are the safest you can buy



| Cat No. | Casting | Quantity | Price |
|-------------------------------|------------------|----------|----------------|
| Mini-sub cell GT cells | | | |
| EPE 100 010 | No Casting Gates | EACH | £318.58 |

DNA Electrophoresis Lab Sets

Lab Set 2 Supports a classroom laboratory of up to 32 students.

Contents:

DNA Electrophoresis Lab Set 1

- 1x PowerPac Mini power supply, runs 2 electrophoresis chambers
- 2x Mini-Sub cell GT electrophoresis chambers with 7 x 10cm trays
- 4x Classroom adjustable-volume digital micropipettes, 2–20µl
- 4x 8-well combs, 1 comb per team

DNA Electrophoresis Lab Set 2

- 1x PowerPac Basic power supply, runs 4 electrophoresis chambers
- 4x Mini-Sub cell GT electrophoresis chambers with 7 x 10cm trays
- 8x Classroom adjustable-volume digital micropipettes, 2–20µl
- 8x 8-well combs, 1 comb per team



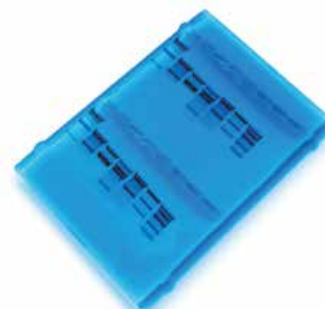
| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|-----------------|
| EPE 130 020 | DNA Electrophoresis Lab Set 2 | EACH | £2830.38 |

Ready Precast Agarose Gels

Ready Precast Agarose Gels are individually packaged precast agarose gels. The UV-transparent tray backing each Ready Precast Agarose gel locks into the Mini-Sub Cell GT electrophoresis chambers. These gels provide resolution of nucleic acids from 20 to 10,000 base pairs.

Features:

- UV-transparent tray with fluorescent lane numbers and ruler
- Tray locks into Bio-Rad electrophoresis cell of corresponding size
- Mini 7 x 10 cm and wide mini 15 x 10cm formats
- Made with TAE or TBE buffer
- Gel percentages for optimal resolution:
 - 1.0%, 200 bp-10 kb
 - 3.0%, 20 bp-1 kb
- Storage at room temperature
- One-year shelf life



| Cat No. | Configuration | Agarose % | Quantity | Price |
|--------------------|---------------|-----------|----------|---------------|
| EPE 140 010 | 2x 8-Well | 1% | EACH | £15.23 |
| EPE 140 030 | 8-Well | 3% | EACH | £13.96 |





EPE 140 040



EPE 140 500

Molecular Biology Agarose
Certified Molecular Biology Agarose

This new general-purpose Agarose, like the entire line of Bio-Rad agaroses, is genetic quality tested (GQT) grade. This ensures that DNA recovered from a preparative gel can be manipulated without compromising quality. This special agarose formulation provides exceptional DNA separation and more durable gels. The gels are easy to handle even at low agarose percentages, and are recommended for low-percentage gels (0.8-1.2%) required for DNA fingerprinting, PCR, or restriction digest analysis. Each batch is tested for gel strength and clarity, and provides the sharpest resolution of fragments of 20-20,000 base pairs - ideal for all teaching lab applications.

Gel Support Film

Dry your agarose gels and save money! Agarose gel support films are a convenient, low-cost alternative to traditional gel documentation systems. No more Polaroid pictures! Simply lay a wet agarose gel stained with Bio-Safe stain on a piece of film and let the moisture evaporate overnight. The result is a durable dried gel - a permanent record that can be taped directly into a lab notebook, reproduced with a copy machine, or photographed. What a great idea!

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|---------|
| EPE 140 040 | Molecular Biology Agarose | 25G | £53.31 |
| EPE 140 500 | Gel Support Film | PK50 | £214.50 |
| EPE 140 500 | Gel Support Film | PK50 | £214.50 |

Gel Scoop

Acrylic scoop with beveled edge. Facilitates handling of gel during staining, destaining, and photography.
Size: 8.5 x 9cm with 3cm handle.

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-------------|----------|--------|
| CBL 350 020 | 215591 | Gel Scoop | EACH | £18.31 |

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Analysis of Precut Lambda DNA Kit

The analysis of pre-cut lambda DNA kit demonstrates the procedures and principles of DNA gel electrophoresis, including agarose gel casting, sample loading, size-based separation of DNA fragments, DNA staining, and graphic analysis - the very basics. Electrophoretic techniques that distinguish DNA fragments by size are essential in forensics and in the mapping of restriction sites within genes. This activity provides in-depth explanations about how restriction enzymes cut DNA and how electrophoresis can be used to separate and visualise DNA fragments.

By visualising the effect of two restriction enzymes on identical samples of double stranded lambda virus DNA, students learn that different restriction enzymes recognise and cut different DNA sequences.

This kit provides DNA size standards and three samples of lambda DNA. Two have been pre-cut using a different restriction enzyme and the one is uncut. The postlab exercises guide students through the procedure of DNA fragment size determination by constructing a standard curve using their own gel data. They can then use their standard curve to determine the sizes of the various DNA fragments in their samples.

Lambda bacteriophage has been a workhorse of molecular biology for decades. It is vital in the fields of molecular cloning and genomic sequencing since it can be used to subclone very long genomic DNA fragments much more efficiently than plasmid vectors. Lambda DNA comes from a bacterial virus, or bacteriophage, which attacks bacteria by injecting them with its nucleic acid. Once inside, lambda DNA hijacks the bacterial cellular machinery and replicates itself until the cells burst, releasing millions more bacteriophage to carry out the same infection process. Bacteriophage lambda is harmless to humans and other eukaryotic organisms, and therefore makes an excellent source of DNA for experimental study. This kit supports 32 students.



Key Kit Features:

- Study DNA restriction enzyme function
- Use electrophoresis to separate DNA fragments
- Construct standard curves from student data
- Make precise determinations of DNA fragment sizes
- Complete in one 45 minute lab session

NB: You will also require horizontal gel electrophoresis chamber, suitable power supply, adjustable micropipettes (2-20 and 20-200µl), pipette tips and gel staining trays. Needs to be refrigerated.

Contents:

- **Analysis of Precut Lambda DNA Kit**
- 1 DNA size standard (HindIII lambda DNA digest)
- 1 PstI lambda DNA digest
- 1 EcoRI lambda DNA digest
- 1 Lambda (gamma) DNA, uncut
- Sample loading buffer, 5x, 1ml
- 1 Agarose powder, 5g
- Electrophoresis buffer, 50x TAE, 100ml
- 60 Coloured micro test tubes, 2.0ml
- Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

Precut Lambda DNA Kit Refill

- DNA size standard
- PstI lambda DNA digest
- EcoRI lambda DNA digest
- Uncut lambda DNA
- Sample loading buffer



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|----------------|
| EPE 120 130 | Analysis of Precut Lambda DNA Kit | EACH | £156.12 |
| Accessories | | Quantity | Price |
| EPE 120 630 | Precut Lambda DNA Kit Refill | EACH | £77.42 |
| EPE 140 100 | Fast Blast DNA Stain | 100ML | £36.81 |

Small Fast Blast DNA Electrophoresis Reagent Pack

The Small Fast Blast DNA Electrophoresis Reagent Pack allows you to pour your own gels with ease. Convenient premixed buffers ensure reproducible results. Cast superior agarose gels with high-quality agarose, convenient premixed buffer, and ultrasensitive non-toxic Fast Blast DNA stain. Guaranteed to produce great results - every time. Makes 48 1% or 16 3% 7 x 10cm agarose gels.

Contents:

- 25g agarose powder
- 100ml 500x Fast Blast DNA stain
- 100ml 50x TAE electrophoresis buffer



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| EPE 140 110 | Electrophoresis Reagent Pack | EACH | £137.08 |



Premixed Electrophoresis Reagents

Careful selection of both equipment and reagents can affect the quality of your electrophoresis results. Bio-Rad pioneered the production of reagents specifically designed for electrophoresis.

Premixed DNA Electrophoresis Buffers

Save preparation time and ensure reproducible results - just dilute and run. This line of premixed buffers is made with Bio-Rad electrophoresis-purity reagents. Available in 50x TAE (Tris-acetate-EDTA formulation, this buffer concentrate is easily prepared for pouring and running agarose or DNA gels. Just add water.

Premixed DNA Sample Loading Buffers

Simplify sample preparation and save time! Bio-Rad's concentrated premixed DNA sample loading buffer contains two electrophoresis tracking dyes (Xylene Cyanol and Bromophenol Blue) and glycerol in Tris buffer. Add directly to liquid DNA samples and load your gels with ease.



| Cat No. | Description | Quantity | Price |
|---|-------------|----------|---------------|
| Premixed DNA Electrophoresis Buffers | | | |
| EPE 140 060 | 50x TAE | 1LTR | £92.65 |

Micropipettes

The procedures used in molecular biology require precise manipulation of small volumes of solutions containing DNA, proteins, buffers, or enzymes. Micropipettes are required to accurately measure and transfer solution volumes in microlitre (μ l) ranges. No biology teaching lab experience is complete without hands-on use of micropipettes.

Fixed-Volume Micropipettes

Get all the accuracy of standard adjustable-volume micropipettes - but at a fraction of the price! These dedicated pipettes accommodate sample volumes most frequently encountered in a teaching lab. Using standard pipette tips, each colour-coded pipette will transfer a fixed volume of solution: 5 μ l (red), 10 μ l (green), 20 μ l (yellow), or 50 μ l (blue).

Classroom Digital Micropipettes

These adjustable pipettes deliver exceptional classroom performance.

Features include:

- Adjustable digital dial
- Convenient tip ejector
- Accommodation of standard pipette tips

Micropipette Rack

- Designed for the lab benchtop
- Fits nine digital micropipettes
- Non-skid base
- Wipe and clean surface

Pipette Tips

These pipette tips are made from virgin polypropylene, are accurately moulded for an airtight fit, and have a smooth interior surface - essential for precise pipetting.



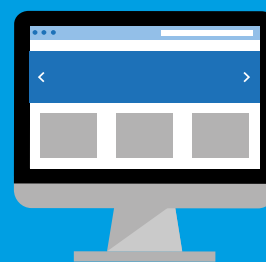
Application Guide

| Pipette Tips | Adjustable Micropipette | Fixed Volume Micropipette |
|--------------------|----------------------------------|---------------------------|
| PRT 170 010 | 0.5 - 10 μ l | N/A |
| PRT 170 020 | 2 - 20 μ l, 20 - 200 μ l | 5, 10, 20, 50 μ l |
| PRT 170 030 | 100 - 1,000 μ l | N/A |

| Cat No. | Volume | Colour | Quantity | Price |
|-----------------------------|-------------------------------|--------|----------|----------------|
| Fixed Volume Pipette | | | | |
| PRP 540 010 | 5 μ l | Red | EACH | £22.85 |
| PRP 540 030 | 20 μ l | Yellow | EACH | £22.85 |
| Digital Micropipette | | | | |
| PRP 540 060 | 2-20 μ l | | EACH | £105.35 |
| PRP 540 070 | 20-200 μ l | | EACH | £105.35 |
| PRP 540 080 | 100-1000 μ l | | EACH | £105.35 |
| Accessories | | | | |
| | Volume | Colour | Quantity | Price |
| PRT 170 010 | Pipette Tips 0.5-10 μ l | | PK1000 | £43.15 |
| PRT 170 020 | Pipette Tips 2-200 μ l | | PK1000 | £43.15 |
| PRT 170 030 | Pipette Tips 100-1000 μ l | | PK500 | £25.38 |

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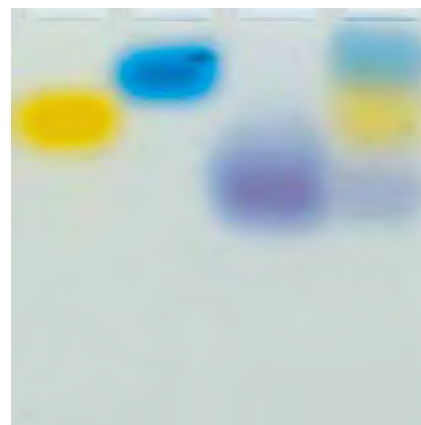


Exploring Electrophoresis of Dyes Demonstration Kit

Students separate mixtures of colorful dyes and identify the components by comparing them to standards. Effectively demonstrates the principles of electrophoresis. Gels can be run in 35 minutes with five 9-V batteries or in 50 minutes with 3 batteries. Sufficient for 3 demonstrations.

Contents:

- Agarose Powder and TBE Buffer
- Carbon-Fibre Electrodes
- Pipet Tips and Dye Samples
- Agarose Powder
- TBE Buffer
- Carbon-Fibre Electrodes
- Pipette Tips
- Dye Samples



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------------------------|----------|---------------|
| CBL 260 010 | 211000 | Exploring Electrophoresis of Dyes Kit | EACH | £70.47 |

Exploring Electrophoresis and Forensics Kits

- Introduces advanced concepts of PCR and DNA fingerprinting
- Gels can be run in 45 minutes with five 9-V batteries or overnight with one battery
- Introduces forensic techniques

This technically simple experiment simulates the use of DNA in forensic investigations. Students cast agarose gels, load predigested DNA, and perform electrophoresis. They use the banding patterns of the DNA in the gel to compare the DNA fingerprints of 2 suspects with evidence and victim DNA.

Note: Order bulk DNA 2 weeks prior to desired ship date.

The Classroom Kit contains instructions, 5 sets of apparatus, a How-To DVD, and sufficient supplies for 10 experiments.

The Replacement Kit contains enough supplies for 10 experiments. Note: Order bulk DNA 2 weeks prior to desired ship date.

Demo Kit Contents:

- Pipetting Devices
- Electrophoresis-Chamber
- 4-Well Comb
- Pairs of Leads
- Carbon-Fibre Sheets (11 x 10cm)
- 30ml (0.8%) Agarose
- 75ml 20x TBE
- 50ml CarolinaBLU™ Stain (concentrate)
- 2x Suspect 1 DNA (20- μ l tubes)
- 2x Suspect 2 DNA (20- μ l tubes)
- 2x Victim DNA (20- μ l tubes)
- 2x Evidence DNA (20- μ l tubes)

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------|----------|----------------|
| CBL 260 020 | 211012 | Demo Kit | EACH | £82.69 |
| CBL 260 500 | 211016 | Replacement Kit | EACH | £183.68 |



DNALC Strawberry DNA Extraction Kit

This exciting activity is ideal for introducing students to the fascinating world of DNA. This kit transforms the abstract concept of DNA into something concrete. It is easy to use and safe enough for young students while being interesting and informative enough for older students. The comprehensive manual makes lesson planning easy. Using a technique similar to the one used by scientists, students work in pairs to extract DNA from strawberry fruit and examine it. They also review plant cell structure, and learn cell wall and cell membrane composition. An easy, fun DNA extraction for all grade levels.

- Transforms the abstract concept of DNA into something concrete
- Easy to use and safe enough for young students; interesting and informative enough for older students
- Comprehensive manual makes lesson planning easy

Contents:

- Plastic Tubes
- Plastic Bags
- Funnels
- Ethanol
- Detergent
- Pipettes
- Cheesecloth
- Sodium Chloride
- Wooden Sticks
- Comprehensive Teacher's Manual with Reproducible Student Worksheets, Background Information, Lesson Instructions, Follow-up Activities, and a Glossary.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|---------------|
| CBL 900 010 | 211338 | Strawberry DNA Kit | EACH | £70.47 |

DNA Necklace Classroom Kit

A fun and fascinating laboratory activity not only shows students how to isolate human genomic DNA, it lets them create DNA necklaces they can actually wear. Students extract DNA by lysing their cheek cell sample, then watch as wispy white strands of their own DNA precipitate out of a solution containing ethanol. After transferring their DNA to plastic microcentrifuge tubes, students fashion the tubes into DNA pendant necklaces using colourful string. This is one easy lab activity that really gets your students talking about DNA and science! Classroom Kit includes enough materials for 32 students.

Contents:

- 32x Microcentrifuge Pendant Tubes
- 32x Tubes, 15ml
- 32x Plastic Cups, 1 oz
- 40x Graduated Pipettes, 3ml
- 4x Embroidery Thread
- Sports Drink
- 3x Cell Lysis Solution, 25ml
- Ethanol, 70%, 300ml
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------------------|----------|---------------|
| CBL 280 010 | 211138NOR | DNA Necklace Classroom Kit | EACH | £61.00 |

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Email: sales@scichem.com

105

Molecular Biology

PCR

SECONDARY

Carolina BioKits®: Diffusion-Osmosis

For a class of 30. Students use dialysis tubing and solutions to study the movement of materials across a semipermeable membrane by diffusion and osmosis.

Contents:

- Dialysis Tubing, 50ft
- Glucose Solution, 20%, 300ml
- Starch Solution, 2%, 300ml
- Glucose Solution, 80%, 500ml
- Iodine Potassium Iodide Solution, 30ml
- 32x Glucose Test Strips
- 24x Plastic Dropping Pipettes
- White Thread
- Blue Thread
- Red Thread
- 32x Cups
- 8x Rulers
- Teacher's Manual and Reproducible Student Guide



DATA LOGGING

BIOLOGY

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------------|----------|----------------|
| CBL 030 010 | 684260 | Carolina BioKits®: Diffusion-Osmosis | EACH | £131.52 |

Osmometer

Designed for individual student exercises; reusable. Composed of an Osmometer Tube and a graduated, 8-oz plastic cup with retaining ring and lid. Dropping pipette and one replacement membrane included.



CHEMISTRY

PHYSICS

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------|----------|---------------|
| CBL 020 010 | 684025 | Osmometer | EACH | £24.98 |

ENVIRONMENTAL SCIENCE

Cellular Respiration and Fermentation Kit

For a class of 32 students working in pairs. This kit highlights physiological differences between aerobic cellular respiration and fermentation. Students learn about the production of ATP in glycolysis, Krebs cycle, and electron transport system, and then compare these to the ATP production of both lactic acid fermentation and alcohol fermentation. They observe a demonstration of carbon dioxide production by the aerobic respiration of wheat seeds and the anaerobic respiration of yeast. Next, students apply scientific methodology to investigate yeast alcohol fermentation in the presence of different sugars. They answer questions, perform calculations, and interpret results to evaluate their hypothesis and demonstrate their learning.

Contents:

- 32x Glass Pipettes, 1ml
- 32x Syringes
- 3x Tubing, 30cm
- Dry Yeast
- Bromothymol Blue, 0.04%, 15ml
- Sodium Hydroxide, 1%, 5ml
- 4x Test Tubes
- 4x Rubber Stoppers, No.00
- Wheat Seeds, 1 tbsp
- 30x Medicine Cups
- Sucrose, 5g
- Lactose, 5g
- Dextrose, 5g
- 5x Saccharin, 1g
- Teacher's Manual and Reproducible Student Guide



FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

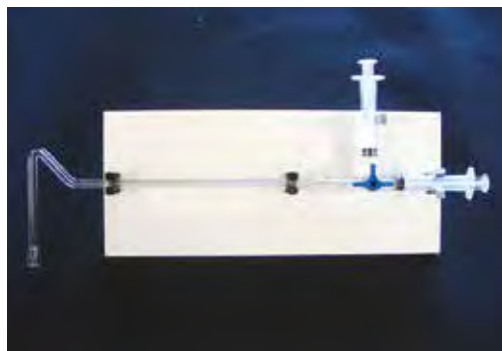
| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBL 450 010 | 202215 | Cellular Respiration and Fermentation Kit | EACH | £58.55 |

SAFETY



Photosynthesis Apparatus

For collecting and measuring the gas given off by plants. Mounted on a sturdy backboard.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| YPP 630 010 | Photosynthesis Apparatus | EACH | £30.10 |

Photosynthesis Kit

The SAPS Photosynthesis Kit contains: algae (*Scenedesmus quadricauda*); enrichment medium for growing up the algae; sodium alginate for immobilising the algae; syringes for creating appropriately and evenly-sized drops that can form jelly balls; hydrogen carbonate indicator in a concentrated form; Bijou bottles for carrying out the reactions; and coloured filters that can be used in investigations of wavelength of light on photosynthesis. Your school will need to supply a vessel for growing the algae, such as a large lemonade bottle; a simple air pump such as that used in a fish tank to aerate the growing culture; illumination for growing the culture, clamps and stands to hold the syringes; plastic cups and spoons for mixing the algae with alginate and for holding calcium chloride solution; 2% calcium chloride solution; tea strainers; lamps for experimental work. The kit contains full instructions for growing the algae, for producing algal balls and suggestions for experimental work.

Contents:

- Instruction sheet
- 15 Syringes
- 75 Bijou bottles
- Filters (14 colours/shades)
- Hydrogencarbonate indicator, 250 cm³ (dilute x10 for use in experiments)
- Sodium alginate (sufficient to make 200cm³)
- *Scenedesmus quadricauda* (1 bottle)
- Enrichment medium (sufficient to produce 2 litres of algal suspension)



| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| YPP 470 010 | Photosynthesis Kit | EACH | £66.74 |

Cellular Respiration Box

With this box partially filled with lime water, the carbon dioxide rejected can be observed. The observation is very easy thanks to the transparency of the box. Dimensions: 35 x 75mm



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| YPP 680 010 | Cellular Respiration Box | PK6 | £14.36 |

Simple Potometer

This is a simple apparatus for investigating the rate of water uptake and transpiration in plants. The tubing is mounted onto a sturdy acrylic plate with 1mm capillary tube and millimetre scale. The apparatus includes a syringe to aid setting up and for resetting the device for further experiments. Includes complete instructions. Dimensions: 160 x 190 x 40mm (including mounting clips)



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| YPP 620 011 | Simple Potometer | EACH | £25.74 |



Molecular Biology

Plant Cellular Physiology

Darwin Potometer

With rubber stoppers, capillary tube and scale.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| YPP 140 010 | Darwin Potometer | EACH | £11.85 |

Farmer Potometer

Comprised of a wide mouthed bottle with rubber stopper, a narrow bore glass tube with a clip on scale (0-300mm) and a dropping funnel. The glass tube and dropping funnel attach via holes in the stopper and a third hole is present to allow a plant stem to be inserted.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| YPP 320 010 | Farmer Potometer | EACH | £51.99 |

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J Tubes

Used in the comparison of inspired and expired air. The J Tube is made from thick walled capillary tubing with a diameter of 6mm, bore 1mm, long limb length 230mm and short limb length 80mm. Available with either syringe fitting (YHP 230 010)

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|-------|
| YHP 230 010 | Syringe Fitting | EACH | £7.35 |

Respirometer

Measures the uptake of oxygen by an organism during respiration. The Respirometer comprises two test tubes (24 x 150mm) fitted with rubber stoppers, plastic three way stopcocks, wire gauze and a manometer (capillary tubing 1mm bore) which is attached to a white plastic board. The Respirometer is designed to be placed in a water bath (tall form beaker) with the manometer supported over the edge.



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| YHP 250 010 | Respirometer | EACH | £37.49 |
| YHP 250 500 | Spare Gauzes | PK4 | £5.38 |

Respiration Apparatus

The Respiration Apparatus demonstrates that carbon dioxide is a product of respiration. The apparatus consists of two boiling tubes (150 x 24mm), each tube is plugged with a rubber stopper, in which two lengths of glass tubing are inserted. The glass tubes are connected by rubber tubing to a plastic T connector. A suitable carbon dioxide indicator is required.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| YHP 270 010 | Respiration Apparatus | EACH | £14.18 |

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Microbes and Health Kit

The chemistry of the bacterial cell is brought into focus as students examine bacteria and their interaction with the environment. Enzyme catalysed chemical reactions in bacteria provide energy for the bacteria as they change food into secreted waste products. In some cases, bacterial waste products can be the cause of disease symptoms, and in other cases they may create foods and nutrients for people. Thus, sometimes bacteria can be our friends and at other times our foes. For a long time, biotechnology has utilised friendly bacteria in the production of foods such as cheese, sauerkraut, coffee, sour cream, vinegar, sausage, and yoghurt. Other bacteria cause cholera, typhus, leprosy, tuberculosis, and anthrax. In this lab, students will examine both the risks and benefits of bacteria to better understand their roles in disease and in food production.

Discover the Cause of Disease. In the 1700s, bacterial diseases were still a deadly mystery. Bacteria were sometimes found in diseased humans and animals - but did the bacteria cause the disease or did the bacteria merely follow a disease caused by another unknown agent? To know the cause is the first step towards cure or prevention. Join Robert Koch, Louis Pasteur, and the founders of modern microbiology in a thrilling search to find the bacterial culprit behind a new disease. The new disease examined in this lab is 'yoghurtness' - an affliction of 'healthy' milk that causes it to become acidic and thick. What is the cause of yoghurtness? Can you use Koch's postulates, the standard of proof in the identification of microbial disease agents, to identify the guilty microbe in this enquiry based activity?

Students will use microscopes, agar plates, and their powers of observation to identify the bacteria used to produce yoghurt and to provide proof for their hypothesised identification. Use this kit to examine metabolism, cellular chemistry, and the role of bacteria in both disease and food microbiology. This kit supports 32 students.

Contents:

- **Microbes & Health Kit**
- 2 Ampicillin vial, lyophilised
- 1 LB nutrient agar powder pouch
- 40 Petri dishes, sterile
- 75 Cell culture tubes, 15ml, sterile
- 80 Inoculation loops, sterile
- 1 E. coli strain HB101 K-12, lyophilised vial
- 12 LB broth capsules
- 1 Disposable plastic transfer pipettes (pack)
- 1 Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

Microbial Culture Kit Reagents

- Ampicillin
- LB broth capsules
- LB nutrient agar powder
- E. coli strain HB101 K-12

Key Kit Features:

- Isolate yoghurt causing bacteria
 - Culture bacteria from yoghurt
 - Follow Koch's postulates
 - Learn laboratory microbiology skills
 - Study food microbiology and bacteria metabolism
 - Complete in 3 x 45 minute lessons
- NB:** You will also require incubation oven, microscope, pH strips, yoghurt, milk, toothpicks.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------------|----------|---------|
| EPE 120 040 | Microbes and Health Kit | EACH | £110.42 |
| EPE 120 600 | Microbial Culture Kit Reagents | EACH | £62.19 |



pGLO™ Bacterial Transformation Kit

Genetic engineering is the process of manipulating the genetic material of an organism - often to include the DNA from a foreign organism. In this activity, students transform bacteria by introducing a gene from a bioluminescent jellyfish. They use the same procedure for creating 'designer proteins' that has led to the explosion of new health treatments, agricultural applications, and environmental solutions. Jellyfish genes make the invisible, visible! With this kit, students transform bacteria with a gene from the bioluminescent jellyfish *Aequorea victoria*.

The pGLO plasmid is constructed with the jellyfish gene that encodes Green Fluorescent Protein (GFP), an antibiotic-resistance gene that encodes beta-lactamase protein and the AraC gene encoding a regulator protein that turns the GFP gene on and off. Bacteria transformed with pGLO are selected by ampicillin resistance, and, when induced to express GFP, the bugs glow fluorescent green under UV light!

Gene regulation. With pGLO, students analyse the growth of bacteria on various media and examine the roles that external and internal factors play in gene regulation. Gene expression in all organisms is carefully regulated to allow adaptation to differing conditions and to prevent wasteful production of proteins.

The bacterial genes encoding the enzymes needed to metabolise the simple sugar arabinose are a perfect example. A promoter region upstream of these genes acts as molecular on/off switch that regulates their expression. The genes are activated only when arabinose is present in the environment. The pGLO plasmid incorporates the arabinose promoter, but the genes involved in the breakdown of arabinose have been replaced with the jellyfish gene encoding GFP. When bacteria transformed with pGLO are grown in the presence of arabinose, the GFP gene switches on, causing the bacteria to express GFP and to fluoresce brilliant green.

When students genetically reengineer bacteria with the genes from a bioluminescent jellyfish they never forget the central mantra of molecular biology: DNA > RNA > Protein > Trait – Green Fluorescence! This kit supports 32 students.

Key Kit Features:

- Transform bacteria with jellyfish gene
- Turn the modified genes on or off
- Study gene regulation
- Complete in two 45 minute sessions

Contents:

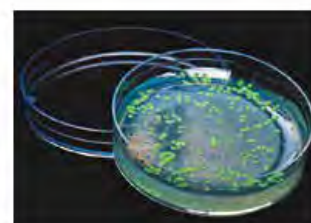
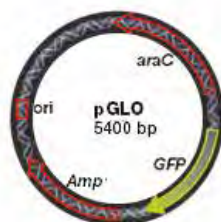
pGLO™ Bacterial Transformation Kit:

- 1 Plasmid (pGLO), lyophilised
- 1 E. coli strain HB101 K-12, lyophilised
- 1 LB nutrient broth, sterile
- 1 LB nutrient agar powder
- 1 Ampicillin, lyophilised
- 1 Arabinose, lyophilised
- 1 Sterile transformation solution (CaCl₂)

- 40 Petri dishes, 60mm, sterile
- 80 Inoculation loops, sterile
- 60 Micro test tubes, 2.0ml, sterile, colour coded
- 8 Foam micro test tube holders
- 50 Disposable plastic transfer pipettes
- 1 UV pen light
- 1 Curriculum, including Teacher's Guide, Student Manual and graphic Quick Guide

Transformation Kit Refill:

- pGLO plasmid
- E. coli strain HB101 K-12
- LB nutrient broth
- Transformation solution
- Ampicillin
- Arabinose



| Cat No. | Description | Quantity | Price |
|-------------|------------------------------------|----------|---------|
| EPE 120 020 | pGLO™ Bacterial Transformation Kit | KIT | £101.54 |
| EPE 120 520 | Transformation Kit Refill | EACH | £60.92 |





GMO Food Investigator Kit

Students engage in a complete investigation in which they gather sample food items from the grocery store, extract DNA from the samples, amplify the DNA using PCR, and use gel electrophoresis to identify the presence or absence of amplified GMO sequences.

The GMO Investigator kit uses PCR and DNA electrophoresis to test for the presence of two different GMO-associated DNA sequences: the 35S promoter of the cauliflower mosaic virus, and the terminator of the nopaline synthase gene of *Agrobacterium tumefaciens*. These DNA sequences are present in most (>85%) of the GM crops that are approved for distribution worldwide. In addition, the integrity of the plant DNA extracted from food is tested by using PCR to amplify a section of the photosystem II chloroplast gene that is common to most higher plants.

The kit allows a guided inquiry approach to this exercise. Students conduct sophisticated scientific procedures employing multiple levels of control that allow them to assess the validity of their results. They determine the presence or absence of GMO sequences in their test food and answer the questions: did we successfully extract DNA, did our PCR work as expected, and do we have contamination?

Kit contains sufficient materials for 8 student workstations (2-4 students per workstation).



PCR Informatics Kit

Finally, a wet lab to teach the Hardy-Weinberg equation! The polymerase chain reaction (PCR) is widely used in forensics, diagnostics, and archeological procedures. In this activity, your students use real-world forensic techniques to extract DNA from their hair follicles or cheek cells, and then use PCR amplification and electrophoresis to fingerprint their own DNA at a specific genetic locus. Using their own results, students test Hardy-Weinberg equilibrium theory within their classroom population, then go online to compare classroom results to genetic data of populations worldwide.

Kit contains sufficient materials for 8 student workstations (2-4 students per workstation).

Contents:

PCR Informatics Kit:

- Positive controls: homozygous (+/+), homozygous (-/-), heterozygous (+/-)
- PCR master mix (Taq DNA polymerase dNTPs, buffer)
- PCR primers
- DNA molecular mass ruler
- InstaGene™ DNA extraction matrix
- Orange G loading dye
- Microcentrifuge tubes
- PCR tubes
- Screwcap microcentrifuge tubes
- Capless PCR tube adaptors
- Agarose powder
- Electrophoresis buffer, 50x TAE
- Fast Blast™ DNA stain, 500x
- Curriculum including Teacher's Guide, Student Manual, and graphic
- Quick Guide

PCR Informatics Refill Kit:

- PCR primers positive controls
- DNA molecular mass ruler
- PCR master mix, buffer
- DNA polymerase

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| EPE 120 160 | GMO Food Investigator Kit | EACH | £178.96 |

| Accessories | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| EPE 120 650 | GMO Food Investigator Refill | EACH | £93.92 |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| EPE 120 190 | PCR Informatics Kit | EACH | £246.23 |





Crime Scene Investigator PCR Basics™ Kit

Using real-world forensic lab techniques, students learn which human DNA sequences are used for crime scene, missing person, mass disaster, and paternity investigations. Using the polymerase chain reaction (PCR) and DNA electrophoresis, students determine the genotypes of five DNA samples and experience how real-world crime labs solve mysteries. DNA profiling determines the exact genotype of a DNA sample and distinguishes one human being from another by identifying a DNA 'bar code' that is unique to every individual.

There are over 3 billion bases in the human genetic blueprint, and more than 99.5% of them do not vary between human beings. Within the variant areas of the genome exist unique polymorphic sequences called short tandem repeats (STRs) of uncertain biological function. It is these DNA sequences that are used in forensic applications. The DNA samples contained in this introductory PCR kit are plasmids that have been engineered to mimic the natural variations in human DNA that exist between one human being and another at a single STR locus.

Students determine the genotypes of five samples and perform a simple statistical analysis on their own results to solve a forensic mystery. Kit contains sufficient materials for 12 student workstations (2–4 students per workstation).

Please note that you will also require:

- Horizontal gel electrophoresis chambers
- Adjustable micropipettes (2–20 µl, 20–200µl)
- Pipette tips, aerosol barrier (2–20 µl, 20–200µl)
- Microcentrifuges
- Thermal cyclers
- Power supplies Gel Staining Trays

Contents:

- Crime scene DNA sample, 250µl
- Suspect A DNA sample, 250µl
- Suspect B DNA sample, 250µl
- Suspect C DNA sample, 250µl
- Suspect D DNA sample, 250µl
- PCR master mix (Taq DNA polymerase, 1 dNTPs, buffer), 1.2ml
- Primers (blue), 25µl
- Allele ladder, 200µl
- Orange G loading dye, 1ml
- PCR tubes, 0.2ml
- Capless PCR tube adaptors, 1.5ml
- Coloured microcentrifuge tubes, 2.0ml
- Curriculum including Teacher's Guide, Student Manual, and graphic Quick Guide



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|---------|
| EPE 120 150 | PCR Basics ^a _ Kit | EACH | £151.04 |
| Accessories | Description | Quantity | Price |
| EPE 120 640 | PCR Basics ^a _ Kit Refill | EACH | £121.85 |





Comparative Proteomics Kits

Protein electrophoresis is principally performed using vertical electrophoresis apparatus and polyacrylamide gels; however, horizontal electrophoresis apparatus and agarose gels may be employed using a specifically designed protocol included in the kit curriculum. The **Protein Profiler Kit** is a stand-alone activity, but was developed in conjunction with another kit (**Comparative Proteomics Kit II: Western Blot Module**) that takes the activity to the next level. The Western Blot Kit enables students to use the proteomics techniques of Western blotting and immunodetection to identify a single muscle protein, myosin, out of the hundreds of muscle proteins in the muscle proteome. Each kit supports 32 students.

If using gel electrophoresis you will need ready gels or comparable 15% acrylamide gels, you will also need (for the Protein Profiler module) fish samples (5-8 types), horizontal gel electrophoresis chamber, suitable power supply, agarose, adjustable micropipettes (2-20 μ l), pipette tips, acetic acid, ethanol, water bath.

Protein Profiler Module

In 2001, the Human Genome Project completed the sequencing of all human genes. Far from closing the book, this body of work opened up a whole new field, proteomics, which asks a far more important question - what do our genes do? Genes encode proteins, and proteins determine an organism's form, function, and phenotype, and as such, are the raw materials of natural selection. Proteomics is the study of the function and structure of proteins and their interaction with each other and their environment. The Protein Profiler Kit moves beyond DNA and allows students to employ one of the most widely used techniques in biotechnology research - protein gel electrophoresis.

The Protein Profiler Kit allows students to explore evolution at the molecular level using the central framework of biology. Students generate protein profiles from the muscles of distantly and closely related species of fish and compare and contrast these profiles to test the hypothesis that protein profiles are indicators of genetic and evolutionary relatedness: DNA > RNA > Protein > Trait.

Changes in proteins reflect changes in the gene pool. Muscle protein mostly consists of actin and myosin, but numerous other proteins also make up muscle tissue. While actin and myosin are highly conserved across all animal species, other muscle proteins exhibit more variation even among closely related species. Variations between organisms' protein profiles reflect physiological adaptations to different environments, but they originate as chance DNA mutations. Such random mutation events, if favourable, persist through the natural selection process and contribute to the evolution of species with new specialised functions: Mutation > Variation > Specialisation > Speciation > Evolution.

The Protein Profiler Kit is open-ended and enquiry-based. Students are asked: Can molecular data reveal similarities and differences among species? In their analyses, students compare similarities and differences in their fish protein profiles, create evolutionary trees (cladograms) from their own gel electrophoresis data, and compare their results to published evolution data. Students are asked: Do the phylogenetic data agree? Does molecular evidence support or refute the theory of evolution? Why or why not? What explanations can you suggest?

Key Kit Features:

- Explore evolution
- Study protein structure and function
- Apply protein electrophoresis
- Construct cladograms
- Complete in three 45-minute lab sessions

NB: You will also need 15% polyacrylamide gels or 4-20% Tox polyacrylamide gels or low melt agarose gels and electrophoresis chambers.



Western Blot Module

PLEASE NOTE: this kit can only be used with polyacrylamide vertical gel electrophoresis equipment. Please contact your territory manager for further information and a full list of the required components.

Animal immune systems respond to invasion by generating antibodies, which tag the foreign material for destruction. The ability of antibodies to act like magic bullets and target viral, bacterial, and allergenic antigens in the body also makes them ideal for hunting antigens in bioscience research and diagnostic tests. Western Blotting employs antibodies to pinpoint specific proteins of interest in complex protein mixtures such as cell extracts. Because of its accuracy, Western Blotting is used as the confirmatory diagnostic test for HIV and mad cow disease, or bovine spongiform encephalopathy.

Western Blotting is used extensively in research to determine the presence of specific proteins, to quantify their expression levels, and to determine whether they have undergone genetic or post-translational modifications. This sure-fire method categorically identifies proteins of interest based on two distinguishing features: molecular mass and antibody binding specificity.

The Western Blot Kit activity allows your students to take Bio-Rad's Protein Profiler Kit to the next level. Students use Western Blotting to specifically identify myosin light chain proteins from the hundreds of other proteins that comprise the muscle cell extracts of closely and distantly related species of fish.

In the first part of this lab (Protein Profiler Module, EPE 120 080), students generate protein profiles and visualise the unique arrays of proteins comprising the muscle tissues from each of their samples. From protein gel results, students make educated guesses as to the identities of the proteins. Based on relative molecular masses alone, however, these inferences remain guesses. Via Western Blotting, the protein bands in the students' polyacrylamide gels are transferred horizontally to a membrane, and an anti-myosin antibody is employed to precisely identify which protein in each species' profile is myosin light chain.

Myosin is a major muscle protein essential for locomotion and survival in all animals. As such, the essential structure and function of myosin has remained relatively stable or 'conserved' in all animals over evolutionary time. However, differences in the molecular weights of the myosin light chains of different species are detectable via Western Blotting, leading students to hypothesise about how these variations relate to evolutionary relationships. Using Internet-based bioinformatics databases, students can then compare their experimentally determined results to actual protein sequence data derived from DNA and RNA sequences and consider whether variations in myosins between species are due to 'genetic' or 'epigenetic' factors.

Key Kit Features:

- Explore immunodetection
- Explain HIV detection
- Apply immunology
- Employ antibodies as tools
- Complete in four 45-minute lab sessions

Combined Kit

A pack containing one of each kit.

Contents:

Protein Profiler Module

- 1 Prot/Elect pipette tips for gel loading, rack
- 60 Fliptop Micro test tubes, 1.5ml
- 50 Screwcap micro test tubes, 1.5ml
- 3 Disposable plastic transfer pipettes, packs
- 1 Laemmli sample buffer, 30ml
- 1 Precision Plus Protein™ Kaleidoscope™ standards, 50µl, prestained vial
- Electrophoresis buffer, 10x tris/glycine/SDS, 1L bottle
- 2 Bio-Safe Coomassie stain 100ml bottles
- 1 Actin and myosin standards, 500µg, lyophilised vial
- 1 Dithiothreitol (DTT), 0.3g vial
- 1 Curriculum/Instruction manual

Protein Profiler Temperature Sensitive Reagents

- Precision Plus Protein Kaleidoscope prestained standards
- Actin and myosin standard
- DTT



| Cat No. | Description | Quantity | Price |
|-------------|--|----------|---------|
| EPE 120 080 | Protein Profiler Module | EACH | £144.69 |
| EPE 120 100 | Combined Kit | EACH | £399.81 |
| Accessories | Description | Quantity | Price |
| EPE 120 580 | Protein Profiler Temp Sensitive Reagents | EACH | £69.81 |



ELISA Immuno Explorer Kit

Explore bio-defence, immunology, or health science with this topical, hands-on lab. Animal immune systems produce proteins called antibodies that recognise intruders with incredible specificity. Like magic bullets, antibodies locate and attach themselves to their targets, marking them for destruction by other cells of the immune system. The ability of antibodies to target viral, bacterial, and allergenic molecules in the body also makes them ideal bio-detection tools in the hunt for molecules in bio-science research and medical diagnostic tests. Simulate the outbreak of a disease in your classroom and use real antibodies to track it. Teach your students about how protein structure and enzyme substrate interactions are used to detect HIV, bird flu, genetically modified organisms (GMOs), and the molecular markers of cancer, pregnancy, or drug use. What is ELISA? The enzyme-linked immunosorbent assay (ELISA for short) is a technique used to detect the presence of an antibody or an antigen in a sample. It utilises two antibodies, one of which is specific to the antigen and another that is coupled to an enzyme. This second antibody gives the assay its enzyme-linked name, and will cause a chromogenic substrate to produce colour wherever it is bound. ELISA is a powerful antibody-based bio-detection tool used in the field to hunt for pathogens in water, food, or air, whether they emerge naturally or through acts of aggression.

How this kit works: Three approaches to ELISA may be taken with this kit. Individual curriculum guides and instructions for each protocol are included in the kit, complete with Teacher's Guides and Student Manuals. The instructor or the students may select the type of test most relevant to current course work.

1. ELISA for disease outbreaks - tracking the spread of disease
2. ELISA for detecting antigens in a sample
3. ELISA for detecting antibodies in a blood sample for past exposure to a disease



Key Kit Features:

- Apply a genuine diagnostic procedure
- Simulate real-world HIV testing
- Simulate GMO, pregnancy, and drug testing
- Complete in one 45-minute lab session

ELISA Immuno Explorer Kit:

- 1 Antigen vial (chicken gamma-globulin)
- 1 Primary antibody vial (rabbit anti-chicken polyclonal antibody)
- 1 Secondary antibody vial (goat anti-rabbit antibody conjugated to horseradish peroxidase, or HRP)
- 1 HRP enzyme substrate (TMB), 25ml
- 10 PBS, 100ml
- 10% Tween 20, 5ml
- 80 Disposable plastic transfer pipettes

NB: You will also need adjustable micropipettes (20 - 200µl) or fixed volume pipettes (50µl), pipette tips. This kit supports 48 students.

- 3 Microplate with 12-well strips (8 rows of 12 wells)
- 60 Yellow micro test tubes, 2.0ml
- 75 Coloured micro test tubes, 2.0ml
- Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

ELISA Kit Refill Package:

- Antigen
- Primary antibody
- Secondary antibody
- 10% Tween 20
- 10 PBS
- HRP enzyme substrate

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------|-------------|----------------|-------|
| EPE 120 060 | ELISA Immuno Explorer Kit | EACH | £118.04 | |
| Accessories | | Description | Quantity | Price |
| EPE 120 570 | ELISA Kit Refill | EACH | £86.31 | |

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Genes in a Bottle Kit

Seeing is believing. Introduce your students to molecular biology with their own DNA! Enable your students to see the normally invisible substance of life and begin to comprehend the meaning of their own genetic makeup. In this activity your students employ the same real world laboratory procedure used to extract DNA from many different organisms for a variety of biotechnology research applications. Students extract genomic DNA from their own cheek cells, then precipitate and bottle it in a fabulously cool necklace. For students learning about the molecular framework of biology for the first time, DNA is abstract and intangible. This procedure makes the invisible visible - seeing their own DNA makes it real, and helps students comprehend this primary substance of life. From cell structure to genetics to the chemistry of life, this kit integrates multiple life science standards in a single lesson. Seeing DNA makes it real. Wearing it makes the lesson memorable! How do scientists separate pure DNA from cells composed mainly of lipids, proteins, carbohydrates and salts? Membranes are first ruptured with detergents to release DNA into a solution, then proteins and other organic molecules are digested and separated while retaining intact DNA. The DNA is finally collected by precipitation in a form that can be manipulated as desired. With this simple lab activity, your students will extract genomic DNA from their own cheek cells and watch it precipitate from solution as floating white strands. The DNA strands are then easily collected and transferred to a glass vial, and the vial is fashioned into a necklace! Learning opportunities for all levels of instruction. This activity is designed for any classroom environment and requires no specialised equipment or stains. For secondary and college level instruction, lessons on DNA structure and function, cell structure, and enzyme function can be introduced or reinforced with this laboratory activity. For middle school students, it's a perfect introduction to the exciting world of DNA science. This kit supports 36 students.



Key Kit Features:

- Perform and research real techniques
- Collect cheek cells
- Extract, precipitate and bottle DNA
- Complete in 45 minutes

Contents:

- 1x DNA extraction module
- 2x DNA necklace modules (18 necklaces in each, 36 necklaces total)

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|---------|
| EPE 120 010 | Genes in a Bottle Kit | EACH | £166.27 |

Analysis of Precut Lambda DNA Kit

The analysis of pre-cut lambda DNA kit demonstrates the procedures and principles of DNA gel electrophoresis, including agarose gel casting, sample loading, size-based separation of DNA fragments, DNA staining, and graphic analysis - the very basics. Electrophoretic techniques that distinguish DNA fragments by size are essential in forensics and in the mapping of restriction sites within genes. This activity provides in-depth explanations about how restriction enzymes cut DNA and how electrophoresis can be used to separate and visualise DNA fragments.

By visualising the effect of two restriction enzymes on identical samples of double stranded lambda virus DNA, students learn that different restriction enzymes recognise and cut different DNA sequences.

This kit provides DNA size standards and three samples of lambda DNA. Two have been pre-cut using a different restriction enzyme and the one is uncut. The postlab exercises guide students through the procedure of DNA fragment size determination by constructing a standard curve using their own gel data. They can then use their standard curve to determine the sizes of the various DNA fragments in their samples.

Lambda bacteriophage has been a workhorse of molecular biology for decades. It is vital in the fields of molecular cloning and genomic sequencing since it can be used to subclone very long genomic DNA fragments much more efficiently than plasmid vectors. Lambda DNA comes from a bacterial virus, or bacteriophage, which attacks bacteria by injecting them with its nucleic acid. Once inside, lambda DNA hijacks the bacterial cellular machinery and replicates itself until the cells burst, releasing millions more bacteriophage to carry out the same infection process. Bacteriophage lambda is harmless to humans and other eukaryotic organisms, and therefore makes an excellent source of DNA for experimental study. This kit supports 32 students



Key Kit Features:

- Study DNA restriction enzyme function
- Use electrophoresis to separate DNA fragments
- Construct standard curves from student data
- Make precise determinations of DNA fragment sizes
- Complete in one 45 minute lab session

NB: You will also require horizontal gel electrophoresis chamber, suitable power supply, adjustable micropipettes (2-20 and 20-200µl), pipette tips and gel staining trays. Needs to be refrigerated.

Contents:

- **Analysis of Precut Lambda DNA Kit**
- 1 DNA size standard (HindIII lambda DNA digest)
- 1 PstI lambda DNA digest
- 1 EcoRI lambda DNA digest
- 1 Lambda (gamma) DNA, uncut
- Sample loading buffer, 5x, 1ml
- 1 Agarose powder, 5g
- Electrophoresis buffer, 50x TAE, 100ml
- 60 Coloured micro test tubes, 2.0ml
- Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

Precut Lambda DNA Kit Refill

- DNA size standard
- PstI lambda DNA digest
- EcoRI lambda DNA digest
- Uncut lambda DNA
- Sample loading buffer

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------------|----------|---------|
| EPE 120 130 | Analysis of Precut Lambda DNA Kit | EACH | £156.12 |
| Accessories | | Quantity | Price |
| EPE 120 630 | Precut Lambda DNA Kit Refill | EACH | £77.42 |
| EPE 140 100 | Fast Blast DNA Stain | 100ML | £36.81 |



Analysis of Lambda DNA Kit

In this kit, students use three different restriction enzymes to digest genomic DNA samples of the lambda bacteriophage. The lambda genome has approximately 48,000 base pairs. Each restriction enzyme will cut the lambda DNA several times generating fragments of different sizes which are separated by agarose gel electrophoresis and visualised using Bio-Rad's non-toxic Fast Blast DNA Stain. Lambda DNA comes from a bacterial virus, or bacteriophage, which attacks bacteria by injecting them with its nucleic acid. Once inside, Lambda DNA hijacks the bacterial cellular machinery and replicates itself until the cells burst, releasing millions more bacteriophage to carry out the same infection process. Bacteriophage lambda is harmless to humans and other eukaryotic organisms, and therefore makes an excellent source of DNA for experimental study.

Kit contains sufficient materials for 8 student workstations (2-4 students per workstation).

Please note that you will also require:

- Horizontal gel electrophoresis chambers
- Adjustable micropipettes (2-20 µl, 20-200µl)
- Pipette tips (2-200µl)
- Power supplies



Contents:

- HindIII restriction enzyme
- PstI restriction enzyme
- EcoRI restriction enzyme
- Restriction buffer
- Lambda DNA, uncut
- DNA size standard (HindIII lambda DNA digest)
- Sample loading buffer, 5x, 1ml
- Agarose powder, 5g
- Electrophoresis buffer, 50x TAE, 100ml
- Fast Blast DNA stain, 500x, 100ml
- Coloured microcentrifuge tubes, 2.0ml
- Foam floats
- Curriculum including Teacher's Guide, Student Manual, and graphic Quick Guide

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|---------|
| EPE 120 140 | Analysis of Lambda DNA Kit | EACH | £152.31 |

Transforming your laboratory furniture enhances teaching and learning

We have over 60 years' experience serving the education sector providing scientific equipment and creating highly-functional lab spaces. Our expertise allows us to offer an end-to-end solution with project management undertaken by one key point of contact.



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Forensic DNA Fingerprinting Kit

Using DNA as evidence, students figure out for themselves, 'Who done it?'. DNA evidence assists in criminal, missing person, mass disaster, and paternity cases. It can be used to identify a perpetrator or exonerate the innocent. Using real DNA as evidence, your students play the role of crime scene investigator. Restriction enzymes are essential tools for molecular cloning and the mapping of genes and genomes. They are also used in genetic engineering to create recombinant DNA molecules for transforming bacterial, plant, or animal cells. Restriction enzymes recognise specific double-stranded DNA sequences and cut by making two incisions, one through each of the phosphate backbones of the double helix. The chemical bonds that the enzymes cleave are easily reformed by DNA ligases, so that restriction fragments carved from the DNA of different organisms can be spliced back together, creating new hybrid organisms. With this kit, students observe the effects of two DNA restriction enzymes on a series of plasmid DNA samples. The six DNA samples in this kit are plasmids engineered to mimic the natural variations in DNA that exist between one human being and another. One DNA sample has been collected from a 'crime scene' and five samples have been obtained from various 'suspects'. Each sample is digested using a mixture of two DNA restriction enzymes generating a distinct set of DNA fragments for each sample. The resulting DNA fragments are separated by agarose gel electrophoresis and visualised using Bio-Rad's revolutionary Fast Blast[®] DNA stain. This activity provides in-depth explanations about how restriction enzymes cut DNA and how electrophoresis is used to separate and visualise DNA fragments. The unique curriculum provided in this kit guides students through the procedure of constructing a standard curve using their own gel data. They can then use their standard curve to estimate the molecular weights of the unknown DNA fragments generated by different restriction enzymes. Electrophoretic techniques that distinguish DNA fragments by size are essential in forensics and in the mapping of restriction sites within genes. With the curriculum in this kit, students also have the opportunity to read plasmid maps and predict the sizes of DNA fragments from restriction enzymes digests prior to performing the lab. They can go one step further and use restriction digest maps of lambda bacteriophage genomes (provided in the kit curriculum) to design novel plasmids. In the process of doing these extension activities, students learn how restriction enzymes function and how they are used in genetic engineering. Use this kit to open the door to rich discussions about the scientific, ethical, and legal implications of forensics, DNA profiling, and genetic engineering. This kit supports 32 students.

Key Kit Features:

- Study DNA and restriction enzyme functions
- Use electrophoresis to visualise DNA fragments
- Construct standard curves from student data
- Make precise determinations of DNA fragment sizes
- Complete in two 45 minute sessions

NB: You will also need horizontal gel electrophoresis chambers, adjustable micropipettes (2 - 20µl, 20 - 200µl and 100 - 1,000µl), pipette tips, power supply suitable to run the electrophoresis chamber gel staining trays.

Contents:

Forensic DNA Fingerprinting Kit

- 1 DNA size standard (HindIII lambda DNA digest), 100µl
- DNA samples, lyophilized, 60µg each:
- 1x Crime scene sample
- 5x Suspect samples
- 1 EcoRI/PstI restriction enzyme mix, lyophilised, 3,000 units
- 1 Sample loading buffer, 5x, 1ml
- 1 Electrophoresis buffer, 50x TAE, 100ml
- 1 Sterile water, 2.5ml
- 1 Agarose powder, 5g
- 1 Fast Blast DNA stain, 500x, 100ml
- 60 Coloured micro test tubes, 2.0ml
- 30 Micro test tubes, 1.5ml
- 8 Foam micro test tube holders
- Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

DNA Fingerprinting Kit Refill

- Crime scene + suspect DNA samples
- EcoRI/PstI restriction enzyme mix
- Sample loading buffer
- DNA size standard
- Sterile water

NB: Please order Fast Blast DNA stain separately (EPE 140 100)



| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------|----------|---------|
| EPE 120 070 | Forensic DNA Fingerprinting Kit | EACH | £151.04 |
| EPE 120 560 | DNA Fingerprinting Kit Refill | EACH | £93.92 |



IDEA Kit

Electrophoresis is a fundamental skill used daily in the molecular biology laboratory. Bridge the gap between textbook science and students' lives by using dyes extracted from sweet coatings to perform agarose gel electrophoresis. Bio-Rad's IDEA Kit is a dazzling way for students to learn the basics of this key technique using dyes that are commonly found in the foods they eat. Combine this with the power of enquiry to encourage your students to ask questions and seek answers. What dye combinations create the colours in the hard-shell sweets of their choice? Do red and blue make purple? Is pink really pink? The colourful results may surprise you and will certainly get your students talking about their discoveries. Kit contains sufficient materials for 8 student workstations (2-4 students per workstation).



EPE 120 200

Contents:

IDEA Kit

- 4 Reference dyes
- Dye extraction solution
- 50 TAE
- Agarose
- Microcentrifuge tubes
- Curriculum, including Teacher's Guide, Student Manual, and graphic Quick Guide

| Cat No. | Heading 1 | Quantity | Price |
|--------------------|-----------|----------|---------------|
| EPE 120 200 | IDEA Kit | EACH | £55.38 |

“Running felt-tip chromatography (or any ink chromatography really) with 1% salt solution gives much better separation and clearer results. ”

— Kingston Grammar School

“Use a cork borer and some washing up liquid to help insert thermometers into bungs. ”

— Aylesford School



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Cauliflower Cloning Kit

This kit provides the instructions and media required to propagate small cauliflower plantlets from cauliflower curd. Kit contains sufficient equipment for 10 students/groups.



Contents:

- 10 Sterile loops
- 10 Peat discs
- 10 Vials of medium
- 2 x 100cm³ medium

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------|-------------|---------------|-------|
| ZGN 120 010 | Cauliflower Cloning Kit | EACH | £81.37 | |
| Accessories | | Description | Quantity | Price |
| ZGN 120 510 | Meristem Culture, 2x100ml | PK2 | £22.41 | |

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DNALC Strawberry DNA Extraction Kit

This exciting activity is ideal for introducing students to the fascinating world of DNA. This kit transforms the abstract concept of DNA into something concrete. It is easy to use and safe enough for young students while being interesting and informative enough for older students. The comprehensive manual makes lesson planning easy. Using a technique similar to the one used by scientists, students work in pairs to extract DNA from strawberry fruit and examine it. They also review plant cell structure, and learn cell wall and cell membrane composition. An easy, fun DNA extraction for all grade levels.

- Transforms the abstract concept of DNA into something concrete
- Easy to use and safe enough for young students; interesting and informative enough for older students
- Comprehensive manual makes lesson planning easy

Contents:

- Plastic Tubes
- Plastic Bags
- Funnels
- Ethanol
- Detergent
- Pipettes
- Cheesecloth
- Sodium Chloride
- Wooden Sticks
- Comprehensive Teacher's Manual with Reproducible Student Worksheets, Background Information, Lesson Instructions, Follow-up Activities, and a Glossary.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|---------------|
| CBL 900 010 | 211338 | Strawberry DNA Kit | EACH | £70.47 |

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Genetics

Inheritance Investigation Kits

SECONDARY

CAROLINA

Carolina Blood Typing Kits

ABO/Rh Eldoncard Student Kit

All materials necessary for one student to type his or her own blood and to obtain a permanent record.

Carolina ABO-Rh Typing with Synthetic Blood Kit

Students test 4 synthetic blood samples to identify their ABO and Rh blood types. The simulated agglutination reactions are extremely realistic. Kit contains no blood, blood products, or materials of biological origin, so there is no danger of disease transmission. For a class of 30. Note: Use with Carolina® Synthetic Blood products and accessories only. Not designed for actual blood typing.

DATA LOGGING

BIOLOGY

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PHYSICS

ENVIRONMENTAL SCIENCE

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GENERAL LABWARE

SAFETY



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--|----------|---------------|
| CBL 100 040 | 700101 | Carolina ABO-Rh Typing with Synthetic Blood Kit | EACH | £47.67 |
| Accessories | Supplier Code | Description | Quantity | Price |
| CBL 100 500 | 700102 | Carolina ABO-Rh Typing with Synthetic Blood Kit Refill | EACH | £26.00 |

Forensic Investigations: Blood Kit

This forensic investigation scenario and kit comes complete with simulated blood samples and serums, equipment, teacher and technician's guide and crime scene notes for students.

This activity kit covers:

- Components and function of blood
- Preparation of microscope slides
- Haemoglobin and Presumptive blood testing
- Blood types and blood type testing
- Importance of blood at crime scenes
- Enough provided for a class of 30

Used properly the kit is designed for at least 3 uses Teacher's Guide included as PDF on the accompanying CD-ROM along with any additional documentation and worksheets.

Refill Kit

This refill kit contains a set of simulated blood samples, serums, presumptive test reagents and more spotting tiles for replenishing or extending the Forensic Investigation of Blood Kit (ZFK 200 010).

Investigation of Blood Poster

This poster is specifically designed as a learning aid to supplement the teaching kit but also works well on its own, individually or part of a larger forensic investigation display. Covers blood components, blood typing and blood in forensic science. Printed on robust PVC, these wipe-clean posters are a great addition to any classroom display. Size: 841 x 594mm

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ZFK 200 010



ZFK 200 500

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UNIVERSITY

| Cat No. | Heading 1 | Quantity | Price |
|--------------------|------------------|----------|---------------|
| ZFK 200 010 | Blood Kit | KIT | £66.94 |
| ZFK 200 500 | Blood Refill Kit | KIT | £30.89 |



Blood Lancets

Traditional hand held, flat, stainless steel blood lancets for general purpose use. Hardened surgical steel

- Rigid and safe
- High quality, asymmetric point producing excellent blood flow
- Sterile - gamma irradiated by cobalt 60 source to DIN EN 552/556

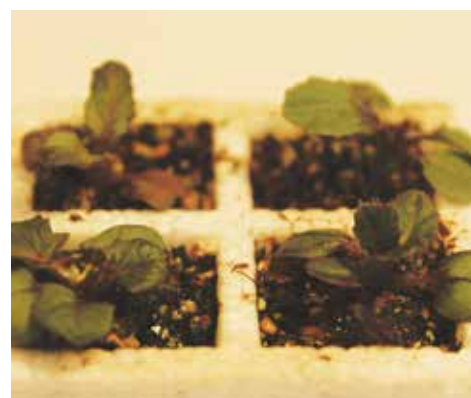


| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| MSD 190 010 | Blood Lancets | PK200 | £9.50 |

Wisconsin Fast Plants® Seeds

- Super-fast generation time
- Interdisciplinary use

Brassica rapa. This Wisconsin Fast Plants® seed is the standard for both form and performance. Just provide appropriate care conditions, and you can expect your plants to complete a full life cycle ("seed to seed") in about 35 to 40 days.



Wisconsin Fast Plants® Rosette-Dwarf Seed

Our Rosette-Dwarf mutant seed stock is recessive and gibberellin-deficient. It is compact due to shortened internodes, but it attains normal height after application of 100-ppm gibberellic acid. Flowers in 18 days. Harvested seed must have dormancy broken with a 3-min soak in 200-ppm gibberellic acid. Main uses include genetic studies and physiology studies. Genetic designation: ros.

Wisconsin Fast Plants® Yellow-Green Leaf Seed

Our Yellow-Green Leaf mutant seed stock is recessive. Its leaves are yellow-green with purple pigment in the stems. Main uses include genetic studies of purple pigment (anthocyanin) production and photosynthesis studies. Genetic designation: ygr.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------|----------|---------------|
| CBL 118 020 | 158815 | Rosette-Dwarf Seed | PK50 | £14.71 |

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Email: sales@scichem.com

Corn Ears & Seed



CBL 230 100



CBL 230 090

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--|----------|---------------|
| CBL 230 040 | 176500 | Corn Segregating Ear, R Colour Alleles 3:1 | EACH | £10.71 |
| CBL 230 050 | 176502 | Corn Segregating Ear, R Colour Alleles 1:1 | EACH | £10.71 |
| CBL 230 060 | 176600 | Corn Segregating Ear, R and Su Alleles 9:3:3:1 | EACH | £10.71 |
| CBL 230 080 | 177130 | Genetic Corn Seed, Green:Albino | EACH | £11.65 |
| CBL 230 090 | 177165 | Genetic Corn Seed, Tall:Dwarf 1:1 | PK | £11.10 |
| CBL 230 100 | 177212 | Genetic Corn Seed, Dihybrid, Tall Green:Tall Albino:Dwarf Green:Dwarf Albino | PK | £12.76 |

Soybean Seeds

Green:Yellow Green:Yellow (1:2:1). F2 seed give a 1:2:1 seedling ratio, showing incomplete dominance. These seed will produce seedlings in which the heterozygous plants show a clear phenotypic difference from the homozygous green and yellow plants. About 100 seeds.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBL 230 150 | 178200 | Soybean Seed, Green:Yellow Green:Yellow (1:2:1) | PK | £12.15 |



Irradiated Radish Seed Set

Seeds that have been exposed to a Cobalt-60 source are used to demonstrate the effects of varying degrees of radiation. Squash preparations of root tips show distinct disturbances of the normal mitotic pattern. Somatic changes brought on by irradiation are often clearly visible a short time after germination begins. The set contains an untreated control packet and packet of seed exposed to various levels of radiation (50; 150; 500; 4,000 Krads).

At least 50 radish seeds per packet.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------------------|----------|---------------|
| CBL 230 140 | 179146 | Irradiated Radish Seed Set | PK | £34.35 |



Drosophila

Drosophila, Living, Wild Type

The wild-type, Oregon R strain of Drosophila is the standard "red eye" fruit fly. This culture is suitable as a parental strain, used along with one of the mutant strains to construct a heterozygous F1 generation and a subsequent F2 generation for study. These wild-type flies are also appropriate for animal behaviour studies.

Drosophila Vestigial, Chromosome 2 Mutant

Students can easily study the sex-linked, recessive, and dominant mutations. Drosophila yields many flies from just one vial of our media. Chromosome 2 Mutants are easy-to-score strains which are excellent for genetics. The vestigial mutants have reduced wings and halteres, which makes them easy to score for beginning genetics.

Drosophila, White

Students can easily study the sex-linked, recessive, and dominant mutations. Drosophila yields many flies from just one vial of our media. Chromosome 1 Mutants (sex-linked) are easy-to-score strains which are excellent for beginning genetics. These flies are also recommended for investigating sex-linked inheritance. The white mutation produces white eyes.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBL 430 010 | LZJ395-172100 | Drosophila, Living, Wild Type | PK30 | £11.70 |
| CBL 430 020 | LZJ415-172460 | Drosophila Vestigial, Chromosome 2 Mutant | PK30 | £11.70 |
| CBL 430 030 | LZJ410-172220 | Drosophila, White | PK30 | £11.70 |



Drosophila

Please note that you need to order these specimens in advance of your required date.

Please give notice as follows: * 5 Days Notice required; ** 21 days notice required

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--|----------|---------------|
| CBL 430 040 | LZJ399 | Drosophila Wild Type Adult * | PK100 | £28.47 |
| CBL 430 050 | LZJ507 | Drosophila Wild Type Male * | PK30 | £32.49 |
| CBL 430 060 | LZJ506 | Drosophila Wild Type Virgin Female ** | PK30 | £46.14 |
| CBL 430 090 | LZJ523 | Drosophila White Eye Male * | PK30 | £32.49 |
| CBL 430 100 | LZJ522 | Drosophila White Eye Virgin Female ** | PK30 | £46.14 |
| CBL 430 070 | LZJ514 | Drosophila Vestigial Wing Male * | PK30 | £32.49 |
| CBL 430 110 | LZJ513 | Drosophila Vestigial Wing Virgin Female ** | PK30 | £46.14 |
| CBL 430 080 | LZJ512 | Drosophila Ebony Body Male * | PK30 | £32.49 |

* 5 Days Notice required; ** 21 days notice required

FlyNap® Anaesthetic Kit

We've made it easy to anaesthetise Drosophila in their own culture vessels with this complete kit that includes a 10ml vial of FlyNap® and 12 anaesthetic wands. Flies stay immobilised for at least 50 minutes.

- Kit includes everything needed to anaesthetise Drosophila
- Convenient and cost-effective
- Eliminates transferring Drosophila to a separate anaesthetising chamber



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------|----------|---------------|
| CBL 440 010 | 173010 | FlyNap® Anaesthetic Kit | EACH | £15.26 |

Formula 4-24® Instant Drosophila Medium

Mould resistant, needs no cooking or sterilising - just add water for a complete medium. A new culture can be set up in less than a minute. Each litre of Formula 4-24® will prepare 75 to 85 Drosophila Culture Vials (CBL200520). Yeast, measuring cups, and instructions are included. In the blue version, a colouring agent is added to facilitate observation of the larvae.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------|----------|--------------|
| CBL 210 010 | 173200 | Plain | LTR | £9.43 |

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Genetics

Inheritance

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Drosophila Culture Vials

Vials

Made from shatterproof plastic, these culture vials provide a clear view of contents. Do not autoclave vials.

Size: 32-100mm (Dia x H)

- Durable
- Reusable/washable
- Excellent visibility

NB: Plugs and caps are not included.



CBL 200 520



CBL 200 500

Plugs

Make Drosophila study more convenient with the secure, plastic foam plugs that can be autoclaved. These plugs fit diameters from 19 - 32mm.

- Autoclavable
- Easy to insert and remove from vials
- Great Value

Caps

Plastic breathing caps useful for controlling moisture and securing cultures against accidental opening.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------|----------|---------------|
| CBL 200 520 | 173120 | Drosophila Culture Vials | PK12 | £11.65 |
| CBL 200 500 | 173122 | Drosophila Vial Plugs | PK12 | £5.94 |
| CBL 200 510 | 173125 | Drosophila Vial Caps | PK12 | £5.99 |

DATA LOGGING

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Taste Papers

Control Paper for Taste Genetics

Free from PTC, sodium benzoate, and thiourea.

PTC Paper

Phenylthiocarbamide (phenylthiourea). Paper impregnated with PTC. Seven out of 10 persons detect a definite taste; others do not.

Sodium Benzoate Paper

Paper impregnated with this chemical elicits taste responses of sweet, salty, bitter, or tasteless.

Thiourea Paper

Paper impregnated with this chemical, like PTC, tastes bitter to most people. Some can taste one chemical and not the other.



CBL 220 020

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|----------------------------------|----------|--------------|
| CBL 220 020 | 174000 | Control Paper for Taste Genetics | PK100 | £4.72 |
| CBL 220 030 | 174020 | PTC Paper | PK100 | £4.38 |
| CBL 220 040 | 174020 | Sodium Benzoate Paper | PK100 | £4.72 |
| CBL 220 050 | 174030 | Thiourea Paper | PK100 | £4.72 |

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Gene Expression Set

This high-quality, colourful model set provides an engaging way to teach high school and college students the structure of RNA and proteins, and the processes of transcription and translation. Students use the included DNA template to construct the corresponding mRNA. With this mRNA, the model pieces, and the genetic code in the instructions, students then assemble the protein sequence coded for by the mRNA. Magnets imbedded in the pieces guide students in assembling the model in the correct molecular orientation. Model includes more detail than most teaching models covering the same subjects. Step-by-step instructions are clearly written and easy to follow. The Teacher Manual and Answer Key Booklet contains a student worksheet master.

Contents:

- 3x Adenines
- 3x Guanines
- 5x Uracils
- 4x Cytosines
- 4x Amino Acids (serine, leucine, methionine, phenylalanine)
- 4x tRNAs
- Release Factor
- DNA Template
- Instruction Manual
- Teacher Manual and Answer Key Booklet

CAROLINA



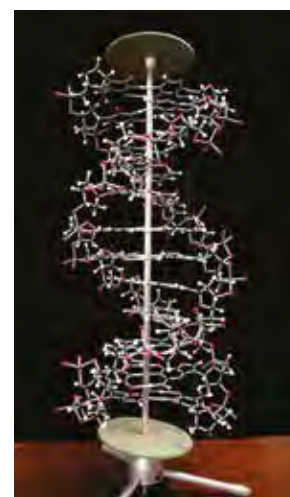
| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------------|----------|----------------|
| CBL 270 010 | 211110 | Gene Expression Set | EACH | £371.80 |

Orbit™ DNA-RNA Model

This model shows a 12 base pair section of DNA in the process of transcribing RNA. Simple and easy-to-use it is ideal for demonstrating the nature of DNA and RNA and how DNA transcribes RNA. The model shows the five bases in red, green, blue, grey and white, the sugar rings in black, and the phosphate groups in red. Yellow tubes join the sugar and phosphate groups. White pieces show the hydrogen bonding between the bases. The separate pieces can be joined and un-joined so you can demonstrate the transcription of RNA. Available as a kit for easy self-assembly, with building instructions and transcription activity guide.

Contents:

- 30 bases in five colours:
- Guanine (7) Cytosine (7) Thymine (7) Adenine (7) Uracil (2)
- 12 Hydrogen bonds
- 28 Sugar rings (ribose / deoxyribose)
- 25 Phosphoric acid units
- 50 Nucleotide connectors
- Support stand and RNA transcription activity leaflet



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| ZGN 080 010 | Orbit™ Proview™ DNA Model | EACH | £121.57 |

Orbit™ DNA-RNA Model

This model shows a 12 base pair section of DNA in the process of transcribing RNA. Simple and easy-to-use it is ideal for demonstrating the nature of DNA and RNA and how DNA transcribes RNA. The model shows the five bases in red, green, blue, grey and white, the sugar rings in black, and the phosphate groups in red. Yellow tubes join the sugar and phosphate groups. White pieces show the hydrogen bonding between the bases. The separate pieces can be joined and un-joined so you can demonstrate the transcription of RNA. Available as a kit for easy self-assembly, with building instructions and transcription activity guide.

Contents:

- 30 bases in five colours:
- Guanine (7) Cytosine (7) Thymine (7) Adenine (7) Uracil (2)
- 12 Hydrogen bonds
- 28 Sugar rings (ribose / deoxyribose)
- 25 Phosphoric acid units
- 50 Nucleotide connectors
- Support stand and RNA transcription activity leaflet



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MLM 045 010 | Orbit™ DNA-RNA Model | EACH | £15.50 |



Genetics

RNA and DNA Models

SECONDARY

Bio-Rad DNA Model

As common as DNA is, it can be a tough topic to understand, but that is where this colourful and attractive DNA model comes into play! Engage your students immediately with this friendly, interactive, foam model of DNA. It's easy - just attach and assemble the DNA strands and then twist to transform it into the familiar double helix. Just like a puzzle - and just as in nature - this DNA model only fits together one way: adenine (A) pairs with thymine (T) and guanine (G) pairs with cytosine (C) on the sugarphosphate backbones. Build a biologically correct DNA model that can be used in a number of fun and educational ways!



BIO-RAD

Contents:

- Soft foam DNA base pair pieces
- DNA backbone strips
- Instruction sheet for one complete 60cm DNA model

| Cat No. | DescriptionV | Quantity | Price |
|-------------|--------------|----------|--------|
| EPE 180 010 | DNA Model | EACH | £29.19 |

DATA LOGGING

miniDNA® Molecular Model Kit

The advanced miniDNA™ system comprises shaped colour coded parts to represent the nitrogenous bases, pentagonal sugar & pyramidal phosphate component parts present in the Double Helix of DNA. The kit includes differently sized pyrimidines to purines, hydrogen bonds represented by correct number of pegs and minor and major grooves are shown. Available in a choice of 2 kits to make either a 12 layer or 22 layer DNA model. The model can be uncoiled and separated to produce two strands, ideal for modelling DNA Replication. Each kit is supplied with its own stand and comes with an assembly leaflet. Scale: 1 cm: 2 angstroms. Dimensions (hxd): 22 x 11cm (12 layer kit), 44 x 11cm (22 layer kit)

Contents:

12 Layer Kit

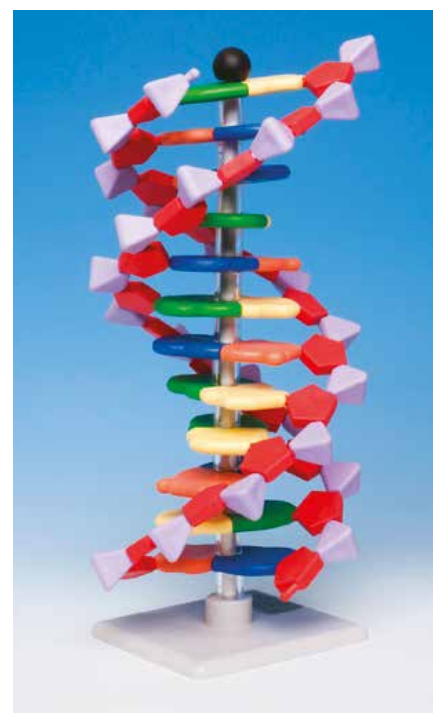
- Base pairs: 6x Thymine (orange), 6x Adenine (blue), 5x Guanine (green), 5x Cytosine (yellow)
- Side chain: 22x Ribose (red), 22x Phosphate (purple)

22 Layer Kit

- Base pairs: 11x Thymine (orange), 11x Adenine (blue), 11x Guanine (green), 11x Cytosine (yellow)
- Side chain: 44x Ribose (red), 44x Phosphate (purple)

RNA Protein Synthesis Kit

- 3x Uracil (light blue)
- 3x Adenine (blue)
- 3x Guanine (green)
- 3x Cytosine (yellow)
- 12x Ribose (claret)
- 12x Phosphate (purple)
- 2x tRNA transfer RNA part
- 2x Amino Acid units



BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

RNA Protein Synthesis Kit

The advanced miniDNA™ 12 base RNA protein synthesis kit can be used to model the process of Protein synthesis known as Translation or if used in conjunction with the 12 or 22 layer advanced miniDNA™ kits to model the creation of RNA by Transcription. The advanced kit comes with 2 'clover leaf' shaped Transfer RNA parts and 2 amino acid parts.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------------|----------|--------|
| MMD 120 011 | miniDNA® 12 Layer Model Kit | EACH | £20.60 |
| MMD 120 021 | miniDNA® 22 Layer Model Kit | EACH | £36.00 |
| MMD 120 501 | 12-Base RNA Protein Synthesis Kit | EACH | £12.36 |

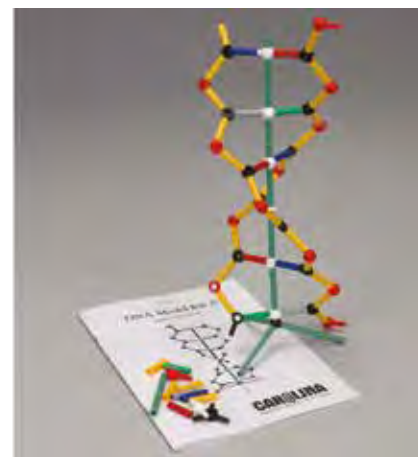
FORENSIC SCIENCE

DNA Model Kit A

For building a simplified representation of a short segment of double-stranded DNA. All pieces are plastic and identified by colour. Completed model is in the shape of a double helix about 25cm high containing 6 paired nucleotides. With instructions.

Contents:

- 12x Deoxyribose Units
- 12x Phosphoric Acid Units
- 3x Adenine Units
- 3x Guanine Units
- 3x Cytosine Units
- 3x Thymine Units
- 6x Hydrogen Bond Centres
- 24x Nucleotide Connectors
- Support Stand
- Instructions



CHEMICALS

GENERAL LABWARE

| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------|----------|--------|
| CBL 410 010 | 171055 | DNA Model Kit A | EACH | £17.71 |

SAFETY



Orbit™ Small DNA Model

This kit builds a model of DNA six base pairs high. It can also be used to model strands of RNA. The built model shows each base, guanine, cytosine, thymine, adenine and uracil by a different colour and shows the sugar rings, phosphate groups and hydrogen bonds in black, red and white respectively.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| MLM 040 010 | Orbit™ Small DNA Model | EACH | £5.47 |

Poppit Beads

Plastic modelling beads which 'pop' together to form chains and can be easily unfastened. Poppit beads are ideal for demonstrating numerous scientific processes. Sold in packs of 100g (approx 250 beads).



| Cat No. | Colour | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| ZGN 065 010 | Red | 100GM | £25.59 |
| ZGN 065 050 | Dark Blue | 100GM | £25.59 |
| ZGN 065 070 | Mixed (50 of each colour) | 50GM | £25.59 |

Genetic Engineering Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| ZAC 340 220 | Genetic Engineering Poster | EACH | £3.61 |



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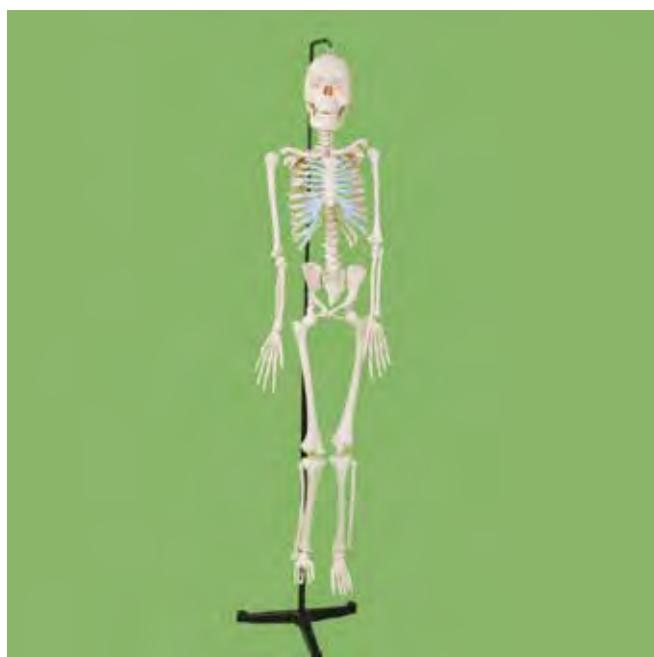
Human Skeleton, Standard Model

Human skeleton made of unbreakable plastic material. Natural cast of a first class male skeleton. All fissures, foramina and anatomical details are exactly reproduced. The skull is dissectible into 3 parts:

- Calotte
- Base of skull
- Lower jaw

A special mounting of the rib cage prevents it from slightly lowering after several years. The skull, arms and legs are detachable. The skeleton is mounted on a movable roller stand, with dust cover. Height: 170cm

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| ZHA 010 030 | Human Skeleton, Standard | EACH | £216.92 |



Human Skeleton, Economy Model

The economy human skeleton model is approximately 120cm high, articulated with wires and is supplied with a sturdy metal stand. The skeleton offers great strength, perfect finish and low maintenance.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| ZHA 350 010 | Human Skeleton, Economy | EACH | £60.62 |



Human Skeleton, Half Scale Model

Economy half size model of a human skeleton. All of the main joints move including the shoulder, elbow, wrist, hip, knee, jaw and ankle. Supplied with heavy metal stand. Height: 850mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| ZHA 040 010 | Half Scale Skeleton | EACH | £44.29 |

Human Skeleton with Joint Ligaments

In addition to the standard benefits of a skeleton model, this version provides representations of the structural interaction between bones and ligaments. The human skeleton model's elastic ligaments, on the major appendicular joints (shoulder, elbow, hip and knee), are mounted on the right side. An amazing replica of the human skeleton.

- 3-year warranty
- Manual final assembly
- Made of durable, unbreakable plastic
- Almost realistic weight of the approx. 200 bones
- Life-size
- 3-part mounted skull
- Individually inserted teeth
- Limbs are quick and easy to remove
- Stand and dust cover included



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|----------------|
| ZHA 320 010 | Skeleton with Joint Ligaments | EACH | £544.09 |



Human Skull Model

Natural cast of a first class human skull. All fissures, foramina and anatomical details are exactly reproduced. Due to a special production procedure, the dentition does not differ from a natural one as far as position of teeth and gaps between teeth are concerned. The skull is dissectible into 3 parts: calotte, base of skull and lower jaw.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| ZHA 020 010 | Human Skull Model | EACH | £56.64 |



Lumbar Vertebrae

Set of 3 flexibly mounted vertebrae, with spinal cord and nerves.

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| ZHA 130 010 | Lumbar Vertebrae | EACH | £20.59 |

Spinal Cord Model

PVC model of the spinal cord supplied on a baseboard. Representing grey matter (anterior and posterior horns, grey commissure and central canal), white matter (anterior, lateral and posterior funiculus, anterior commissure, anterior median fissure and posterior median sulcus) as well as anterior and posterior roots. Magnification 2x.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| ZHA 130 020 | Spinal Cord Model | EACH | £48.32 |

Movable Joint Models

Movable Shoulder Joint Life size model of the upper humerus, scapula and clavicle. The joint is articulated to show its range of movement.

Movable Elbow Joint

A life size model showing the full range of movements and including the lower half of the humerus and the upper half of the ulna and radius.

Movable Hip Joint

A life size model articulated to demonstrate the range of movement of the natural ball and socket joint.

Movable Knee Joint

Comprises the lower half of the femur, the patella and the upper halves of the tibia and fibula.



| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| ZHA 070 010 | Movable Shoulder Joint | EACH | £51.49 |
| ZHA 070 020 | Movable Elbow Joint | EACH | £51.49 |
| ZHA 070 040 | Movable Hip Joint | EACH | £51.49 |
| ZHA 070 050 | Movable Knee Joint | EACH | £51.49 |

Miniature Joint Models

These are miniature joints articulated to show natural movement. Each is approximately 150mm long.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| ZHA 080 010 | Knee Joint with Patella | EACH | £23.32 |
| ZHA 080 040 | Elbow Joint | EACH | £25.74 |
| ZHA 080 050 | Hip Joint | EACH | £23.32 |



Muscular Leg Model

This 9 part model illustrates both the superficial and deeper muscles, eight of which are removable. Tendons, vessels, nerves and bone components of the left leg and foot are shown in great detail. Parts are individually numbered. Delivered on removable stand.

Dimensions: 77 x 26 x 26cm

Weight: 3kg



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| ZHM 680 020 | Muscular Leg Model | EACH | £465.95 |



Economy Arm Muscle

6 part model showing the muscles, tendons, blood vessels and nerves of the arm, hand and shoulder. Five muscles can be removed to reveal structure down to the bone. Mounted on base. Numbered with Key Card.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| ZHM 970 010 | Economy Arm Muscle | EACH | £89.99 |

Anatomical Torso

Half size, 11 piece dissectible anatomical torso consisting of realistically coloured and detailed body parts in the correct proportion and location. Comes complete with key to parts. Ideal for pupils to learn about the major organs and the physical relationship between them.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| ZHM 020 010 | Anatomical Torso | EACH | £66.95 |

Human Male & Female Torso

Life size model, dissectible in 24 parts, including head, eyes, chest, lungs, stomach, large intestine, small intestine and kidney. The female genital organs separate into right and left portions. The male genital organs are dissectible into 4 parts.

Size: 38 x 25 x 87cm, on base



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| ZHM 910 060 | Human Male & Female Torso | EACH | £136.08 |

Mini Torso with Detachable Head

About half life-size, this mini torso shows all anatomical details in the same way as the large torso models do.

Mounted on a base.

It dismantles into 12 parts:

- Head consisting of two halves and removable half brain
- 2 Lung halves
- Heart (2 parts)
- Stomach
- Liver with gall bladder
- Part of intestine with appendix flap (2 parts)
- Torso Dimensions: 18 x 18 x 53cm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| ZHM 040 010 | Mini Torso with Detachable Head | EACH | £92.69 |



Adult Organ Tunic

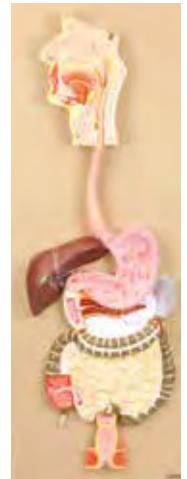
Adult size tunic includes lung, stomach, small intestine, large intestine, liver, kidney, heart, oesophagus, pancreas, bladder, trachea and detailed labelling. Supplied with 11 organs and 11 labels.
Size: 70 x 48cm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| ZHM 690 010 | Adult Organ Tunic | EACH | £108.14 |

Economy Digestive System Model

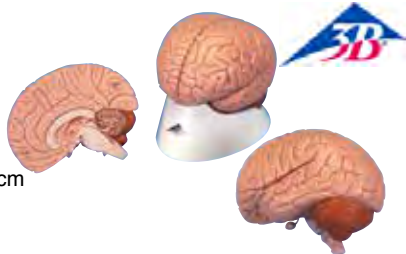
Model of human digestive system showing nose, mouth cavity and pharynx, oesophagus the gastrointestinal tract, liver with gall bladder, pancreas and spleen, duodenum, cecum and rectum are opened. Transverse colon is removable to show internal structure. Excellent tool for showing path of food.
Mounted on a 32" x 12" base, includes numbered key card.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| ZHM 980 010 | Digestive System Model | EACH | £61.79 |

Brain Model, 2 Part

This 2 part brain model is medially divided. Each structure is the same colour. Delivered on a removable base.



Dimensions: 14 x 16 x 14cm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| ZHM 160 010 | Brain Model, 2 Part | EACH | £49.43 |

Brain Model, 4 Part

This 4 part brain model is medially divided. The right half can be disassembled into frontal with parietal lobes, brain stem with temporal and occipital lobes as well as half of the cerebellum. Delivered on a removable base.



Dimensions: 14 x 16 x 14cm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| ZHM 170 010 | Brain Model, 4 Part | EACH | £109.17 |

Human Brain Model

Economy human brain model. Can be separated into 8 parts. Supplied with base.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| ZHM 910 010 | Human Brain Model | EACH | £14.50 |

Basic Heart Model

First class quality at a price you can afford. The front heart wall is removable to view the chambers. Delivered on a removable stand.



Dimensions: 19 x 12 x 12cm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| ZHM 090 010 | Basic Heart Model | EACH | £33.98 |

Heart Model

Twice the size of an adult heart with three hinged 'windows' to view the interior of the four pumping chambers. The hinges are bonded onto the model - no screws to work loose. Made from rugged vinyl to withstand years of use. Supplied mounted on a detachable wooden pedestal with key card.



Overall dimensions on pedestal 180 x 180 x 380mm tall.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| ZHM 100 010 | Heart Model | EACH | £214.88 |

Human Heart Model

This anatomically correct model is 2 times life size. It can be dismantled to show the inner and outer parts. The heart is dissectible into two parts so all internal and external structures and functions can be demonstrated. Mounted on stand with key card.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| ZHM 910 040 | Human Heart Model | EACH | £8.58 |



Pumping Heart Model



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| ZHM 830 011 | Pumping Heart Model | EACH | £30.22 |

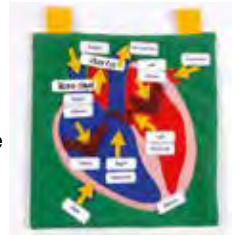
Big Heart

This highly visual heart is designed to be both realistic and accurate. It will effectively capture a student's attention and stimulate interest and enthusiasm for science. The human heart is a pump and one of the most important organs of the body and this unique fabric display is ideal for demonstrating how it works and drives the human body. The Big Heart is a colourful, hands on resource that will attract the attention of the class and stimulate interest in what can be a complex subject.

Finished Mat Dimensions: 410 x 410mm

Contents:

- Full set of labels
- Detachable heart chambers
- Fabric arrows
- Teacher's notes



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| ZHM 840 010 | Big Heart | SET1 | £50.46 |

Lungs & Larynx Model

A 7 part model of the lungs and larynx mounted on a baseboard. The model contains the following removable parts: 2-part larynx; trachea with bronchial tree; 2-part heart; subclavian artery and vein; vena cava; aorta; pulmonary artery; oesophagus; 2-part lung (front halves removable) and diaphragm.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| ZHM 330 010 | Lungs & Larynx Model | EACH | £267.79 |

Economy Human Circulatory System Model

Half life-size. A detailed representation of the human circulatory system in one-half scale. Trace blood flow away from the heart through the arteries and capillaries to all areas of the body and back to the heart through the veins. Frontal plane is cutaway so blood circulation can be traced to the major organs and extremities.

Mounted on a 32" x 12" base, includes key card.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| ZHM 990 010 | Circulatory System Model | EACH | £87.54 |

Urinary System Model

A larger than life size 3D model of the human excretory organs. Allowing students full access from all sides. Made from unbreakable vinyl, the model is free standing. Both kidneys, with their piggyback adrenal glands, major blood vessels, ureters and upper half of the bladder, are included all in their natural relationship to each other. One kidney is sectioned to show the network of filtration and collection tunnels. Major features are numbered with a key card. Supplied mounted on a wooden base.

Overall dimensions: 300 x 200 x 480mm tall



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| ZHM 210 010 | Urinary System Model | EACH | £276.17 |

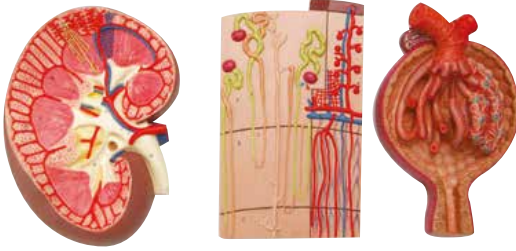
Economy Human Kidney Model with Adrenal Gland

A 2 part, hand painted, high quality human kidney and adrenal gland model. Shows fine details of the human kidney. Comes numbered with a key card.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| ZHM 920 160 | Human Kidney Model | EACH | £19.56 |





Kidney, Nephrons & Malpighian Corpuscle Models

A series of three models with important structures enlarged to show finer detail. These models are available mounted on one baseboard or as individual models.

Model 1. A longitudinal section of the right kidney, 3 times life-size.

Model 2. A nephron depicting a section through renal cortex and medulla and features the renal corpuscles with proximal and distal convoluted tubules, loops of Henle, collecting tubules and blood vessels, 120 times life-size.

Model 3. The third section shows an opened Malpighian corpuscle with glomerulus and Bowman's capsule, 700 times life-size.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|---------|
| ZHM 320 010 | Full Set of All 3 Models | SET3 | £209.00 |



Basic Kidney Model

A 3 times life-size longitudinal section of the right kidney. All important structures are shown.

Dimensions: 8.5 x 19 x 26cm

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| ZHM 140 010 | Basic Kidney Model | EACH | £57.99 |

Modelling Kidney Function Lab Investigation Kit

- Investigate the function of a human kidney by constructing a model
- Understand the mechanism of urine formation in the kidney
- Observe osmosis as it relates to kidney filtration
- Relate kidney function to homeostasis

For a class of up to 40 students. Students construct a model of a kidney using a semi-permeable membrane to filter a completely safe solution that simulates blood. The simulated blood solution contains simulated cells that cannot cross the semi-permeable membrane and remain in the kidney model. The resulting filtrate resembles urine that students test for salt and other waste products. The simulated blood cells can also be seen and counted under a microscope - just like real blood! Students learn about the urinary system, urine formation, and kidney function.

Contents:

- Simulated Blood
- Dialysis Tubing, 2m
- 20x Plastic Cups
- 40x Microscope Slides
- 40x Coverslips
- 50x Salt Test Strips
- 40x Pipettes
- 40x Gloves
- String
- Teacher Manual and Student Guides

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|-----------------------------------|----------|--------|
| CBL 070 010 | 695800 | Kidney Function Investigation Kit | EACH | £70.98 |



Human Physiology

Anatomy

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Eye Model

This soft foam model separates into halves, one with labels and the other with letters for self checking or assessment. An activity guide is included with facts about the eye and a reproducible diagram to use as a worksheet or quiz. Diameter: 125mm



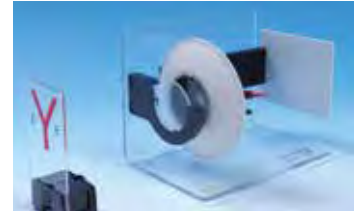
Labelled Parts:

- Cornea
- Iris
- Pupil
- Retina
- Lens
- Optic nerve
- Vitreous Humour
- Sclera
- Choroid
- Macula
- Ciliary muscle
- Optic disc
- Zonules

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZHM 790 040 | Eye Model | EACH | £13.39 |

Eye Model

This Eye Model is very close to reality. It comprises a flexible lens with an adjustable focal length that constitutes the crystalline lens. The Retina is represented by the white screen. The adjustment of the crystalline lens is made by mechanical stress on the flexible lens which is similar to ciliary muscles. Enables you to study vision pathologies and their corrections. You have the possibility to put a corrective lens in front of the eye. Dimensions: 180 x 120 x 140mm



Contents:

- Eye model
- Kit of corrective lenses

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|---------|
| ZHM 930 010 | Eye Model | EACH | £128.95 |

Human Eye Model

This economy human eye model can be dismantled to show all the basic arteries, blood vessels and other important parts. This model is easy to take apart and reassemble, to view all aspects of internal and external anatomy. Mounted on a stand 180 x 180 x 320mm.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| ZHM 910 030 | Human Eye Model | EACH | £12.46 |

Eye Model 4x Life Size

Classic 6 part model of the human eye with highly accurate and detailed colourful components. Dissects into: a two part sclera with cornea and eye muscle attachments, both halves of the choroid with iris and retina, lens and vitreous humour. Comes with detachable base and photocopiable key to parts. Size: 90 x 90 x 150mm



| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| ZHM 940 020 | Eye Model 4x Life Size | EACH | £46.35 |

Eye Model 3x Life Size

Extremely cost effective 6 part eye model, 3 times life-size which dissects into:

- Both halves of sclera with cornea and eye muscle attachments
- Both halves of choroid with iris and retina
- Lens
- Vitreous humour Supplied with key card.

Dimensions: 90 x 90 x 150mm



| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| ZHM 110 010 | Eye Model 3x Life Size | EACH | £59.73 |

Eye Model 5x Life Size

Extremely cost effective 6 part eye model, 5 times life size on a stand which dissects into:

- Upper half of the sclera with cornea and eye muscle attachments
- Both halves of choroid with iris and retina
- Lens
- Vitreous humour

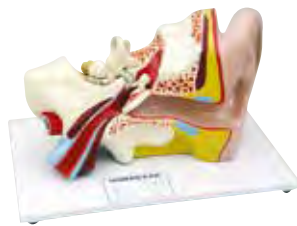
Supplied with key card. Dimensions: 130 x 140 x 210mm



| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| ZHM 120 010 | Eye Model 5x Life Size | EACH | £84.45 |

Human Ear Model

This economy human ear model shows pinna with auditory canal, tympanic membrane, eustachian tube, middle ear ossicles, bony labyrinth and cochlea. Removable parts include the tympanic membrane (eardrum) with malleus and incus (hammer and anvil), and the two part labyrinth/cochlea with stapes (stirrup) and auditory nerve. Enlarged 3 times. Includes mounting/display base and key card.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| ZHM 910 020 | Human Ear Model | EACH | £12.18 |

Ear Model 3x Life Size

Enlarged about 3 times. Showing the external ear canal as well as middle and inner ear, ear drum with hammer and anvil removable, cochlea removable and dissectible, the whole model is dissectible into 4 parts, on base. Dimensions: 34 x 16 x 19cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZHM 060 010 | Ear Model | EACH | £72.00 |



Ear Model 4x Life Size

Colourful representation of the outer, inner and middle ear including: removable eardrum with hammer and anvil, 2-part labyrinth with stirrup, cochlea and auditory / balance nerve. Comes with base and photocopyable key to parts.

Size: 340 x 160 x 190mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| ZHM 940 010 | Human Ear | EACH | £51.50 |

Economy Tooth Model

This hand painted molar model of an upper triple root molar with caries is enlarged 15 times to show the finest details. It is separated into 2 longitudinal sections through the crown, 2 roots and pulp cavity. It comes on a base, numbered, with a key card.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| ZHM 960 010 | Tooth Model | EACH | £17.50 |

Cross Section Tooth Model

This two part model is labelled on one side with the main parts of a tooth: enamel, dentin, pulp, cementum, nerves, blood vessels, root and crown. The other half is labelled with letters for assessment. Model made of durable soft foam for years of classroom use. Includes an activity guide.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| ZHM 790 010 | Cross Section Tooth Model | EACH | £13.39 |

Lower Jaw Model

A lower jaw model of an eleven year old magnified 3.5 times natural size. Made from unbreakable vinyl, the model illustrates the progressive stages in tooth succession. Four teeth each representing a distinct tooth type, are individually extractable. The model is cut away to show roots of teeth, nerves, blood vessels and a wisdom tooth (3rd molar) below the gum line. One molar is sectioned lengthwise to show the enamel, dentine and pulp. Major features are numbered with a key card. Supplied on a base. Overall dimensions: 230 x 130 x 360mm long



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|----------------|
| ZHM 220 010 | Lower Jaw Model | EACH | £161.13 |

Dentition Development Model

Four stages of dentition development are shown using upper and lower jaw halves. Dentition models have been cast from natural specimens.



Dentition Development Stages:

- Newborn
- Approx. 5 year old child
- Approx. 9 year old child
- Young adult

Dimensions: 33 x 10 x 20cm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| ZHM 300 010 | Dentition Development Model | EACH | £118.44 |

Economy Lower Jaw Model

Model show the jaw joints and muscles. The teeth can be removed and taken apart. One canine tooth and one molar tooth are dissectable. Mounted on stand. Numbered with Key Card. Size: 33 x 23 x 32cm approx



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| ZHM 960 020 | Lower Jaw Model | EACH | £46.34 |

Dental Care Model

This 3 times life size model shows the upper and lower half of an adult's denture. A flexible joint between the jaws allows easy movement. Teach students proper cleaning techniques using the giant toothbrush supplied with this model. Dimensions: 18 x 23 x 12cm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| ZHM 180 010 | Dental Care Model | EACH | £28.12 |

Tongue Depressors

Tongue depressors are useful for spreading ointments and for stirring and mixing medications. Smooth and splinter-free tongue depressors are made of high quality wood.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| MBY 040 015 | Tongue Depressors | PK500 | £17.97 |

Dental Mirror with Handle

Mirror diameter: 20mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| XOP 140 010 | Dental Mirror with Handle | EACH | £3.44 |



Skin Section Model 70x Life Size

This 70 times life size relief model shows a section through the three layers of the hair-covered skin of the head. Representation of hair follicles with sebaceous glands, sweat glands, receptors, nerves and vessels. Delivered on a base. Dimensions: 26 x 33 x 5cm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| ZHM 190 010 | Skin Section Model | EACH | £56.64 |

Human Skin Model

This economy skin model is enlarged by approximately 70 times. Showing hair, papilla, sebaceous glands, sweat-duct glands, sensory receptors, nerves and blood vessels.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| ZHM 910 050 | Human Skin Model | EACH | £10.43 |

Pelvis Models

Female Pelvis Model

Median section. One half of the female genital organs with bladder and rectum is removable, while the other half is shown at the normal position in the female pelvis. Delivered on baseboard: 41 x 31 x 20cm



ZHM 270 010



ZHM 270 020

Male Pelvis Model

Median section. One half of the male genital organs with bladder and rectum is removable, while the other half is shown at the normal position in the male pelvis. Delivered on baseboard: 41 x 31 x 20cm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| ZHM 270 010 | Female Pelvis Model | EACH | £113.29 |
| ZHM 270 020 | Male Pelvis Model | EACH | £113.29 |

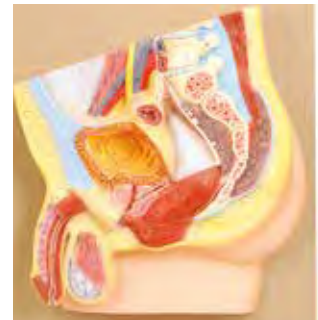
Economy Pelvis Models

Female Pelvis Model

This natural sized, hand painted model shows the female genital organs with bladder and rectum fully exposed. It is mounted on a base and numbered with a key card.



ZHM 112 010



ZHM 112 020

Male Pelvis Model

This natural sized, hand painted model shows the rectum, bladder, prostate, testicular ducts, and genital organs. It is mounted on a base and numbered with a key card.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| ZHM 112 010 | Economy Female Pelvis Model | EACH | £31.16 |
| ZHM 112 020 | Economy Male Pelvis Model | EACH | £31.16 |



Human Embryo Development Model Set

Complete formation of a human foetus. Set of 7. Each model is mounted on a stand.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| ZHM 910 070 | Human Embryo Development | EACH | £91.25 |



Economy Mitosis Model Set

Eight individual models represent mitosis of a general animal cell. Chromosomes and centromeres are brightly painted to easily identify and explain each step of cell division.

- Large models
- Separate model for each stage of mitosis
- Great detail
- Brightly coloured



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| ZCB 070 010 | Mitosis Model Set | EACH | £36.57 |

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SAFETY

Human Skeleton Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| ZAC 030 010 | Human Skeleton Poster | EACH | £10.29 |

Anatomical Posters

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



ZAC 220 060

ZAC 220 090

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| ZAC 220 020 | Vascular System | EACH | £10.29 |
| ZAC 220 030 | Nervous System | EACH | £10.29 |
| ZAC 220 060 | Liver | EACH | £10.29 |
| ZAC 220 090 | Blood | EACH | £10.29 |

Gastrointestinal System Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------------|----------|--------|
| ZAC 220 040 | Gastrointestinal System Poster | EACH | £10.29 |

Respiratory System Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|--------|
| ZAC 220 050 | Respiratory System Poster | EACH | £10.29 |

Urinary Tract Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|--------|
| ZAC 220 070 | Urinary Tract Poster | EACH | £10.29 |

Brain Poster

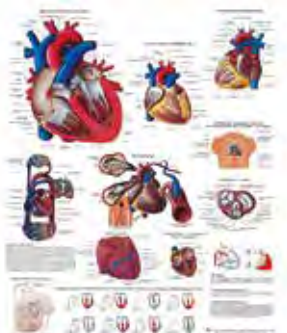
All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| ZAC 220 080 | Brain Poster | EACH | £10.29 |

Heart Poster

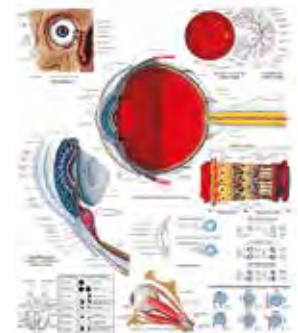
All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| ZAC 030 050 | Heart Poster | EACH | £10.29 |

Eye Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean). Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZAC 030 020 | Eye Poster | EACH | £10.29 |



Ear Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean).
Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZAC 030 030 | Ear Poster | EACH | £10.29 |

Skin Poster

All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean).
Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZAC 220 100 | Skin Poster | EACH | £10.29 |

Female Genitalia Poster

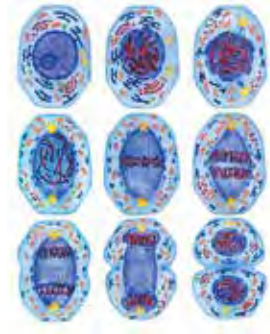
All charts are printed on premium glossy (200g) paper with ultra thin lamination (wipe clean).
Dimensions: 50 x 67cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|-------|
| ZAC 030 060 | Female Genitalia Poster | EACH | £8.32 |

Cell Division Posters

These charts are printed on tear resistant, waterproof paper.
Size: 84 x 118cm



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| ZAC 080 050 | Mitosis | EACH | £19.56 |

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Mini Peak Flow Meter

Popular, entry level unit supplied with one sterilisable mouthpiece and instruction manual.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| YHP 090 010 | Mini Peak Flow Meter | EACH | £13.38 |
| Accessories | Description | Quantity | Price |
| YHP 094 011 | Disposable Mouthpieces | PK500 | £30.89 |



CAROLINA

Portable Dry Spirometer

- Breathe new life into science lessons
- No calibration needed
- No messy setup or teardown
- Compact, easy to use and store

Measurements of lung function can vary dramatically from person to person. You can easily demonstrate and measure these differences in your classroom with this accurate, handheld, dry gas meter. It measures vital capacity, tidal volume, and expiratory reserve volume. Students can then calculate inspiratory reserve volume and inspiratory capacity from these values. The gauge is calibrated to 7L in 100-cc increments. Just reset the needle after each reading by rotating the dial. Includes 50 reusable mouthpieces.

Contents:

- Portable Dry Spirometer
- 50x Reusable, Plastic Mouthpieces

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------|----------|----------------|
| CBL 050 010 | 692670 | Portable Dry Spirometer | EACH | £257.49 |
| Accessories | Supplier Code | Description | Quantity | Price |
| CBL 050 500 | 692671 | Disposable Mouthpieces | PK100 | £31.00 |

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Lung Volume Bag Set

For determining maximum lung volume (vital capacity). Student exhales fully into a bag, then squeezes the expired gas into the bottom of the bag. Vital capacity is read directly from wall of the bag (marked in 100ml increments up to 6L). Set includes 4 heavy-gauge reusable plastic bags with mouthpiece holders and 30 disposable mouthpieces.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------|----------|---------------|
| YHP 440 010 | 692645 | Lung Volume Bag Set | EACH | £56.99 |
| Accessories | Supplier Code | Description | Quantity | Price |
| YHP 440 500 | 692647 | Replacement Mouthpieces | PK100 | £29.99 |
| YHP 440 510 | 692648 | Spare Bags | PK4 | £31.99 |



SM-1 Clifton Spirometer

The Clifton Spirometer can be used for investigating tidal volumes, respiratory rate, pulmonary ventilation, reserve volumes and vital capacity. Oxygen consumption can also be measured which is useful in metabolic rate studies. A simple lever control enables the subject to be connected either to the atmosphere or to the float for recording. A container for soda lime crystals is fitted which can be used to absorb carbon dioxide. The Spirometer is designed to offer minimum resistance to airflow. This means greater comfort for the user and more realistic results. The tank is stainless steel with a painted stove enamelled case. The float is constructed from lightweight plastic and is calibrated in 0.5 litre steps with maximum capacity of 7 litres. A pen arm allows the attachment of a fibre tipped pen for recording results. Two flexible corrugated breathing hoses 0.8m long are provided with two mouthpieces and a nose clip. Operating Instructions are supplied.

NB: Soda Lime Crystals are not supplied with the unit.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|-----------------|
| YHP 160 010 | SM-1 Clifton Spirometer | EACH | £1004.00 |
| Accessories | Description | Quantity | Price |
| YHP 164 010 | Mouthpieces | PK100 | £45.32 |
| YHP 380 500 | Nose Clip | EACH | £2.58 |



Fingertip Pulse Oximeter

The Fingertip Pulse Oximeter can be used to measure human Haemoglobin Saturation and Heart Rate through a fingertip. Pulse Oximetry uses a light emitter with red and infrared LED that shines through a reasonably translucent site with good blood flow e.g. fingertip. Opposite the emitter is a photo detector that receives the light that passes through the measuring site.

Easy to operate: put the test subject's finger into the rubber cushions of the clip and then clip the finger. Press the switch button once.

The LCD digital display will show:

- Pulse intensity by a single column bar graph
- Pulse rate as numbers
- SpO (pulse oxygen saturation %) as numbers

Supplied with a hanging rope.
Requires 2x 1.5V AAA batteries.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| YHP 400 010 | Fingertip Pulse Oximeter | EACH | £20.75 |
| Accessories | | Quantity | Price |
| BAT 010 020 | AAA Size - 1.5V Batteries | PK4 | £2.99 |



Single Head Stethoscope

Single head, simple pattern.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| YHP 010 010 | Single Head Stethoscope | EACH | £3.28 |

Dual Head Stethoscope

For simultaneous listening to heart sounds by the student and teacher or two students through a single chest piece. Consists of a Bowles chestpiece, dual head sets of plated brass binaurals with plastic earpieces, black latex tubing and Y-tubing connector.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| YHP 370 010 | Dual Head Stethoscope | EACH | £12.99 |

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Blood Pressure Monitor

Clinically validated to the highest BHS standard, this blood pressure monitor measures systolic, diastolic and pulse. Accuracy of this monitor was clinically validated and the simple one-touch operation offers the user precise blood pressure results. The 3-line display shows all the readings (systolic, diastolic and pulse) simultaneously. There can be no mistakes or confusion when reading the results.

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------------|-------------|---------------|-------|
| YHP 320 010 | Blood Pressure Monitor | EACH | £61.79 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 | |

Wrist Blood Pressure Monitor

A compact unit that can perform BP measurement anywhere. An easy-to-read 3-line display shows all the values simultaneously, with 90 memory storage. An average value of the stored data will be displayed for a better understanding of the user's BP trend.



Features:

- Simple one-touch wrist measurement
- Irregular HeartBeat (IHB) indicator
- Blood pressure classification indicator
- 90 memory + average reading

Requires 2x AAA batteries.

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------------|-------------|---------------|-------|
| YHP 085 012 | Wrist Blood Pressure Monitor | EACH | £30.89 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 020 | AAA Size - 1.5V Batteries | PK4 | £2.99 | |

Aneroid Blood Pressure Monitor

The Aneroid Blood Pressure Monitor is used for measuring blood pressure. It consists of an aneroid pressure gauge (0 - 300mm Hg), an inflatable bladder held in a cloth cuff and an inflating bulb. The cuff can be fastened around the arm by Velcro strips. Supplied in a zip up case.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| YHP 240 010 | Aneroid Blood Pressure Monitor | EACH | £16.17 |

Electronic Ear Thermometer

Easy to use battery operated electronic ear thermometer. Suitable for all ages. Range: 0 to 50°C (32 to 122°F).

Features:

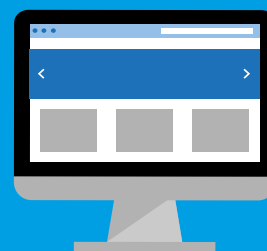
- One second measuring time
- Beeps when temperature reached
- Illuminated display for easy reading
- Fahrenheit and centigrade measurement scales
- Stores last 5 readings
- Automatic power off
- Comprehensive instructions supplied
- Supplied in a carry case complete with a set of disposable, hygienic probe covers



| Cat No. | Description | Quantity | Price | |
|--------------------|----------------------------|-------------|---------------|-------|
| THD 220 010 | Electronic Ear Thermometer | EACH | £19.78 | |
| Accessories | | Description | Quantity | Price |
| THD 220 500 | Probe Covers | EACH | £4.99 | |

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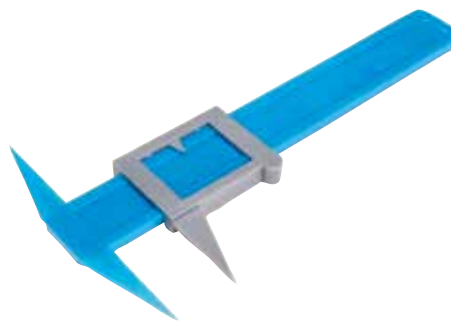
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Carolina Two-Point Discriminator

Ideal apparatus for cutaneous sensation testing. Durable and economical design allows for easy measurements of 2-point threshold. Moulded scale for easy readability; measures up to 100mm. Additional point allows experimenter to alternate between one and 2-point stimulation.

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Online Price |
|--------------------|---------------|----------------------------------|----------|--------------|
| CBL 090 010 | 696417 | Carolina Two-Point Discriminator | EACH | £9.16 |

Reaction Timer

Produced as part of Science Year celebrations, these ingenious card strips enable anyone to test their reaction performance without the need for expensive equipment.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| YHP 280 010 | Reaction Timer | EACH | £0.42 |

Mobile Height Measure

Lightweight and portable height measure. The measuring rod can be dismantled into several pieces and set up easily and quickly. The spacer keeps the rod straight and stable without any fittings. As the scale is printed along the side of the measuring rod, it is easy to read off the result while measuring, thus guaranteeing precise results - up to a height of 205cm.

Measuring range: 20 - 205cm
 Graduation Length: 1mm
 Dimensions: 337 x 2130 x 590mm /
 337 x 177 x 624mm when folded



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| YHP 050 040 | Mobile Height Measure | EACH | £85.83 |

Hand Grip Dynamometer

A simple and popular test for general strength testing with an adjustable hand grip.

| | |
|-------------------|-----------------------|
| Range | Analogue 0 - 100kg |
| Graduation | 500g |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| YHP 210 010 | Analogue Dynamometer | EACH | £169.99 |



Food Calorimeter

For determining the energy values of foods and fuels. Has a borosilicate glass calorimeter vessel, combustion chamber, open at the bottom, and an integral water jacket open at the top. A heat exchanger of copper tubing is connected at the top of the combustion chamber and passes through a plastic lid, which is fitted with a stout wire stirrer and a hole for a thermometer. The calorimeter vessel is on a heat resisting platform provided with a support ring and boss head, oxygen inlet tube and igniter coil mounting which can be raised, lowered or swung aside by external controls. Includes a crucible.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| FCL 010 010 | Food Calorimeter | EACH | £201.11 |

Slimguide Fat Meter

Made from ABS plastic, calibrated 0-85mm. Includes a 22 page booklet.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| YHP 060 010 | Slimguide Fat Meter | EACH | £18.23 |



Health Poster

All charts are printed on laminated paper.
Size: 50 x 67cm



ZAC 040 040

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| ZAC 040 040 | Smoking | EACH | £10.29 |

Condom Teaching Model

This set consists of 20 polystyrene penis models provides, even in large groups, a means of practising the correct procedure for putting on condoms. The reusable models can be fixed to the table top with adhesive tape, so that both hands are free for rolling the condom into position. Delivered without condoms.
Overall height: 14.5cm



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| ZHM 240 010 | Condom Teaching Model | EACH | £67.31 |

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Bioplast Models

The clear plastic embedment protects fragile specimens and provides an interactive way for them to be handled and inspected close-up without damage.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------|
| ZHM 870 010 | Butterfly Life History | EACH | £41.19 |
| ZHM 870 040 | Insect Specimens | SET4 | £29.86 |
| ZHM 870 050 | Sea Life Specimens | SET4 | £29.86 |
| ZHM 870 070 | Wasp | EACH | £4.11 |
| ZHM 870 080 | Scorpion | EACH | £4.11 |
| ZHM 870 110 | Crab | EACH | £4.11 |



Animal Cells Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|-------|
| ZAC 340 100 | Animal Cells Poster | EACH | £3.61 |

Animal Skulls

Plastic.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------|
| ZAM 010 010 | Dog | EACH | £161.47 |
| ZAM 020 010 | Sheep | EACH | £219.71 |

Economy Dissection Model

Rat Model Model

showing the internal dissection of a rat showing important exterior parts and various internal organs and systems. Mounted on base. Numbered with Key Card.

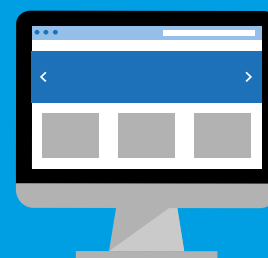


ZAM 040 020

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------|
| ZAM 040 020 | Rat | EACH | £45.69 |

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Preserved Dissection Specimens

Please order Jem Embalmed specimens for delivery 3-4 days prior to use and specify your required by date on your order. If specimens are not used within 3-4 days of receipt, remove from bag and place in a sealed container with Opresol preservative. They may be stored in this for up to 3 months. For other specimens please order for delivery 3-4 days prior to use and specify your required by date on your order. Store specimens in the refrigerator where they will keep for approximately 1 week.

*Pictures available on request, please contact Customer Services.



SEP 010 010



SEP 090 020

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| SEP 010 010 | Plain Embalmed Rat | EACH | £25.50 |
| SEP 020 010 | Jem Embalmed Mouse | EACH | £9.30 |
| SEP 030 010 | Frog | EACH | £13.44 |
| SEP 050 020 | Locust | PK10 | £22.23 |
| SEP 090 010 | Large Mammal Eyes | SET | £15.31 |
| SEP 090 020 | Sheep's Heart | EACH | £15.29 |
| SEP 090 030 | Sheep's Kidneys | EACH | £13.15 |



SEP 030 010



SEP 090 010

Preserved White Rat

Our standard formalin rats bulk-packed in vacuum bags. Rats have become increasingly popular as dissection specimens for exploring mammalian anatomy. These fully developed animals display mature organs and organ systems for students to examine skeletal, muscular, and reproductive structures.

Length: 175-230mm

- Double Colour Injection: Arterial system injected with red latex; a second injection of blue latex in systemic veins
- Body plan allows for close comparison to human anatomy



NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|---------------------|----------|--------|
| CBL 390 010 | PZK165-228322 | Preserved White Rat | EACH | £19.95 |

Preserved Frog

Formalin Frog, Preserved, XX-Jumbo (125mm +), Plain Injection.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|----------------|----------|--------|
| CBL 500 010 | PZK185-227401 | Preserved Frog | EACH | £15.75 |

Owl Pellets

Owl pellets are masses of undigested parts of food that owl species occasionally regurgitate. The contents of the owl pellet depends on its diet, but can include the exoskeletons of insects, indigestible plant matter, bones, fur, feathers, bills, claws, and teeth.

- Our individually wrapped pellets are heat sterilised at 250°F for 4 hours and cooled in the oven and are free of chemicals
- The Small Owl Pellet is less than 38mm long



| Cat No. | Supplier Code | Description | Quantity | Price |
|-------------|---------------|------------------|----------|-------|
| CBL 360 010 | 227880 | Large Owl Pellet | EACH | £4.01 |
| CBL 360 020 | 227885 | Small Owl Pellet | EACH | £2.16 |



Vertebrate Survey Set

Specimens can be used as teacher demonstration models or for dissection by students working in groups at separate stations. The Vertebrate Survey Set includes 9 representative specimens designed to help students gain a better understanding of the diversity of vertebrate organisms through dissection and careful observation.

The teacher's manual contains extension activities and a reproducible blackline master student guide. The student guide contains background information, dissection guides for each of the animals, and reflection questions.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

Contents:

- Amphioxus
- Lamprey
- Dogfish
- Perch
- Necturus
- Frog
- Turtle
- Pigeon
- Rat
- Teacher's Manual with Reproducible Blackline Master Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------|----------|----------------|
| CBL 480 010 | PZK225-221240 | Vertebrate Survey Set | EACH | £199.00 |

Fresh Dissection Specimens

Fresh meat produce for dissection. All specimens are processed, prepared and stored in the same way as food produced for human consumption. They are sealed in vacuum-packaging, packed in ice, packaged in polystyrene containers, sealed then labelled and dated. These fresh dissection specimens have several key advantages over preserved/embalmed specimens:

- They keep their original appearance without any distortion in colour or texture
- They don't smell of any strong chemicals
- They are much better to use due to having a totally natural appearance

The eyes keep 95% of clarity without any cloudiness, not turning opaque the way preserved specimens do. All lamb products are Halal certified. All products are sourced only from UK abattoirs with the highest standards of animal welfare in place. The specimens should be ordered 10 working days before they are required to ensure they arrive on time. We cannot guarantee a specific delivery date but on receipt they can be stored in a refrigerator or freezer as described above. Orders over €75 do not incur the additional delivery charge.

*Pictures available on request, please contact Customer Services.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| Sheep | | | |
| SEP 110 010 | Eyes | PK5 | £15.00 |
| SEP 110 020 | Eyes | PK25 | £60.00 |
| SEP 110 030 | Hearts | PK5 | £15.00 |
| SEP 110 040 | Skull - Split in Two, Skinned | EACH | £30.00 |
| SEP 110 050 | Heart, Lung & Trachea | PK2 | £30.00 |
| SEP 110 080 | Kidneys | PK5 | £18.00 |
| SEP 110 090 | Livers | PK2 | £22.50 |
| SEP 110 100 | Stomach | EACH | £22.50 |
| Pig | | | |
| SEP 120 010 | Eyes | PK5 | £23.54 |
| SEP 120 020 | Eyes | PK25 | £87.43 |
| SEP 120 030 | Hearts | PK5 | £15.00 |
| SEP 120 050 | Kidneys | PK5 | £15.00 |
| SEP 120 060 | Skull - Split in Two | EACH | £30.00 |
| SEP 120 070 | Liver | EACH | £22.50 |

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Animal Biology & Ecology

Dissection Specimens

SECONDARY

Student Dissection Kit

Comes in a canvas roll with the following equipment:

- 2x Swann Morton scalpels (No.3 and No.7)
- 5x Straight blades
- 5x Curved blades
- 1x Razor
- 2x Pipettes
- 1x 112mm and 1x 125mm stainless steel scissors
- 2x Forceps (blunt and sharp)
- 1x Seeker
- 2x Needles with stainless steel handles and section lifter



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|---------------|
| DSN 250 020 | Student Dissection Kit | EACH | £24.18 |
| Accessories | | | |
| Cat No. | Description | Quantity | Price |
| DSN 240 010 | Canvas Roll, 13 Pockets, Tape Tie | EACH | £2.37 |

DATA LOGGING

BIOLOGY

Basic Dissection Kit

Comes in a PVC roll with the following equipment:

- 1x 35mm scalpel
- 1x 45mm scalpel
- 2x Dissecting needles (wooden handles)
- 1x Seeker (wooden handle)
- 1x Blunt stainless steel forceps
- 1x Sharp stainless steel forceps
- 1x Fine point stainless steel scissors
- 1x Blunt point stainless steel scissors



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| DSN 250 010 | Basic Dissection Kit | EACH | £15.20 |

CHEMISTRY

PHYSICS



Basic Dissection Set without Case

A dissecting set without a case, containing:

- Forceps
- Needle
- Spatula
- Scalpel
- Seeker
- Pair of scissors
- Dropper

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| DSN 420 010 | Basic Set | EACH | £9.26 |

ENVIRONMENTAL SCIENCE



Dissection Set in Transparent Box

This simple set is supplied in a stackable transparent plastic box. All parts are also available separately.

Consists of:

- 2x Straight needles with holder
- Microscopic forceps (fine tip), 130mm
- Straight scissors, sharp points, 105mm
- Scalpel handle No.4
- Set of 5 blades, slightly curved
- Plastic box, stackable

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| DSN 420 030 | Set in Transparent Box | EACH | £12.35 |

FORENSIC SCIENCE

CHEMICALS



5 Part Dissection Set in Case

A dissecting set with 5 parts in an imitation leather case, containing:

- Straight scissors, sharp points, 105mm
- Straight forceps, sharp points, 130mm
- Scalpel handle No.4, 110mm
- Straight needle
- Set of 5 blades, sharp points

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| DSN 420 020 | 5 Part Set | EACH | £14.41 |

GENERAL LABWARE

SAFETY



Advanced Dissection Set with Case

This advanced set is supplied in an imitation leather case. All parts are also available separately. Consists of:

- 2x Straight needles
- Needle, lancet shaped
- Straight forceps, blunt, 130mm
- Straight forceps, sharp points, 130mm
- Straight scissors, sharp points, 105mm
- Scalpel handle no.4, 110mm
- Set of 5 blades, slightly curved
- Spatula
- Dissecting case

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| DSN 420 040 | Advanced Set with Case | EACH | £24.21 |





Anatomical Dissection Set with Case

This set is supplied in an imitation leather case. All parts are also available separately. Consists of:

- Straight scissors, sharp points, 105mm
- Pair of scissors, sharp points, blunt, 140mm
- 2x sets of 5 blades, sharp points
- Straight forceps, blunt, 130mm
- Seeker
- Scalpel/anatomic knife
- Chain hooks
- Scalpel handle No.4

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| DSN 420 050 | Anatomical Set with Case | EACH | £29.86 |

Dissecting Board

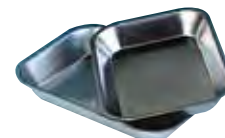
Wooden board.

Size: 550 x 400 x 17mm



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| DSN 010 010 | Dissecting Board | EACH | £21.12 |

Dissection Dishes



| Cat No. | Description | Dimensions | Quantity | Price |
|--------------------|-----------------|------------------|----------|---------------|
| DSN 380 010 | Aluminium | 360 x 260 x 50mm | EACH | £27.35 |
| DSN 380 020 | Stainless Steel | 310 x 220 x 45mm | EACH | £41.95 |

Dissecting Tray with Wax

Features:

- High quality
- Work surface: 14 x 22cm
- Wax type: beeswax
- Material tray: stainless steel
- Product dimensions: 310 x 200 x 50mm
- Reusable after melting the wax



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| DSN 410 010 | Dissecting Tray with Wax | EACH | £30.89 |

Awls

Stainless Steel.

DSN 020 021

DSN 020 011



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| DSN 020 011 | Aluminium Handle | EACH | £0.93 |
| DSN 020 021 | Wooden Handle | EACH | £1.63 |

Forceps

Stainless Steel.

| Cat No. | Description | Length | Quantity | Price |
|--------------------|--------------|--------|----------|--------------|
| DSN 230 011 | Sharp Point | 115mm | EACH | £1.15 |
| DSN 230 021 | Sharp Point | 125mm | EACH | £1.19 |
| DSN 230 031 | Sharp Point | 150mm | EACH | £1.69 |
| DSN 230 041 | Curved Point | 125mm | EACH | £1.22 |
| DSN 230 051 | Blunt End | 115mm | EACH | £1.11 |
| DSN 230 061 | Blunt End | 125mm | EACH | £1.15 |
| DSN 230 071 | Blunt End | 150mm | EACH | £1.69 |

DSN 230 011

DSN 230 051

DSN 230 041



Reinforced Nylon Forceps

Nylon forceps with blunt reinforced ends.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| DSN 210 011 | 125mm | EACH | £0.31 |

Rounded End Forceps

290mm long. Stainless Steel.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| DSN 390 010 | Rounded End Forceps | EACH | £4.69 |



Discover Shop Manage



Animal Biology & Ecology

Dissection Tools

SECONDARY

Forceps

Stainless Steel.



| Cat No. | Description | Length | Quantity | Price |
|--------------------|-------------|--------|----------|---------------|
| DSN 300 010 | Specimen | 290mm | EACH | £11.50 |

Spring Forceps

Glass filled nylon, autoclavable to 125°C. 125mm length.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| DSN 400 070 | Spring Forceps | PK100 | £35.23 |

DATA LOGGING

Disposable Tweezers



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| DSN 430 011 | Disposable Tweezers | EACH | £0.44 |

BIOLOGY

Dissection Needles

Stainless Steel.



| Cat No. | Description | Length | Quantity | Price |
|--------------------|------------------------------|--------|----------|--------------|
| DSN 180 011 | Wood Coloured Plastic Handle | 120mm | EACH | £0.41 |
| DSN 180 021 | Aluminium Handle | 120mm | EACH | £1.28 |
| DSN 190 011 | Borrodaille | 125mm | EACH | £1.77 |

CHEMISTRY

Bent Seekers

Stainless Steel with blunt end.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| DSN 170 011 | Plastic Handle | EACH | £0.49 |
| DSN 170 021 | Stainless Steel Handle | EACH | £1.28 |



PHYSICS

Razors

Plastic slotted handle with No. 1 and No. 2 blades.

DSN 090 010 **DSN 100 010**



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| DSN 090 010 | Razor with Foldaway Blade | EACH | £3.83 |
| DSN 100 010 | Single Edge Safety Razor | PK100 | £16.47 |

ENVIRONMENTAL SCIENCE



Craft Knife

Plastic slotted handle with blade.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| DSN 280 010 | Craft Knife | EACH | £1.42 |

FORENSIC SCIENCE

CHEMICALS

Swann-Morton



Sterile Disposable Scalpels

Polystyrene handle fitted with stainless steel blade.

| Cat No. | Size No. | Quantity | Price |
|--------------------|----------|----------|--------------|
| DSN 030 010 | 10 | PK10 | £3.59 |
| DSN 030 020 | 10A | PK10 | £3.59 |
| DSN 030 030 | 11 | PK10 | £3.59 |
| DSN 030 040 | 12 | PK10 | £3.59 |
| DSN 030 050 | 15 | PK10 | £3.59 |
| DSN 030 060 | 20 | PK10 | £3.59 |
| DSN 030 070 | 21 | PK10 | £3.59 |
| DSN 030 080 | 22 | PK10 | £3.24 |
| DSN 030 100 | 23 | PK10 | £3.59 |
| DSN 030 110 | 24 | PK10 | £3.59 |

GENERAL LABWARE

SAFETY

1 Discover 2 Shop 3 Manage





Scalpels

Solid forged stainless steel scalpels.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| DSN 080 011 | 30mm Blade | EACH | £2.33 |
| DSN 080 021 | 35mm Blade | EACH | £2.33 |
| DSN 080 031 | 45mm Blade | EACH | £2.33 |
| DSN 080 041 | 50mm Blade | EACH | £2.33 |

Scalpel Handles

Swann-Morton®



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| DSN 070 010 | No.3 | PK2 | £5.28 |
| DSN 070 020 | No.3L | PK2 | £13.11 |
| DSN 070 030 | No.4 | PK2 | £5.28 |
| DSN 070 050 | No.7 | PK2 | £11.24 |



Scalpel Blades

To fit handles 3, 3L & 7.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| DSN 050 010 | 10 | PK100 | £10.60 |
| DSN 050 020 | 10A | PK100 | £10.60 |
| DSN 050 030 | 11 | PK100 | £10.60 |
| DSN 050 040 | 12 | PK100 | £10.60 |



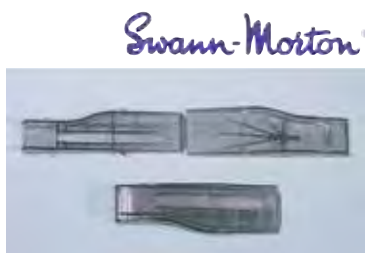
Scalpel Blades

To fit handles: 4, 4L.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| DSN 050 060 | 20 | PK100 | £10.60 |
| DSN 050 070 | 21 | PK100 | £10.60 |
| DSN 050 080 | 22 | PK100 | £10.60 |
| DSN 050 100 | 23 | PK100 | £10.60 |
| DSN 050 110 | 24 | PK100 | £10.60 |
| DSN 050 120 | 25 | PK100 | £10.60 |
| DSN 050 130 | 26 | PK100 | £10.60 |

Scalpel Blade Removers

Plastic, sterile, for single use. The blade is retained in the remover and both are disposed of together. The remover can be reused if sterility is not required.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| DSN 060 010 | Scalpel Blade Removers | PK50 | £10.60 |

Fine Point Scissors

Stainless Steel.



| Cat No. | Description | Quantity | Online Price |
|--------------------|-----------------------------------|----------|--------------|
| DSN 110 011 | Open Shank Fine Point, 115mm | EACH | £1.38 |
| DSN 110 021 | Open Shank Fine Point, 130mm | EACH | £1.71 |
| DSN 110 031 | Open Shank Fine Point, 150mm | EACH | £2.20 |
| DSN 110 040 | Closed Shank Fine Point, 130mm | PK2 | £3.67 |
| DSN 110 051 | Closed Shank Fine Point, 150mm | EACH | £3.11 |

Section Lifter

Stainless Steel.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| DSN 160 011 | 125mm | EACH | £1.48 |

Probing Scissors

Stainless Steel. 1 blade pointed, 1 probe blunt.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| DSN 130 011 | 125mm | EACH | £2.37 |





Amazing Bugs® Habitat

Handy pop-up habitat can be hung up or set on a table or shelf. It packs flat for storage and features a clear plastic zippered top, clear-view mesh sides, and a sturdy nylon floor. Ideal for butterflies and other insects. Size: 28 x 30cm (Dia x H)



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-----------------------|----------|---------------|
| CBL 150 010 | 144092 | Amazing Bugs® Habitat | EACH | £17.71 |

Rothamsted Wormery

Wooden frame with two glass 2mm thick panels 21 x 28cm. Shows burrowing behaviour of earthworms.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| YAH 020 010 | Rothamsted Wormery | EACH | £23.05 |

Clear Polystyrene Boxes

Clear polystyrene boxes with push fit lids.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| BXS 020 020 | 76 x 54 x 29mm | PK10 | £16.23 |
| BXS 020 030 | 126 x 82 x 22mm | PK3 | £11.49 |
| BXS 020 040 | 139 x 79 x 60mm | PK5 | £27.83 |
| BXS 020 090 | 280 x 160 x 103mm | EACH | £15.55 |

Polypropylene Trays

White. Made from High Impact Polystyrene.



| Cat No. | Dimensions (LxWxD) | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| TRY 180 010 | 311 x 242 x 20mm | EACH | £7.09 |
| TRY 180 020 | 355 x 254 x 23mm | EACH | £8.82 |
| TRY 180 030 | 355 x 253 x 51mm | EACH | £10.49 |
| TRY 180 040 | 406 x 305 x 23mm | EACH | £11.49 |
| TRY 180 050 | 457 x 355 x 23mm | EACH | £15.84 |

Resealable Polythene Bags

With write on panels. Other sizes are available, please ask for details.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| BAG 030 010 | 75 x 80mm | PK100 | £0.96 |
| BAG 030 020 | 89 x 114mm | PK100 | £1.41 |
| BAG 030 030 | 100 x 140mm | PK100 | £1.65 |
| BAG 030 040 | 125 x 190mm | PK100 | £2.58 |
| BAG 030 050 | 150 x 230mm | PK100 | £4.67 |
| BAG 030 060 | 200 x 280mm | PK100 | £5.97 |





Pooter Bug Collectors

A valuable resource for science, purposely designed to assist the safe and easy collection of insects.

Features include: large inter-changeable chamber, flexible collecting tube and safety ferrule on air extractor tube.

Material: Plastic

Length: 60 mm

Width: 50 mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| YFS 190 011 | Large Pooters | PK5 | £19.99 |



Bug Tongs

These bug tongs are ideal for field trips for pupils to collect specimens. Children can capture insects, bugs and other small organisms from within their natural habitat or environment for examination without touching or hurting the specimen. The scissor-action bug tongs are fun, easy and safe to use for both capture and release of flying, swimming or crawling insects. Once captured the children can transfer the insect into a larger bug pot for further detailed examination prior to release. The bug tongs come complete with a product guide.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| YFS 050 010 | Bug Tongs | PK5 | £8.99 |

Bug Viewer

Compact viewing pot with scale and ventilation. Includes plastic spider.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| YFS 260 010 | Bug Viewer | EACH | £1.62 |



Insect Net

Deep insect net with telescopic aluminium handle and high quality mesh which is kind to delicate specimens. Suitable for use at all levels.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| YNE 120 011 | Insect Net | EACH | £10.58 |

Labyrinth for Wood Lice

Place the walls on the slits on the bottom of the container. Wood lice have a habit of turning left - right - left - right every time they hit an obstacle. You can make a maze and let your wood lice find its way to the end. By adjusting the walls to make separate rooms, you can experiment to find out their preferred temperature, food or lighting.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|--------------|
| HLB 010 010 | Labyrinth for Wood Lice (Pill Bugs) | EACH | £6.17 |

Choice Chamber

Robust construction. Four chambers allow you to alter conditions in each and observe the behaviour of insects such as wood lice.



| Cat No. | Dimensions | Quantity | Price |
|--------------------|------------------|----------|--------------|
| YAH 400 020 | 190 x 190 x 40mm | EACH | £8.62 |



Two Way Viewer

This two-way viewer allows you to view an object from two different angles, top and bottom. Small objects like insects, grass and leaves can be placed in the tray and viewed from both angles. In addition, two people can view an object at the same time. By switching eyepieces they will be able to see the top and bottom of the object.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| YFS 310 010 | Two Way Viewer | EACH | £6.17 |

Large Magnifying Set

The large magnifier is ideal for inspecting specimens that are collected on nature trips. The mm grid on the base of the pot means that the actual size of the specimen is easily recorded. Not only is this a high quality magnifying pot but the stands supplied make it an excellent desk top magnifier. Complete with comprehensive worksheet. Lens magnification: x2.3
Size: 10 x 11cm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YFS 170 010 | Large Magnifying Set | EACH | £12.17 |

1 **Discover**
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2 **Shop**
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Carolina Observation Gel

Now students can prepare customised "mini-aquaria" observation chambers on microscope slides for studying organisms such as hydra, planaria, and Daphnia. This exciting, reusable product permits gas exchange, allowing specimens to live in the wells for days. Complete with instructions and recommendations for use. In 1-oz. container; enough for preparing about 30 observation chambers.

CAROLINA



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------|----------|---------------|
| CBL 140 010 | 132700 | Carolina Observation Gel | 1OZ | £21.00 |

Pond Nets

Handy pond net with telescopic aluminium handle and knotless fine mesh, will not harm specimens. Safe and durable. Guaranteed not to run if holed.

Size of net: 200 x 200mm.

Extendable handle: 500-1000mm.



| Cat No. | Description | Length | Quantity | Price |
|--------------------|-------------------------|--------|----------|--------------|
| YNE 010 051 | 30x17cm with Rubber Bar | 91cm | EACH | £7.73 |

D-Net with Expandable Pole

This 30cm rim dip net is fitted with a heavy canvas bag approximately 16.5cm deep. The bag is attached to the metal frame with clamp rings. The bottom of the bag is a mesh material of approximately 500 micron nylon with a canvas skirt which extends 7.5cm below the bottom of the bag to protect the mesh. The aluminium pole extends from 132cm to 213cm.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|----------------|
| YNE 110 030 | D-Net with Expandable Pole | EACH | £112.98 |



Laminated & Folded Habitat Guides

The Gatekeeper Habitat series illustrate the common indigenous wildlife of specific habitats and include both plants and animals, 46 species each. They are wipe-clean laminated sheets 39 x 24cm, folded into 3.



YEN 070 010



YEN 070 040



YEN 070 020

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|--------|
| YEN 070 010 | Plants & Animals of the Woodland Habitat | PK5 | £12.88 |
| YEN 070 020 | Plants & Animals of the Garden Habitat | PK5 | £12.88 |
| YEN 070 040 | Plants & Animals of the Grassland Habitat | PK5 | £12.88 |
| YEN 070 050 | Plants & Animals of the Hedgerow Habitat | PK5 | £12.88 |
| YEN 070 060 | Set of All 5 Habitat Guides | SET | £12.88 |

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Sach's Water Culture Set

This set contains one tube each lacking: phosphorus, nitrogen, calcium, potassium, magnesium, iron, sulphur and a complete medium. Each tube is sufficient to prepare 4 litres of liquid medium.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| YPP 610 010 | Sach's Water Culture Set | EACH | £32.00 |

Cauliflower Cloning Kit

This kit provides the instructions and media required to propagate small cauliflower plantlets from cauliflower curd. Kit contains sufficient equipment for 10 students/groups.



Contents:

- 10 Sterile loops
- 10 Peat discs
- 2 x 100cm³ medium

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| ZGN 120 010 | Cauliflower Cloning Kit | EACH | £81.37 |
| ZGN 120 510 | Meristem Culture, 2x100ml | PK2 | £22.41 |

Wisconsin Fast Plants® Growth, Development, and Reproduction Advanced Classroom Kit

Make growth, development, and reproduction real for students with this Fast Plants® kit. Studies include measuring and quantifying germination, pollination, and seed development. Experiment times vary (3 to 40 days). Classroom Kit contains enough materials for 32 students.

- Super-fast generation cycle of 35 to 40 days
- Virtually maintenance-free
- Cross-discipline applications

Refill kit includes Wisconsin Fast Plants® seed, watering system, planting materials, and dried bees.

Contents:

- 200x Standard Wisconsin Fast Plants® Seeds
- 2x Anti-algal Squares
- 2x Watering Trays
- 2x Watering Mats
- 70x Quad Wicks
- 8x Watering Pipettes
- 16x Plant Labels
- Potting Soil, 1L
- Dried Bees, 3g
- 16x Foam Quads
- Slow Release Fertiliser Pellets, 28g
- 16x Plant Support Stakes
- 16x Plant Support Stake Rings
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBL 400 010 | 158702 | Growth, Development, and Reproduction Classroom Kit | EACH | £87.62 |

Seeds for Germination

These seeds are supplied undressed where possible and are for germination experiments. They are not for human or animal consumption.



YPP 010 010

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------------|----------|--------------|
| YPP 010 010 | Broad Bean (<i>Vicia Faba</i>) | 500GM | £6.13 |
| YPP 010 020 | Pea (<i>Pisum Sativum</i>) | 500GM | £6.13 |
| YPP 010 030 | Maize (<i>Zea Mays</i>) | 100GM | £1.58 |
| YPP 010 040 | Wheat (<i>Triticum sp.</i>) | 500GM | £1.94 |
| YPP 010 050 | Mustard (<i>Brassica Nigra</i>) | 500GM | £5.87 |
| YPP 010 060 | Cress | 500G | £6.21 |
| YPP 010 070 | Mung Bean (<i>Phaseolus Aureus</i>) | 500GM | £5.23 |
| YPP 010 080 | Barley (<i>Hordeum sp.</i>) | 500GM | £1.99 |
| YPP 010 090 | Oat (<i>Avena Sativa</i>) | 500GM | £1.99 |



Spray Bottle



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| YPP 115 010 | Spray Bottle | EACH | £1.99 |

Electrical Clinostat

Essential for studying geotropism and phototropism on seedlings, cut shoots and small potted plants. Slow rotation in the vertical or horizontal planes cancel out the effect of gravity and directional light. On strong stable base adjustable to any angle with clear plastic cover. With electric motor revolving once every 12 minutes. Electrical supply: 220-240V, 50-60 Hz, 5W



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YPP 340 010 | Electrical Clinostat | EACH | £77.08 |

Plastic Seed Trays

| Cat No. | Size | Quantity | Price |
|----------------------|-----------------|----------|--------------|
| Without Holes | | | |
| TRY 040 010 | 22 x 16.5 x 6cm | PK3 | £7.59 |
| With Holes | | | |
| TRY 050 030 | 38 x 24 x 8cm | EACH | £4.59 |



Plant Pots & Saucers

Polypropylene plant pots and saucers.

| Cat No. | Diameter | Quantity | Price |
|--------------------|-------------|----------|---------------|
| Plant Pots | | | |
| YPP 290 010 | 76mm | PK10 | £3.59 |
| YPP 290 020 | 100mm | PK10 | £6.17 |
| YPP 290 030 | 127mm | PK10 | £10.29 |
| YPP 290 040 | 150mm | PK10 | £15.44 |
| Saucers | | | |
| YPP 300 010 | 76 - 100mm | PK10 | £3.58 |
| YPP 300 020 | 127 - 150mm | PK10 | £9.11 |
| YPP 300 030 | 180 - 203mm | PK10 | £16.75 |



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- A vast range of Science Equipment online.



Electric Propagator

- Thermostatic control maintains temperature between 18°C and 23°C
- Long life economical heaters
- 22 watt heater
- Dimensions: 52x42x28cm



Contents:

- 1x Large Seed Tray
- 2x Small Seed Trays
- 10x Flower Pots
- 1x Guide to Successful Propagation

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| YPP 200 020 | Electric Propagator | EACH | £78.73 |

Variable Temperature Electric Propagator

- Allows precise control of growing conditions for seeds and cuttings:
- Variable temperature control to choose precise temperature between 12°C and 28°C
 - Automatic re-set thermostat automatically returns to previous setting after any loss of power
 - Energy efficient 50 watt heater
 - Dimensions: 52x42x28cm



Contents

- 1x Large Seed Tray
- 2x Small Seed Trays
- 10x Flower Pots
- 1x Guide to Success Propagation

| Cat No. | Description | Quantity | Price |
|-------------|--|----------|---------|
| YPP 210 020 | Variable Temperature Electric Propagator | EACH | £114.29 |

Gardening Tools

Hand Trowel

Carbon steel blade. Handle: 127mm.

Hand Fork

Epoxy coated carbon steel hardened and tempered with plated ferrule, leather wrist strap and plastic handle.

Garden Rake

Twelve tooth head with epoxy coated finish. Head securely fixed to tubular steel handle. With black plastic hand grip with hang hole.

Dutch Hoe

Pressed steel blade with epoxy coated finish. Head securely fixed to tubular steel handle. With black plastic hand grip with hang hole.

Border Spade

230 x 140mm.

Border Fork

230 x 140mm.



YPP 820 020



YPP 820 010

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| YPP 090 010 | Hand Trowel | EACH | £2.93 |
| YPP 100 010 | Hand Fork | EACH | £3.64 |
| YPP 110 010 | Secateurs | EACH | £6.17 |
| YPP 260 010 | Garden Rake | EACH | £10.15 |
| YPP 820 010 | Border Spade | EACH | £11.32 |
| YPP 820 020 | Border Fork | EACH | £11.32 |

Plastic Soil Sieve



| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|-------|
| YPP 120 010 | Plastic Soil Sieve | EACH | £3.35 |

Soil pH Meter

Instantly tells you how acid or alkaline your soil is and checks which plants suit your garden. Includes a plant care listing for over 400 pH levels.



| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| SOT 060 010 | Soil pH Meter | EACH | £18.89 |

Soil Moisture Meter

Instantly tells you when to water your plants. Includes a plant care listing of the individual watering needs of over 150 plants.



| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| SOT 080 010 | Soil Moisture Meter | EACH | £18.89 |



Dicot (Helianthus) Stem Model

The top surface of the model represents a transverse section of a wedge shaped sector of the stem and includes all the tissues from epidermis to pith. One entire vascular bundle is shown and half an adjacent one. The interfascicular tissues and vascular bundle are shown in longitudinal section. The outer surface represents a view of the epidermis with stomata. Supplied with a key card. Size: 380 x 300 x 75mm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|---------|
| ZFM 020 010 | Dicot (Helianthus) Stem Model | EACH | £309.71 |

Dicot Leaf Model

A section through a typical leaf, showing epidermis, palisade and spongy mesophyll, vascular bundle and stomata. Supplied with key card. Size: 150 x 100 x 60mm



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|---------|
| ZFM 030 010 | Dicot Leaf Model | EACH | £146.91 |



Flower Model

Giant flower model illustrates the processes of pollination and fertilisation. As your students explore this greatly enlarged model, they will discover the arrangement of floral components and the reproductive function of flowers. In fact because the petals, sepals, and stamens are detachable, your students can begin the investigation with the model disassembled, and 'build' the flower as they learn about its parts and their functions - reinforcing the educational experience.

One anther is sectioned open to reveal the pollen grains within. Adhering to the stigma are six pollen grains, demonstrating the process of pollination. One of these grains has generated a pollen tube which has entered the ovary. Visible near the tip of this tube are two sperm nuclei: one of which is destined to unite with the egg to form the embryo, and the other will fuse with the polar nuclei to become the endosperm tissue which will nourish the developing embryo. This process of double fertilisation is unique to flowering plants.

26 number-coded floral structures are explained in detail in the accompanying 4-page study guide.

Overall dimensions: 43 x 36 x 25cm

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|---------|
| ZFM 040 010 | Flower Model | EACH | £222.15 |

Economy Plant Cell Model Set

An excellent example of a basic plant cell is displayed for easy study and explanation. Highlights all major organelles, with removable Nucleolus, Mitochondria, and 2 Chloroplast for closer study. Includes key card with 14 call outs.



- 4 removable parts
- Highlights Cell Wall and organelles

| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|--------|
| ZFM 060 030 | Plant Cell Model Set | EACH | £33.80 |

Economy Dissectable Flower Model

Representing a greatly enlarged, idealised, complete flower, this break-resistant plastic model teaches angiosperm pollination and fertilisation. Mounted on base. Numbered with Key Card.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| ZFM 170 010 | Dissectable Flower Model | EACH | £30.89 |

Soft Foam Cross-Section Plant Cell Model



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------------|----------|--------|
| ZFM 180 010 | Cross-Section Plant Cell Model | EACH | £13.39 |



Carolina BioKits®: Diffusion-Osmosis

For a class of 30. Students use dialysis tubing and solutions to study the movement of materials across a semipermeable membrane by diffusion and osmosis.

Contents:

- Dialysis Tubing, 50ft
- Glucose Solution, 20%, 300ml
- Starch Solution, 2%, 300ml
- Glucose Solution, 80%, 500ml
- Iodine Potassium Iodide Solution, 30ml
- 32x Glucose Test Strips
- 24x Plastic Dropping Pipettes
- White Thread
- Blue Thread
- Red Thread
- 32x Cups
- 8x Rulers
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|--------------------------------------|----------|----------------|
| CBL 030 010 | 684260 | Carolina BioKits®: Diffusion-Osmosis | EACH | £131.52 |

Osmometer

Designed for individual student exercises; reusable. Composed of an Osmometer Tube and a graduated, 8-oz plastic cup with retaining ring and lid. Dropping pipette and one replacement membrane included.

| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------|----------|---------------|
| CBL 020 010 | 684025 | Osmometer | EACH | £24.98 |



Cellular Respiration and Fermentation Kit

For a class of 32 students working in pairs. This kit highlights physiological differences between aerobic cellular respiration and fermentation. Students learn about the production of ATP in glycolysis, Krebs cycle, and electron transport system, and then compare these to the ATP production of both lactic acid fermentation and alcohol fermentation. They observe a demonstration of carbon dioxide production by the aerobic respiration of wheat seeds and the anaerobic respiration of yeast. Next, students apply scientific methodology to investigate yeast alcohol fermentation in the presence of different sugars. They answer questions, perform calculations, and interpret results to evaluate their hypothesis and demonstrate their learning.

Contents:

- 32x Glass Pipettes, 1ml
- 32x Syringes
- 3x Tubing, 30cm
- Dry Yeast
- Bromothymol Blue, 0.04%, 15ml
- Sodium Hydroxide, 1%, 5ml
- 4x Test Tubes
- 4x Rubber Stoppers, No.00
- Wheat Seeds, 1 tbsp
- 30x Medicine Cups
- Sucrose, 5g
- Lactose, 5g
- Dextrose, 5g
- 5x Saccharin, 1g
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---|----------|---------------|
| CBL 450 010 | 202215 | Cellular Respiration and Fermentation Kit | EACH | £58.55 |



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Switch to online ordering and access a wealth of features including live chat support, new and extended product ranges, online exclusive deals and bundles, account self-management tools, enhanced product information, images, videos and much more.

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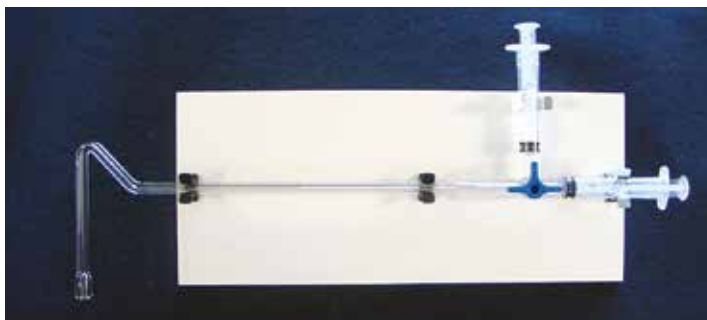
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Photosynthesis Apparatus

For collecting and measuring the gas given off by plants. Mounted on a sturdy backboard.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| YPP 630 010 | Photosynthesis Apparatus | EACH | £30.10 |

Photosynthesis Kit

The SAPS Photosynthesis Kit contains: algae (*Scenedesmus quadricauda*); enrichment medium for growing up the algae; sodium alginate for immobilising the algae; syringes for creating appropriately and evenly-sized drops that can form jelly balls; hydrogen carbonate indicator in a concentrated form; Bijou bottles for carrying out the reactions; and coloured filters that can be used in investigations of wavelength of light on photosynthesis.

Your school will need to supply a vessel for growing the algae, such as a large lemonade bottle; a simple air pump such as that used in a fish tank to aerate the growing culture; illumination for growing the culture, clamps and stands to hold the syringes; plastic cups and spoons for mixing the algae with alginate and for holding calcium chloride solution; 2% calcium chloride solution; tea strainers; lamps for experimental work.

The kit contains full instructions for growing the algae, for producing algal balls and suggestions for experimental work.

Contents:

- Instruction sheet
- 15 Syringes
- 75 Bijou bottles
- Filters (14 colours/shades)
- Hydrogencarbonate indicator, 250 cm³ (dilute x10 for use in experiments)



- Sodium alginate (sufficient to make 200cm³)
- *Scenedesmus quadricauda* (1 bottle)
- Enrichment medium (sufficient to produce 2 litres of algal suspension)

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| YPP 470 010 | Photosynthesis Kit | EACH | £66.74 |

Transform your laboratory furniture that enhances teaching and learning



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Cellular Respiration Box

With this box partially filled with lime water, the carbon dioxide rejected can be observed. The observation is very easy thanks to the transparency of the box.
Dimensions: 35 x 75mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| YPP 680 010 | Cellular Respiration Box | PK6 | £14.36 |

Simple Potometer

This is a simple apparatus for investigating the rate of water uptake and transpiration in plants. The tubing is mounted onto a sturdy acrylic plate with 1mm capillary tube and millimetre scale. The apparatus includes a syringe to aid setting up and for resetting the device for further experiments.



Includes complete instructions.
Dimensions: 160 x 190 x 40mm (including mounting clips)

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| YPP 620 011 | Simple Potometer | EACH | £25.74 |

Darwin Potometer

With rubber stoppers, capillary tube and scale.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| YPP 140 010 | Darwin Potometer | EACH | £11.85 |

Farmer Potometer

Comprised of a wide mouthed bottle with rubber stopper, a narrow bore glass tube with a clip on scale (0-300mm) and a dropping funnel. The glass tube and dropping funnel attach via holes in the stopper and a third hole is present to allow a plant stem to be inserted.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| YPP 320 010 | Farmer Potometer | EACH | £51.99 |

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Telephone: **01902 402 402**



Email: **sales@scichem.com**

Plants Posters

Size: 760 x 520mm



ZAC 340 010



ZAC 340 040

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|-------|
| ZAC 340 010 | Plant Anatomy | EACH | £3.61 |
| ZAC 340 020 | Plant Cells | EACH | £3.61 |
| ZAC 340 030 | Plant Life | EACH | £2.99 |
| ZAC 340 040 | Pollination and Fertilisation | EACH | £3.61 |
| ZAC 340 050 | Stems | EACH | £3.61 |
| ZAC 340 060 | Roots | EACH | £3.61 |
| ZAC 340 070 | Seed Germination | EACH | £3.61 |
| ZAC 340 080 | Seeds | EACH | £3.61 |

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EDU Chemcap Ductless fume Cabinet

for use in education



Providing the greatest protection possible in the safety conscious educational environment

EDU Chemcap cabinets protect from hazards; fumes, vapours and flying glass.

FEATURES

- Quiet operation >50dBA
- Vaneometer airflow indicator
- All round visibility of cabinet interior

Bigneat is a global supplier of laboratory safety enclosures. In the past decade Chemcap™ Ductless Fume Cabinets have been sold to over 28 countries around the world.

In education, just as in industry, Bigneat provides cabinets that give the highest level of protection.

EDU Chemcap exceeds the requirements of important international standards for use of recirculatory filtration cabinets in schools and colleges:

- Design Note 29 and Building Bulletin 88

IDEAL FOR TEACHING PRACTICAL CHEMISTRY

Bigneat's EDU Chemcap fume cabinet (ductless, recirculatory filtration) is ideal for use in education, providing staff and students with a flexible system that allows excellent all round vision and ensures safety is maintained.

The use of Chemcap™ carbon filtration (type MP) makes it ideal for a mixed use laboratory and removes a very wide variety of fumes and vapours. Cabinets have trapezium shaped front access and double hinged front doors which open fully to allow access to the cabinet interior for loading, setting up an experiment and for cleaning. The base tray is black which is excellent for highlighting spillages. Two services ports with covers are provided in the rear panel.

Cabinet can be placed onto an existing work surface or supplied with its own mobile bench (optional cupboard doors and services kit). The mobile bench enables the cabinet to be fully mobile, large castors (lockable) facilitate easy movement of the cabinet from room to room over rough floors and door sills. The secure docking hub is an optional extra which is a wall mounted lockable cabinet providing security and protection for utility connections.



CHEMISTRY

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BRIGHT Atom™

This revolutionary, award-winning interactive atom gives every student the possibility to learn in an intuitive and self-evident way. They can use their hands to touch, feel, make their own atoms, isotopes or ions and grasp the concepts in an easy and fun way! The BRIGHT Atom™ is fun and easy to use; the perfect pedagogic tool. The kit comprises 2 bases to make the atoms on, 30 protons, 30 neutrons and 30 electrons.

- Make isotopes the easy way; add the right number of neutrons to the atomic nucleus
- Use both surfaces to make atoms, let the atoms gently collide and move over the valence electrons by hand
- Everything can be kept in one handy place; the atoms can be stacked on top of each other and inside the BRIGHT Atom™ for storage

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XAR 180 010 | BRIGHT Atom™ | EACH | £29.34 |



BRIGHT Teacher Atom™

BRIGHT Teacher Atom™ is the perfect educational tool for presenting the abstract concepts of atomic structure, isotopes and ions to the class; it can also be magnetically attached onto your classroom whiteboard!

- All parts are separate and magnetic
- Contains 2 nuclei, 8 electron shells and 20 of each of the three subatomic particles

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XAR 180 030 | BRIGHT Teacher Atom™ | EACH | £141.51 |

Science Atom Kit

The Science Atom Kit gives every teacher the opportunity to present the abstract concepts of atomic structure, isotopes and the forming of ions in a clear, easy way, and can be magnetically attached onto the classroom whiteboard. Kit contains one Teacher Atom™, 8 BRIGHT Atoms™ and a lesson plan.

- Great tools for teachers and for students
- The Science Atom Kit is a magnetic demonstration tool



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| XAR 180 020 | Science Atom Kit | EACH | £217.76 |



Periodicity

Periodic Tables

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

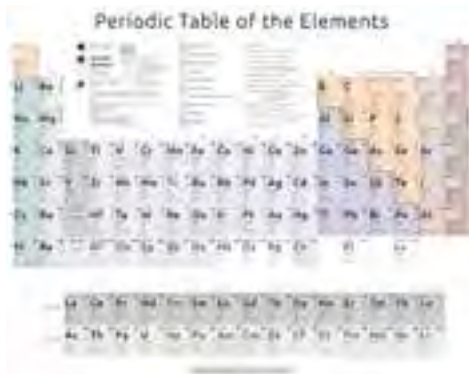
ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Complete Periodic Table of the Elements

Updated and redesigned to current IUPAC standards. Atomic symbols are colour coded to indicate the naturally occurring physical state of each element. Colour coding is also employed in each periodic cell to group the elements. Each cell contains the following information: Atomic Name, Atomic Symbol, Atomic Mass, Density, Electron Configuration at the ground state, Boiling Point, Melting Point, Atomic Number, Covalent Radius, Atomic Radius, Atomic Volume, Oxidation States, Number of Stable Isotopes, Number of Naturally Occurring Radioactive Isotopes, Half Life, and Type of Decay Particle emitted. Ready for hanging, this classroom chart is mounted with removable black Snap-Grip® trim on top and bottom, and includes removable / repositionable eyelets. Size: 127 x 107cm

| Cat No. | Description | Dimensions | Quantity | Price |
|-------------|-------------|-------------|----------|--------|
| XPT 020 011 | Wallchart | 127 x 107cm | EACH | £39.50 |



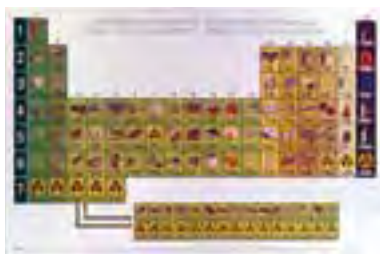
S&C
SciChem



SciChem Periodic Tables

Double sided printed; one side with images illustrating the use of each element, and the other side a very detailed scientific version.

| Cat No. | Description | Quantity | Price |
|-------------|--|----------|---------|
| XPT 050 010 | Student Version, A3 with Punched Holes | EACH | £4.50 |
| XPT 060 010 | Classroom Version with Rods | EACH | £197.30 |



Illustrated Periodic Table Of The Elements

Motivate your students with real-world visual examples. Provide your students with a concrete visual reference to reinforce the abstract symbols for the chemical elements, with this periodic table, which incorporates a crisp full-colour photograph of each element in an everyday application. For example, copper is characterised as an electromagnetic coil, carbon as coal and diamonds, zinc as a galvanised watering can. For those elements whose applications are not so readily apparent, a photograph typifying the nature and physical state of the element in its pure form, such as a flask of liquid bromine, containers of red and white phosphorous, compressed cylinder and flask of chlorine gas, and Sulfur crystals, is provided. Radioactive elements are identified by the radiation symbol, on which the half-life of the element, printed in red, is superimposed. Additional information provided on the chart includes atomic symbol, atomic number, atomic mass (based on carbon 12 and shown as the mean value of the natural isotope mixture, rounded off to the first decimal place), group number and period. Employs previously adopted IUPAC group nomenclature. Incorporates the 1 through to 18 subgroup nomenclature, adopting the most recent IUPAC recommendations.

| Cat No. | Description | Dimensions | Quantity | Price |
|-------------|----------------|------------|----------|--------|
| XPT 030 020 | Poster Edition | 97 x 64cm | EACH | £43.25 |



Periodic Table Game

A fun card game to encourage children to learn the elements of the periodic table. Very easy to memorise because all the elements are expressed as characters. Includes instructions on 5 different ways to play the game.



| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| HLB 010 090 | Periodic Table Game | EACH | £4.29 |





Pneumatic Troughs

Plain cylindrical jars. Manufactured from Soda Glass.

| Cat No. | Diameter | Height | Quantity | Price |
|-------------|----------|--------|----------|--------|
| TPN 010 011 | 200mm | 100mm | EACH | £21.31 |
| TPN 010 021 | 250mm | 125mm | EACH | £22.85 |
| TPN 010 031 | 300mm | 125mm | EACH | £34.31 |



Platinum Wire

The Platinum Wire is fixed in the end of a glass rod.
Glass rod dimensions: 60mm x 3mm (L x dia.)
Platinum wire length: 15mm

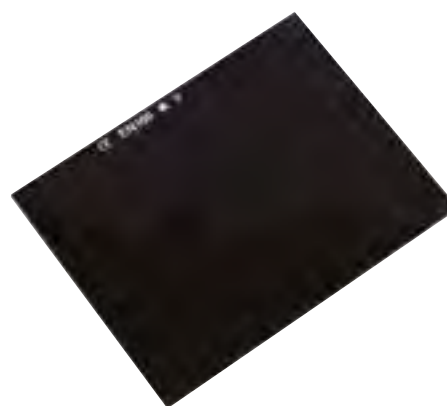
| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| PTR 010 050 | Platinum Wire | EACH | £12.92 |



Charcoal Flame Test Block

Dimensions: 100 x 25 x 25mm

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| FLT 020 010 | Charcoal Block | EACH | £2.49 |



Magnesium Flame Test Glass - Passive Welding Filter Lens

Shade 9. Ideal for use when viewing burning magnesium.
Size: 105 x 80mm.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|-------|
| FLT 030 010 | Magnesium Flame Test Glass | EACH | £0.67 |

Cobalt Blue Flame Test Glass

Used in flame testing as it absorbs the yellow light of sodium, allowing the much less intense lilac colour of any potassium ions to be seen.

Size: 75 x 50mm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|-------|
| FLT 010 010 | Cobalt Blue Glass | EACH | £6.49 |



Discover Shop Manage



Enquiries in Science®: Determining Chemical Formulas Kit

Students discover the chemical composition of common substances through hands-on, enquiry-based activities. They build and compare models of a substance's empirical and molecular formulae; perform a combustion reaction to determine the substance's chemical composition and use that information to determine molecular formula and percent composition; and design experiments to determine the percent composition and/or molecular and empirical formulas for common substances.

- Determine the percent composition of substances
- Use models to differentiate between empirical and molecular formulas

Contents:

- 100x Aluminium Weighing Dishes
- Dextrose, 50g
- 20x Y-plate Petri Dishes
- 10x Molecular Model Sets
- Epsom Salt, 454g
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|-------------------------------|----------|---------------|
| CBL 123 010 | 251206 | Determining Chemical Formulas | EACH | £58.92 |

BRIGHT Teacher Molecule™

With the BRIGHT Teacher Molecule™ you get parts to make a wide variety of molecules; directly on your classroom whiteboard. All you need for your science class! All parts are magnetic.

Contents:

- 10 atoms each in 6 different colours
- White atoms representing e.g. Carbon
- Black atoms representing e.g. Hydrogen
- Red atoms representing e.g. Oxygen
- Blue atoms representing e.g. Nitrogen
- Green atoms representing e.g. Chlorine
- Yellow atoms representing e.g. Sulfur
- 50 bindings



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| XAR 180 040 | BRIGHT Teacher Molecule™ | PK1 | £124.63 |

Chemical Jigsaws

Chemical Jigsaws offer a new and highly effective method of teaching chemical formulae and equations. They use a number of interlocking pieces with plus signs and arrows that enable students to build representations of covalent and ionic compounds and also to model equations. They offer students a more effective understanding of formulae.

- The parts are translucent and can be placed on an OHP
- The formulae can be identified by shape, colour and identifying symbols / formulae can be written on them in felt-tip pen

Covalent Jigsaws

- In the Covalent Jigsaws, atoms are represented by coloured discs with cut-outs corresponding to the positions of atoms in the periodic table
- Atoms are joined by clear bonds representing electrons shared between atoms
- Covalent Jigsaws are available in two boxed sets Please Note: the Junior (KS3) kit is required prior to the Senior (KS4 upgrade) kit (MLM 060 030).



MLM 060 010

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| MLM 060 020 | Covalent Junior Kit, KS3 | EACH | £12.45 |
| MLM 060 030 | Covalent Senior Kit, KS4 | EACH | £14.99 |



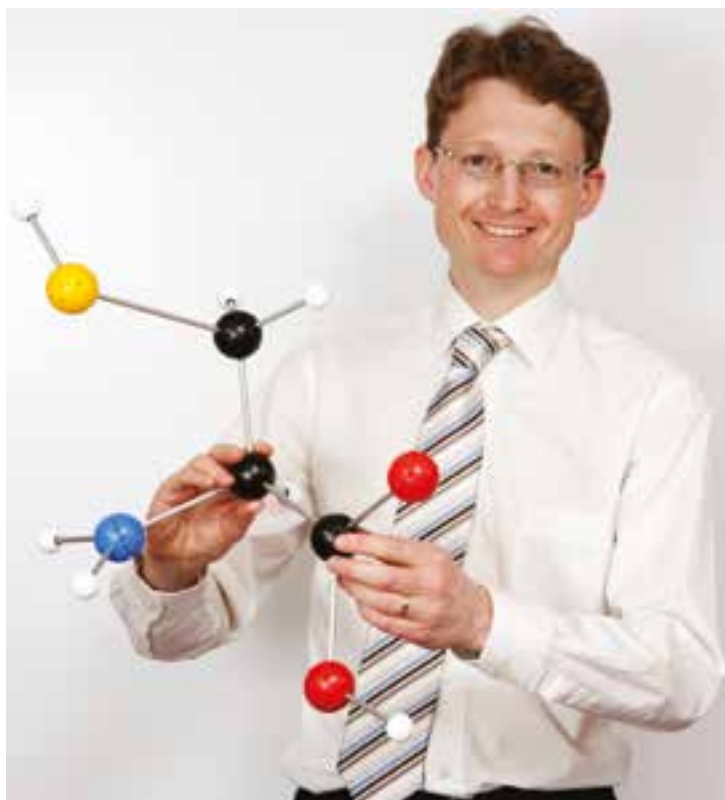
Unit™ Large Demonstration Set

Easily make models of hydrocarbons, alcohols, amines, organic and inorganic acids and bases, carbohydrates, benzene, chlorinated molecules, inorganic molecules and more that the whole class can see.

- Structures can be seen from the back of the class or lecture hall
- Durable atoms and metal tubes ensure long-lasting models
- Sturdy pegs join all atoms and bonds at any bond angle
- Easy to handle, build and take apart
- Bonds and atoms are to scale for accuracy at 8.5cm per 100pm
- Full range of supplementary atoms, bonds and orbitals available

Contents:

- 40x 44mm dia. durable plastic spheres in seven colours
- 30 x 25mm dia. white spheres to represent hydrogen atoms
- 144 sturdy pegs for joining atoms and bonds at any bond angle
- 90 rigid aluminium and flexible vinyl bonds in four lengths



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|---------|
| MLM 080 010 | Unit™ Large Demonstration Set | EACH | £174.42 |

Orbit Molecular Building System

With the Orbit system, users can examine the structure, bonding and shapes of organic and inorganic molecules, proteins and extended lattices. The system uses atom centres moulded in 15 shapes, colour coded in 12 colours according to element/element type. This gives it the widest range of atom centres designed for molecular modelling. Atom centres are 9mm in diameter.

Basic Structures for GCSE Compartmented box and a greater quantity of atoms for multi-group activities. Topics cover the structures of organic molecules, inorganic materials, crystals and metals including the structures of sulphur, sodium chloride, diamond, graphite, 12 coordinate metals, petroleum products, polymers, acids and bases, soap and detergents, nylon, water and ice.

Foundation Chemistry Make simple models to understand chemical structures. For a student's self-directed work. 65 atoms, 90 bonds, model building instructions.

Organic & Inorganic Chemistry You are able to make models of many molecules and compare different structures including saturated hydrocarbons, unsaturated hydrocarbons, cyclic hydrocarbons, functional groups in organic chemistry, benzene, polymerization, optical isomerism, simple inorganic molecules and complex ions. 240 atoms, 200 bonds and 48 page booklet.

Organic & Inorganic Chemistry for A-Level Compartmented box and a large quantity of atoms enable you to construct multiple models and activities. These include saturated hydrocarbons, unsaturated hydrocarbons, cyclic hydrocarbons, functional groups in organic chemistry, benzene, polymerization, optical isomerism, simple inorganic molecules and complex ions. 500 atoms, 320 bonds and 48 page booklet.



MLM 010 040



MLM 010 010

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|--------|
| MLM 010 010 | Basic Structures for GCSE | EACH | £58.22 |
| MLM 010 040 | Foundation Chemistry | EACH | £8.92 |
| MLM 010 050 | Organic & Inorganic Chemistry | EACH | £21.86 |
| MLM 010 020 | Organic & Inorganic Chemistry for A-Level | EACH | £49.85 |

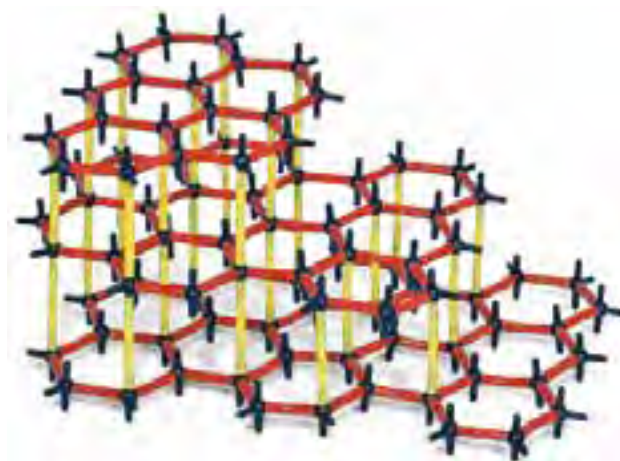


Orbit™ ColourWave™ Model Kits

These robust models contain sufficient atoms to see the relationships between structure and physical properties. The coloured bonds distinguish between covalent, ionic, Van der Waals and hydrogen bonding making excellent teaching and display models. As easy-to-build, low cost kits, students learn as they follow the building instructions and model description. Larger models are available, please contact Customer Services for details.



MLM 035 010



MLM 035 020

| Model | Shape | Atoms |
|------------------------------|--------------|-------------------------|
| Diamond | Octahedron | 84 Carbon |
| Graphite | Three Layers | 94 Carbon |
| Carbon 60 - Fullerene | Bucky Ball | 60 Carbon |
| Ice | Snowflake | 96 Oxygen |
| Sodium Chloride | Cube | 125 Sodium and Chloride |
| Iron | Irregular | 71 Iron |
| Magnesium | Irregular | 38 Magnesium |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| MLM 035 010 | Diamond | EACH | £9.81 |
| MLM 035 020 | Graphite | EACH | £9.81 |
| MLM 035 030 | Carbon 60 - Fullerene | EACH | £7.43 |
| MLM 035 040 | Ice | EACH | £8.71 |
| MLM 035 050 | Sodium Chloride | EACH | £14.88 |
| MLM 035 060 | Iron | EACH | £14.88 |
| MLM 035 070 | Magnesium | EACH | £14.88 |

Minit Carbon Nanotube Model Kit

Carbon nanotubes are currently one of the most intensively studied nanomaterials with their unique molecular structure resulting in several potential exciting applications in current day nanoscience. Using this kit you can make a graphene sheet, carbon nanotube, carbon 60 (buckyball) and related structures with up to 260 carbon atoms. Instructions show how the carbon atoms can be arranged to illustrate the different symmetries of carbon rings in the nanotube to create the chair, zigzag and chiral structures. The kit uses the Minit molecular building system and contains 260 atoms to make a nanotube model 50cm long.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| MLM 010 100 | Minit Carbon Nanotube Model Kit | EACH | £25.48 |





Cryscube Set

Reversible crystal structure model has 8 transparent cubes which have spherical polystyrene foam forming an atomic sphere in each cube. 8 cubes are connected by special joints which make it possible to reverse the joint.

Features:

- Reverse the joints to show the inside structure of the crystal model
- Transparent cubes meant that you can see the crystal lattice and array structure
- Put the model on a mirror, and a bigger model appears

Size: 72x72x72mm

Contents:

- Body-centered cubic lattice
- Face-centered cubic lattice
- NaCl type cubic lattice
- Diamond type cubic lattice



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|----------------|
| MLM 090 010 | Cryscube Set | SET | £297.05 |

Molymod® Ionic Crystal Structures

Molymod® inorganic kits contain a sufficient quantity of molymod® atom parts and links to make individual structures, e.g. sodium chloride, diamond, ice or metals. The kits are supplied in plastic boxes with assembly instructions. Some substances e.g. calcite, are only supplied as pre-assembled models. The models are of two kinds, either OPEN models which use standard grey links to give extended structures, or COMPACT models which use short links and bring the atoms close together giving a semi-space filling type of model.

Contents:

Sodium Chloride (Kit)

- 18 Metal grey
- 18 Halogen green
- 80 Links grey medium

Calcium Fluoride (Model) Fluorite

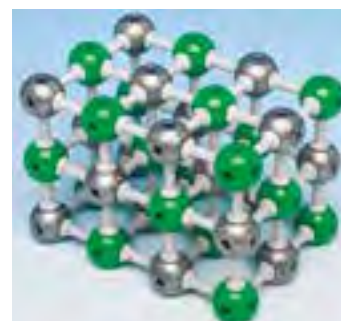
- 14 Metal grey
- 16 Halogen green
- 40 Links grey medium

Caesium Chloride (Model)

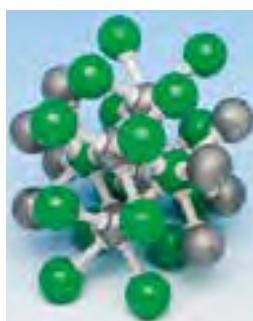
- 12 Metal grey
- 18 Halogen green
- 60 Links grey medium

Calcium Carbonate (Model) Calcite

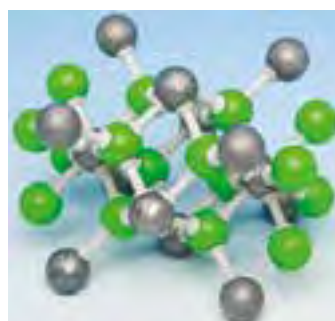
- 14 Metal grey
- 13 Carbon black
- 39 Oxygen red
- 39 NV-links grey
- 54 Links grey medium



MMD 010 010



MMD 010 020



MMD 010 030



MMD 010 040

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| MMD 010 010 | Sodium Chloride | EACH | £17.00 |
| MMD 010 020 | Caesium Chloride | EACH | £17.92 |
| MMD 010 030 | Calcium Fluoride | EACH | £17.92 |
| MMD 010 040 | Calcium Carbonate | EACH | £29.72 |



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Molymod® Covalent Crystal Structures

Molymod® inorganic kits contain a sufficient quantity of molymod® atom parts and links to make individual structures, e.g. sodium chloride, diamond, ice or metals. The kits are supplied in plastic boxes with assembly instructions. Some substances e.g. calcite are only supplied as pre-assembled models. The models are of two kinds, either OPEN models which use standard grey links to give extended structures, or COMPACT models which use short links and bring the atoms close together giving a semi-space filling type of model.

Contents:

Diamond (Kit)

- 30 Carbon black
- 40 Links grey medium

Buckminster Fullerene (Kit)

- 60 Carbon black
- 90 Links grey medium

Ice kit - 35 water units

- 35 Oxygen red
- 70 Hydrogen white
- 70 Links short white
- 60 Links purple medium
- 1 Link remover tool

Graphite (Kit) - 3 Layers

- 45 Carbon black
- 51 Links grey medium
- 16 Links purple long

Zinc Blende (Kit)

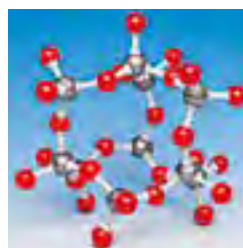
- 22 Metal grey
- 23 Sulfur yellow
- 66 Links grey medium

Silicon Dioxide Quartz Model

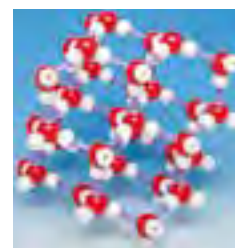
- 10 Silicon grey
- 28 Oxygen red
- 42 Links grey medium



MMD 030 010 - 030



MMD 030 050



MMD 030 060

Sulfur Three S8

- 24 Sulfur yellow
- 24 N-V links
- 1 Link remover tool

| Cat No. | Description | Quantity | Price |
|-------------|------------------------------|----------|--------|
| MMD 030 010 | Diamond Kit | EACH | £12.26 |
| MMD 030 020 | Graphite Kit | EACH | £16.89 |
| MMD 030 030 | Buckminster Fullerene Kit | EACH | £19.57 |
| MMD 030 050 | Silicon Dioxide Quartz Model | EACH | £18.99 |
| MMD 030 060 | Ice Kit | EACH | £24.72 |

Molymod® Metal Crystal Structures

Three individual models consisting of 9, 17 and 14 atoms representing Iron, Zinc and Copper respectively. Supplied as pre-assembled models containing a total of 40 atoms. The three types of metal structure are available as a collection

- Body centred cubic e.g. Iron 9 atom model
- Hexagonal e.g. Zinc 17 atom model
- Face centred cubic e.g. Copper 14 atom model



| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| MMD 020 010 | Metal Crystal Structures | EACH | £19.99 |

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Molymod® Molecular Model Sets

Molecular Model Set for KS3

This 49 atom kit contains sufficient parts to make one example of each of the following 15 molecules:

- Magnesium Chloride $MgCl_2$
- Aluminium Chloride $AlCl_3$
- Carbon Tetrachloride CCl_4
- Aluminium Oxide Al_2O_3
- Hydrogen Chloride HCl
- Carbon Dioxide CO_2
- Magnesium Nitride Mg_3N_2
- Aluminium Oxide MgO
- Nitrogen N_2
- Oxygen O_2
- Hydrogen H_2
- Water H_2O
- Ammonia NH_3
- Methane CH_4



MMD 130 011



Molecular Model Set for A-Level

This set contains a range of atom parts to make open models of a wide selection of Organic and Inorganic molecules covered in AS & A2-level Chemistry Courses. Contains 64 atoms, 3 lone pairs, 26 medium and 12 long links. The set includes new atom parts such as 4 hole copper, and 4 hole square planar metal used to model Cisplatin and other metal complexes. Range of areas include single and multiple covalent bonding and common shapes of molecules and molecular ions such as Linear $BeCl_2$, V shaped H_2O , Trigonal Planar $AlCl_3$, Tetrahedral $CuCl_4$, Trigonal Bipyramid PF_5 , & Octahedral SF_6 . Organic: 8 carbons, 18 hydrogen & 7 oxygen atoms allows the use to model up to Octane and various examples of Saturated hydrocarbons of Alkanes (Methane to Octane), Unsaturated Alkene & Alkynes, Haloalkanes, Alcohols, Ketones, Carboxylic Acids, Esters, Benzene, Amines, Amino Acids, and Glucose ($C_6H_{12}O_6$).

Inorganic: This set contains 3 pear shaped lobes to represent the lone pair electron clouds present in molecules such as water and ammonia.



MMD 160 010

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| MMD 130 011 | KS3 Set | SET | £17.25 |
| MMD 160 010 | A-Level Set | EACH | £19.52 |

Molymod® Organic Chemistry, Teacher Set

Designed to make OPEN and CLOSED models of the standard organic compounds which are included in school or introductory university chemistry courses, eg alkanes and hydrocarbon derivatives including Oxygen, Nitrogen, Halogen and Sulfur. Models can be used for conformation and stereo isomerism investigations.

Contents:

111 Atom Parts:

- 24 Carbon, black (4 hole)
- 6 Carbon, black (3 hole)
- 2 Carbon, black (2 hole)
- 6 Carbon, black (5 hole)
- 40 Hydrogen, white (1 hole)
- 12 Oxygen, red (2 hole)
- 4 Nitrogen, blue (4 hole)
- 2 Sulfur, yellow (2 hole & 4 hole)
- 4 Phosphorus, purple (4 hole)
- 8 Halogen, green (1 hole)
- 3 Metal, grey (2x 1 hole & 1x 2 hole)
- 6 Lone Pair Paddles beige
- ^ Pink p-lobes
- 6 purple p-lobes

Links:

- 55 Medium, grey
- 25 Long flexible, grey
- 60 Short, white
- 1 Remover tool

Packed in a plastic box with one instruction book.



| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|--------|
| MMD 040 010 | Organic, Teacher Set | EACH | £34.97 |





Molymod® Inorganic/Organic Chemistry, Teacher Set

This versatile molecular model set is designed to make OPEN models of elementary organic and inorganic molecular and empirical formula structures. Ideal for school use from Primary to A-Level organic chemistry.

Contents:

108 Atom Parts:

- 12 Hydrogen, white (1 hole)
- 14 Carbon, black (4 hole)
- 16 Oxygen, red (2 hole)
- 8 Halogen, green, (1 hole)
- 4 Nitrogen, blue (3 hole)
- 4 Sulfur, yellow (4 hole)
- 4 Metal, grey (1 hole)
- 2 Metal, grey (3 hole)
- 6 Lone pair of electrons lobe, beige
- 12 Unhybridised p-lobe, 6 pink & 6 purple
- 7 Phosphorus, purple (four 4 hole, one 5 hole & two 3 hole)
- 2 Hydrogen, white (2 hole)
- 6 Carbon, dark blue (5 hole)
- 6 Oxygen, red (4 hole)
- 6 Nitrogen, blue (4 hole)
- 8 Sulfur, yellow (2 hole)
- 1 Sulfur, yellow (6 hole)
- 3 Metal, grey (2 hole)
- 4 Metal, grey (4 hole)
- 1 Metal, grey (6 hole)

Links:

- 38 Medium, grey
- 12 Medium, purple
- 36 Long flexible, grey

Packed in a plastic box with one instruction book.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| MMD 040 020 | Inorganic/Organic, Teacher Set | EACH | £34.76 |



Molymod® Organic Chemistry, Student Set

Contents:

50 Atom Parts:

- 12 Carbon, black (4 hole)
- 20 Hydrogen, white (1 hole)
- 6 Oxygen, red (2 hole)
- 4 Nitrogen, blue (two 3 hole and two 4 hole)
- 2 Sulfur, yellow (one 4 hole and one 6 hole)
- 4 Halogen, green (1 hole)
- 1 Phosphorus, purple (4 hole)
- 1 Metal, grey (1 hole)

Links:

- 26 Medium, grey
- 12 Long Flexible, grey
- 26 Short, white
- 1 Link remover tool

Packed in a plastic box with one instruction book.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MMD 040 030 | Organic, Student Set | EACH | £17.36 |

Molymod® Inorganic/Organic Chemistry, Student Set

Contains a varied mix of atom parts to make OPEN models of elementary organic and inorganic molecular and empirical formula structures.

Contents:

52 Atom Parts:

- 6 Carbon, black (4 hole)
- 14 Hydrogen, white (1 hole)
- 3 Nitrogen, blue (one 3 hole & two 4 hole)
- 7 Oxygen, red (six 2 hole & one 4 hole)
- 2 Sulfur, yellow (one 2 hole & one 6 hole)
- 2 Phosphorus, purple (one 5 hole & one 3 hole)
- 6 Halogen, green (1 hole)
- 4 Brown (one of each: 3, 4, 5 and 6 hole)
- 2 Metal, grey (1 hole)
- 3 Metal, grey (2 hole)
- 1 Metal, grey (3 hole)
- 1 Metal, grey (4 hole)
- 1 Metal, grey (6 hole)
- 3 lone pair 2D paddles, beige

Links:

- 20 Medium, grey
- 12 Long flexible, grey
- 5 Medium, purple

Packed in a plastic box with one instruction book.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| MMD 040 040 | Inorganic/Organic, Student Set | EACH | £17.46 |



Molymod® Semi-Space Filling Set for Organic Chemistry

This set is designed to make compact models of a wide range of basic organic structures.

NB: The atoms are NOT 100% space filling.

Contents:

Atom Parts:

- 73 Hydrogen, white (70 mushroom type, 3 linear)
- 45 Carbon, black (25sp³, 18sp², 2sp)
- 13 Oxygen, red (18 angular, 5 mono)
- 10 Nitrogen, blue (5 trigonal, 1 mono, 2 angular, 2 pyramidal)
- 6 Chlorine
- 4 Fluorine
- 4 Iodine
- 4 Bromine

- 2 Sulfur yellow (1 angular, 1 tetra)
- 2 Phosphorous, purple (1 tetra, 1 ttribipyr)
- 2 Metal, grey (1 x1 hole, 1 octal)

Links:

- 6 Medium grey
- 6 Medium purple
- 8 Long grey
- 90 Short
- 10 V-link
- 2 short link remover tool



Packed in a plastic box with 1 instruction book.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| MMD 040 070 | Semi-Space Filling Set | EACH | £35.90 |

Molymod® Complex Ions, Teacher Set

This set contains sufficient parts to make the 7 models shown in the photograph, or variations using the same ligands. The complete collection of models makes an instructive permanent display.

Contents:

Atom Parts:

- 9 Metal (7 octal, 2 tetra)
- 24 Nitrogen (18 tetra, 6 mono)
- 6 Halogen (mono)

Packed in a plastic box with 1 instruction book.

- 28 Carbon (18 tetra, 10 tribipyr)
- 10 Oxygen (6 tetra, 4 angular)
- 75 Hydrogen (mushroom type)

Links

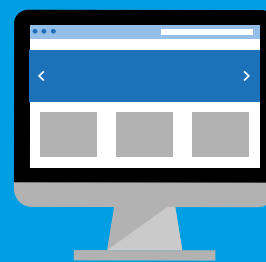
- 75 Short, white
- 85 N - V links
- 1 Short remover tool



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| MMD 040 080 | Complex Ions, Teacher Set | EACH | £38.00 |

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Molymod® Organic Molecular Models

All the organic structure kits are supplied as semi-space filling models, since these are convenient for demonstration or permanent display. They also contrast in scale but complement the open type of molymod® models which are made by students in class exercises using the molymod® sets. These models have an inter nuclear scale of approx. 13mm/Angstrom. Supplied in a plastic box with assembly instructions.



Contents:

Polymers

Polyvinyl Chloride PVC ($-\text{CH}_2\text{CHCl}-$)_n

Five monomer units comprising:

- 30 atom parts
- 30 links
- 1 link remover tool

Polypropylene ($-\text{CH}_2\text{CH}(\text{CH}_3)-$)_n

Five monomer units comprising:

- 45 atom parts
- 46 links
- 1 link remover tool

Polystyrene ($-\text{C}_6\text{H}_5\text{CH}=\text{CH}_2-$)_n

Three monomer units comprising:

- 48 atom parts
- 54 links
- 1 link remover tool

Synthetic Fibres

Terylene ($-\text{CH}_2\text{C}_6\text{H}_4\text{COOCH}_2\text{O}-$)_n

Two monomer units comprising:

- 44 atom parts
- 54 links
- 1 link remover tool

Nylon 6.6 ($-\text{NH}_2(\text{CH}_2)_6\text{NH}_2\text{CO}(\text{CH}_2)_4\text{CO}-$)_n

Two monomer units comprising:

- 76 atom parts
- 76 links
- 1 link remover tool

Soap

Soap, Sodium Stearate $\text{C}_{17}\text{H}_{35}\text{CO.ONa}$

Comprising:

- 56 atom-parts
- 57 links
- 1 link remover tool



MMD 050 010



MMD 050 020



MMD 050 030



MMD 050 040



MMD 050 050



MMD 050 060

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| MMD 050 010 | PVC | EACH | £7.83 |
| MMD 050 020 | Polypropylene | EACH | £9.79 |
| MMD 050 030 | Polystyrene | EACH | £11.12 |
| MMD 050 040 | Terylene | EACH | £11.12 |
| MMD 050 050 | Nylon | EACH | £15.99 |
| MMD 050 060 | Soap | EACH | £12.26 |



Molymod® Biochemistry Sets

Contents:

- Fat (Glyceryl Tristearate) $C_{57}H_{110}O_6$
- 173 Atom parts
- 175 Links
- 1 Link remover tool

Starch/Cellulose ($C_6H_{11}O_5$) n - 3 monomer units

- 63 Atom parts
- 66 Links
- 1 Link remover tool

Glucose $C_6H_{12}O_6$ - 2 models

- 48 Atom parts
- 48 Links
- 1 Link remover tool

Sucrose $C_{12}H_{22}O_{11}$

- 45 Atom parts
- 46 Links
- 1 Link remover tool



MMD 170 010



MMD 170 020

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| MMD 170 010 | Fat (Glyceryl Tristearate) | EACH | £28.58 |
| MMD 170 020 | Glucose | EACH | £11.23 |
| MMD 170 040 | Starch/Cellulose | EACH | £14.57 |

Molymod® Replacement Components

Other component parts are available. Please contact Customer Services with your requirements.



| Cat No. | Component | Colour | Holes | Dia | Angle/Type | Quantity | Price |
|-------------|---------------------------|-------------|-------|------|------------------------|----------|-------|
| MMD 180 120 | Boron | Beige | 3 | 23mm | 120° Trigonal | PK10 | £3.86 |
| MMD 180 220 | Bromine | Orange | 1 | 23mm | n/a | PK10 | £2.99 |
| MMD 180 110 | Carbon (sp ²) | Black | 3 | 23mm | 120° Trigonal | PK10 | £3.86 |
| MMD 180 040 | Carbon (sp ³) | Black | 4 | 23mm | 109° Tetrahedral | PK10 | £3.86 |
| MMD 180 200 | Fluorine | Light Green | 1 | 17mm | n/a | PK10 | £2.21 |
| MMD 180 210 | Halogen/Chlorine | Green | 1 | 20mm | n/a | PK10 | £2.58 |
| MMD 180 010 | Hydrogen | White | 1 | 17mm | n/a | PK10 | £2.21 |
| MMD 180 070 | Halogen/Chlorine | Green | 1 | 17mm | n/a | PK10 | £2.21 |
| MMD 180 100 | Hydrogen | White | 2 | 17mm | 180° Linear | PK10 | £2.58 |
| MMD 180 230 | Iodine | Violet | 1 | 23mm | n/a | PK10 | £2.99 |
| MMD 180 140 | Metal | Grey | 4 | 23mm | 109° Tetrahedral | PK10 | £3.86 |
| MMD 180 160 | Metal | Grey | 6 | 23mm | 90° Octahedral | PK10 | £4.12 |
| MMD 180 030 | Nitrogen | Blue | 3 | 23mm | 107° Pyramidal | PK10 | £3.86 |
| MMD 180 080 | Oxygen | Red | 1 | 23mm | n/a | PK10 | £2.99 |
| MMD 180 020 | Oxygen | Red | 2 | 23mm | 105° Linear | PK10 | £3.24 |
| MMD 180 130 | Oxygen | Red | 4 | 23mm | 109° Tetrahedral | PK10 | £3.86 |
| MMD 180 150 | Phosphorus | Purple | 5 | 23mm | 90/120° Tribipyramidal | PK10 | £3.99 |
| MMD 180 090 | Sulfur | Yellow | 2 | 23mm | 105° Angular | PK10 | £3.24 |
| MMD 180 170 | Sulfur | Yellow | 6 | 23mm | 90° Octahedral | PK10 | £4.12 |
| MMD 180 050 | Medium Grey Link | - | - | - | - | PK25 | £1.96 |
| MMD 180 060 | Long Grey Link | - | - | - | - | PK25 | £2.21 |
| MMD 180 180 | Short White Link | - | - | - | - | PK25 | £1.49 |
| MMD 180 190 | Short Link Remover Tool | - | - | - | - | EACH | £0.26 |



Chemical Bonding & Structure

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Molymod® Molecular & Atomic Orbital Models

The Molymod® Molecular Orbital System uses the standard shiny, strong coloured atom parts to represent the central atom cores. Average scale 3.5cm per Angstrom. C = Black, N = Blue, O = Red, H = White. The atomic and molecular orbital parts are represented by pastel/matt coloured pieces and are colour coded according to their use. The pink and purple pear shaped lobes and concave pi links represent the positive and negative signs of the wave functions of the lobes of atomic and molecular orbitals. The grey pieces represent hybridised sigma bonds, for example C-C, C-H, O-H bonds. The light brown spheres are used to indicate lone electron pair orbitals. Where the electrons are involved in hydrogen bonding, a light brown pear shaped lobe is used. The models are available in three collection sets or as individual model kits.

Individual Molecular Orbital Kits

Hybridised and delocalised model version of Benzene.

Molecular Orbital Organic Structures Set

4 Model Collection Set - Benzene, Ethyne, Ethane & Ethene. This set contains sufficient parts to make the 4 organic molecular orbital models shown in the photograph. The models show: sigma bonding orbitals, pi bonding orbitals, concept of hybridisation and delocalisation.

Atomic Orbital Set

14 Model Collection Set. This set contains sufficient parts to make 14 easy to self-assemble atomic orbitals, as shown in the photograph. Pink and purple coloured pear shaped lobes represent the two wave phases, positive and negative of the p and d atomic orbitals. The atomic nuclei are represented by opaque white spheres. Each model comes with its own individual colourless transparent base for display purposes. Approximate model heights including base are: s-orbital 5cm, p-orbital 9cm, d-orbital 8cm.

Contents:

Molecular Orbital Organic Structures Set

- 18 hydrogen (I)
- 12 carbon-carbon (oval-shaped) sigma bonds
- 18 carbon-hydrogen (pear-shaped) sigma bonds
- 9 pi-bonds (21 pink and 21 purple)

Atomic Orbital Set

- Model of a 2s plus 3x 2p-orbitals - hybridised
- 1x 1s-orbital - unhybridised
- 1x 2s-orbital - unhybridised
- 3x 2p-orbital - unhybridised
- 5x 3d-orbital - unhybridised
- 3x Sp, Sp², Sp³ - unhybridised



MMD 080 020



MMD 080 010



MMD 070 010



MMD 090 010

| Cat No. | Description | Quantity | Price |
|--|----------------------------|----------|--------|
| Individual Molecular Orbital Models | | | |
| MMD 080 010 | Benzene Hybridised | EACH | £16.58 |
| MMD 080 020 | Benzene Unhybridised | EACH | £12.26 |
| Orbital Organic Structures | | | |
| MMD 070 010 | Orbital Organic Structures | EACH | £32.65 |
| Atomic Orbital Set | | | |
| MMD 090 010 | Atomic Orbital Set | EACH | £24.31 |

Molymod® Electron Repulsion Theory Models

8 model collection set

This set contains sufficient parts to make the eight atomic models shown in the photograph. The different shapes are examples of the orientations of the bonds and cover co-ordination numbers 1 to 6. Lone pairs are represented by brown spheres or brown pear shaped parts. The 2 extra pear shaped parts are included in the set to enable protonated models to be made, e.g. Acid/Base theory, the formation of H₂O⁺ as a result of the migration of H⁺ from Hydrogen Chloride.



| Co-ordination No. | Shape | Formula | Compound |
|-------------------|----------------------|-------------------|--------------------------|
| 1 | Linear | HCl | Hydrogen Chloride |
| 2 | Linear | BeCl ₂ | Beryllium Chloride |
| 2 | Bent | H ₂ O | Water |
| 3 | Trigonal Planar | BH ₃ | Boron Trihydride |
| 3 | Pyramidal | NH ₃ | Ammonia |
| 4 | Tetrahedral | CH ₄ | Methane |
| 5 | Trigonal Bipyramidal | PCl ₅ | Phosphorus Pentachloride |
| 6 | Octahedral | SF ₆ | Sulfur Hexafluoride |

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|--------|
| MMD 100 010 | Electron Repulsion Theory | EACH | £17.41 |



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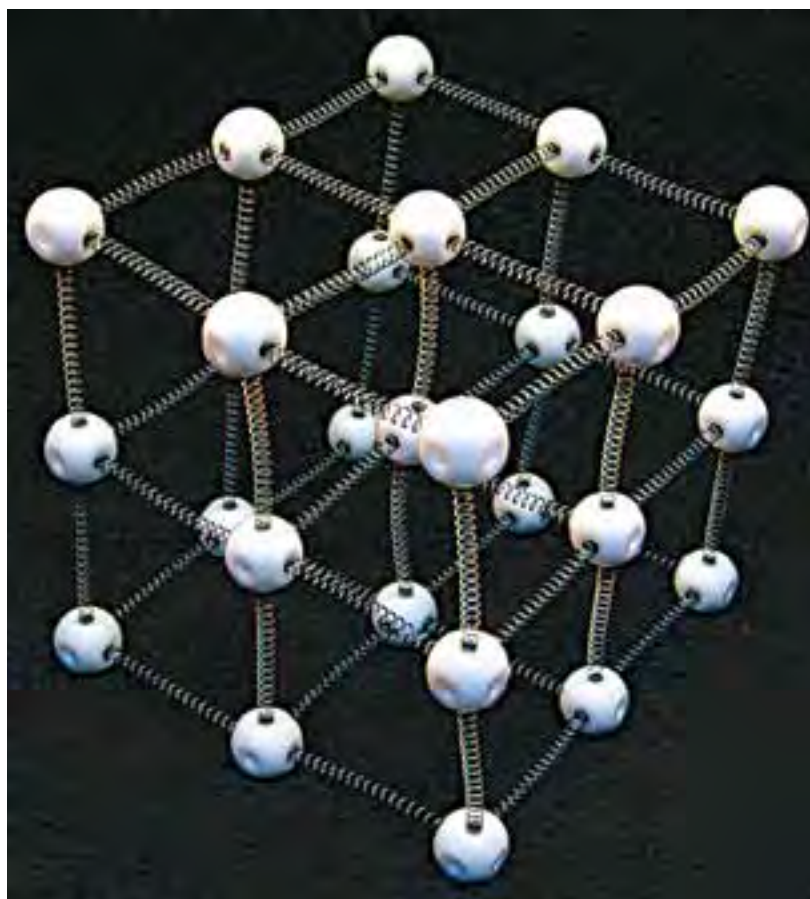
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Molymod® Vibrating Atoms Model

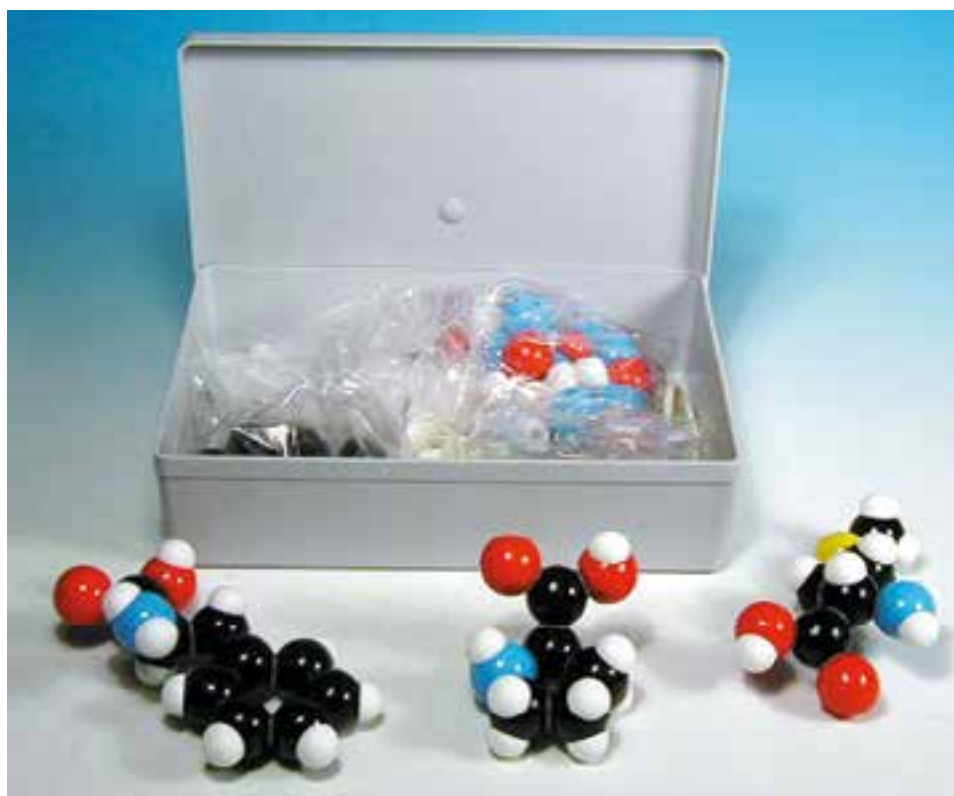
The model is designed for teacher demonstration of the vibration of atoms within a solid. The model should be held at arms length and vibrated sufficiently to show the independent movement of the atoms. We do not recommend its use by children since the model has a specific scientific purpose and is not a plaything. Do not attempt to separate the atom-parts from the springs. Correct assembly is not easy and requires a special procedure to avoid twisting the springs. Kit is supplied unassembled and contains 27 white 6-hole ball atom parts and 54 metal springs.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| MMD 150 010 | Vibrating Atoms Model | EACH | £30.90 |

Amino Acid Model Kit

This kit is designed to demonstrate the 8 groups of L-configuration amino acids. This kit allows the user to build individual stand alone examples of the eight groups or reconfigure them into a small peptide chain. This kit is ideal for showing the structure and function of the different groups of amino acids.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MMD 110 010 | Amino Acid Model Kit | PACK | £35.54 |



Rates of Reaction

Combustion

Moles

Easily visualise what 1 mole of a substance looks like. Each set contains 1 mole of seven different materials: Copper, Aluminium, Iron, Brass, Salt, Chalk and Water. They are all clearly labelled with physical and chemical data so that students can appreciate what 6×10^{23} atoms or molecules look like!



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XCK 050 010 | Moles | EACH | £46.35 |

Conservation of Mass

An easy to use polypropylene container for conservation of mass experiments.

- Two sections are provided for reagents.
- Mix the reagents by tilting the sealed container sideways and compare the mass before and after the reaction.
- The generated gas can then be released and the unit re-weighed to determine the mass of gas produced.

Material – Polypropylene

Size - 77mm dia x 161mm high.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XLM 500 110 | Conservation of Mass | EACH | £12.99 |

Explosion Kit

Demonstrate the explosive potential hidden in everyday materials with this simple but effective kit from SciChem. The exploding tin apparatus can be used with flour or icing sugar (included) or other powdered food items (though not modern custard powder) to demonstrate many key scientific principles: explosions, exothermic reactions, chemical energy, surface area and speed of reactions. A great way to start any lesson with a BANG!



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| NPD 050 010 | Explosion Kit | EACH | £18.53 |

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Piezo Electric Gas Lighter

This self-contained electric generator requires no batteries, fuel or flints.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BRN 060 025 | Gas Lighter | EACH | £11.46 |

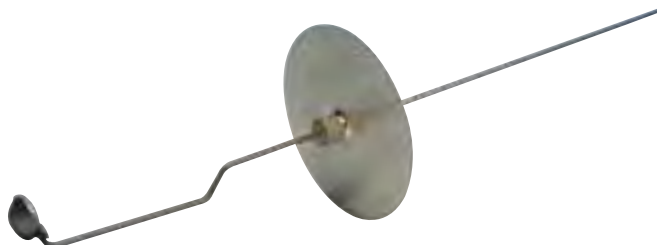
Safety Matches



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| CMZ 040 010 | Standard (40 Matches) | PK10 | £0.99 |
| CMZ 040 020 | Giant | PK6 | £6.17 |

Deflagration Spoons

Complete deflagration spoon set.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| DFL 010 010 | Deflagration Spoons | PK2 | £2.78 |



Combustion Spoons

Nuffield pattern combustion spoons.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| DFL 010 020 | Combustion Spoons | PK5 | £10.22 |



Combustion Spoon

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| DFL 020 010 | Combustion Spoon | EACH | £1.22 |



Wooden Splints

Sold in bundles of approx 1000.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| EMZ 060 010 | Wooden Splints | PK1000 | £5.99 |

Whoosh Bottle

A mixture of air and alcohol is ignited in a large 19L polycarbonate bottle (similar to the ones used in water coolers). The resulting combustion reaction, usually accompanied by a dramatic 'whoosh' sound and flames, demonstrates the large amount of chemical energy released in the combustion of alcohols.

Requires a size 43 Stopper (RTS 010 250).



| Cat No. | Description | Quantity | Price |
|-----------------------------|---------------|----------|---------------|
| BPL 490 010 | Whoosh Bottle | EACH | £15.44 |
| Solid Rubber Stopper | | | |
| RTS 010 250 | 43mm | PK5 | £15.19 |

Reaction Plates



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| EMZ 300 010 | Reaction Plates | PK10 | £6.18 |



Equilibrium

Gas Analysis



Flame Flume

Great for starting a science lesson on properties of gases, this unique piece of apparatus, assembled in seconds, allows you to demonstrate the properties of invisible Carbon Dioxide gas by having it flow 'downhill' extinguishing the candles in its path.

NB: A CO₂ generator such as Sodium Bicarbonate (Sodium Hydrogen Carbonate) and vinegar (dilute Ethanoic Acid) is required.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| NPD 040 020 | Flame Flume | EACH | £44.87 |
| BRN 100 011 | Night Lights | PK50 | £4.11 |



Kipp's Gas Generator

Kipp's Gas Generator with a cylindrical base. The central bulb has a 1000ml capacity.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| GPU 100 010 | Kipp's Gas Generator | EACH | £70.76 |



The Solid, Liquid, Gas Bash!

An introduction to the distinctive properties of solids, liquids and gases: The Fizz Bang Pop! section has been designed for you to wow your students with Science using everyday household chemicals and apparatus. Each demo in turn could themselves be extended to become investigations in their own right. Want to be the coolest teacher? Well we have provided you with the means - ice cream! Hmmm yummy! A simple but magical experiment leading to the consumption of delicious ice-cream whilst learning about science - fantastic!

Contents:

- 30x Spoons
- 10x Spills
- 100x Resealable Bags
- 500ml Measuring Cylinder
- Pair of Safety Spectacles
- Bicarbonate of Soda
- Balloons
- Matches
- Salt
- 15x Screwcap Containers
- 4x 500ml Beakers
- 500ml Jug
- Digital Thermometer
- Fire Triangle Poster
- Plastic Funnel
- Night Light
- Vinegar
- Teacher's Instructions & CD

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| SLK 010 010 | The Solid, Liquid, Gas Bash! | EACH | £65.42 |
| SLK 010 500 | Teacher's Instructions Only | EACH | £8.99 |



Gas Preparation Kit

A gas preparation kit for preparing and collecting gases over water (displacement of water or pneumatic trough collection) e.g. carbon dioxide, hydrogen and oxygen. Kit contains a plastic trough and lid, a test tube with side arm, delivery tube and rubber tubing connector, thistle funnel, test tube stand, glass beehive shelf with chimney and five test tubes (150 x 24mm) with stoppers.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| GAS 040 010 | Gas Preparation Kit | EACH | £46.34 |





Glass Delivery Tubes

Set of 6 various angles. Diameter 8mm.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| TDL 010 010 | Glass Delivery Tubes | SET6 | £8.17 |

Absorption Tubes

Straight Form

Absorption tube with one bulb.

U Form Plain or with side arms.



ABT 010 010



ABT 020 010

| Cat No. | Dimensions | Quantity | Price |
|------------------------------|---------------------|----------|--------------|
| U Form Plain | | | |
| ABT 010 010 | 100 x 12mm Diameter | PK2 | £4.86 |
| ABT 010 020 | 125 x 15mm Diameter | PK2 | £4.82 |
| U Form with Side Arms | | | |
| ABT 020 010 | 100 x 12mm Diameter | PK2 | £7.83 |
| ABT 020 020 | 125 x 15mm Diameter | PK2 | £6.98 |
| ABT 020 030 | 150 x 20mm Diameter | PK2 | £7.99 |

Borosilicate Glass Combustion Tubes



| Cat No. | Length x Ext. Dia. | Quantity | Price |
|--------------------------------------|--------------------|----------|---------------|
| With Small Hole | | | |
| TCM 010 010 | 150 x 24mm | PK3 | £4.69 |
| Plain, Heavy Wall, Open Ended | | | |
| TCM 020 010 | 300 x 22mm | PK2 | £6.68 |
| TCM 020 020 | 320 x 24mm | PK2 | £8.50 |
| TCM 020 030 | 320 x 26mm | PK2 | £12.31 |
| With Tube, Narrow at One End | | | |
| TCM 030 010 | 150 x 15mm | PK2 | £6.99 |



Porcelain Combustion Boats

| Cat No. | Dimensions (LxWxH) | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| BOA 010 010 | 90 x 14 x 8mm | PK10 | £8.86 |



Beehive Shelves

Cylindrical earthenware beehive shelves.

| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|--------------|
| EMZ 140 010 | 75mm | EACH | £1.99 |
| EMZ 140 020 | 100mm | EACH | £2.77 |



Gas Jars

Glass.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| GJR 010 010 | 150 x 50mm | EACH | £5.56 |
| GJR 010 020 | 200 x 50mm | EACH | £6.57 |
| GJR 010 030 | 250 x 50mm | EACH | £6.90 |
| Accessories | | | |
| | Size | Quantity | Price |
| GJR 020 020 | 75mm Covers | PK5 | £3.91 |



Equilibrium

Gas Analysis



Gas Measuring Tube

Used for measuring the volume of evolved gasses, and the volume of absorbed gas. Manufactured from borosilicate glass with black enamel markings. One end sealed.

| Cat No. | Capacity x Grads | Quantity | Price |
|--------------------|------------------|----------|---------------|
| GAS 030 010 | 50 x 0.1ml | EACH | £14.40 |



Gas Syringe

Made from heat resistant neutral glass.

| Cat No. | Capacity x Grads | Quantity | Price |
|--------------------|------------------|----------|---------------|
| SYR 030 071 | 100ml x 1ml | EACH | £20.59 |



Hypodermic Syringes

All glass, luer fitting, fully interchangeable. Supplied without needles.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SYR 030 010 | 1ml | EACH | £2.25 |
| SYR 030 020 | 2ml | EACH | £2.25 |
| SYR 030 040 | 10ml | EACH | £2.74 |
| SYR 030 050 | 20ml | EACH | £3.99 |



Glass Syringes with Metal Tip

Glass with metal tip, luer fitting, fully interchangeable. Supplied without needles

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| SYR 160 010 | 2ml | EACH | £2.76 |
| SYR 160 030 | 10ml | EACH | £3.19 |
| SYR 160 040 | 20ml | EACH | £4.35 |
| SYR 160 050 | 50ml | EACH | £11.41 |
| SYR 160 060 | 100ml | EACH | £14.46 |

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**Glass Burettes**

Graduated burettes with interchangeable P.T.F.E stopcock to BS 846. Class A.

| Cat No. | Capacity x Graduations | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| BUR 010 050 | 25 x 0.1ml | EACH | £17.10 |
| BUR 010 060 | 50 x 0.1ml | EACH | £17.49 |

Single Bore Glass Burettes

BS EN.ISO 385:2005

Glass stopcock.



| Cat No. | Capacity x Graduations | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| BUR 040 010 | 10 x 0.1ml | EACH | £12.35 |
| BUR 040 020 | 25 x 0.1ml | EACH | £12.35 |
| BUR 040 030 | 50 x 0.1ml | EACH | £12.35 |
| BUR 040 040 | 100 x 0.2ml | EACH | £26.48 |

Glass Burette

A 50ml burette with white graduations. Class A.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BUR 150 010 | 50ml | EACH | £27.93 |

**Acrylic Burettes**

Transparent body and leakproof stopcock. Not suitable for hydrofluoric acid or ammonium hydroxide. Made from Polymethyl methacrylate.

Not suitable for certain solvents.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BUR 140 010 | 25ml | EACH | £10.25 |
| BUR 140 020 | 50ml | EACH | £10.18 |



Acids & Bases

Burettes

Mohr Clip

Made from nickel-plated steel. Can be used for up to 15mm tubes.



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| TCL 090 010 | Mohr Clip | EACH | £0.50 |

Pipette & Burette Rinsers

These high quality and high speed rinsers solve the problem of washing pipettes up to 600mm and Mohr burettes quickly and safely. The polyethylene rinser fills via the spray nozzle situated on the top rim. Contaminated water syphons out totally once the syphon point at the top of the rinser has been reached via the large diameter drain situated at the lowest point, before refilling automatically. During washing, the pipettes/burettes are housed in baskets specifically designed to minimise breakages. Since soaking can take the longest time when washing, two or three baskets of pipettes/burettes can be soaking in their jars whilst another basketful is being washed in the rinser.

NB: You will require 2x Extension Handles (PRA 054 030) Please Note: Tubing/Hose is not supplied

Kartell



| Cat No. | Description | Dia. x Height | Quantity | Price |
|-------------|--|---------------|----------|---------|
| PRA 050 010 | Burette Rinser | 170 x 990mm | EACH | £156.49 |
| PRA 050 020 | Pipette Rinser | 170 x 734mm | EACH | £164.24 |
| PRA 054 010 | Jar for Pipette Rinser | 162 x 650mm | EACH | £76.38 |
| PRA 054 020 | Basket for Pipette Rinser | 145 x 650mm | EACH | £34.00 |
| PRA 054 030 | Extension Handle for Pipette & Burette Rinsers | - | EACH | £8.43 |

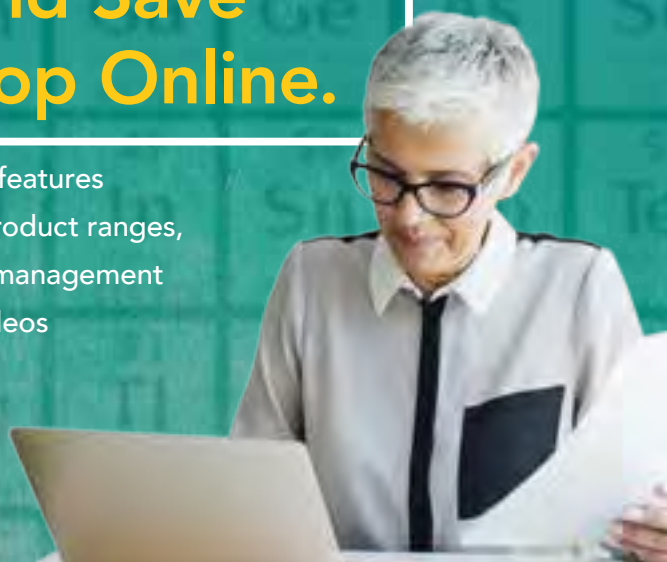
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Litmus Paper

Supplied in books of 20 leaves, 10 books per box.
Each leaf 9mm x 50mm.

| Cat No. | Description | pH Range | Quantity | Price |
|-------------|----------------------|-----------|----------|-------|
| IND 120 011 | Blue (Acid Test) | 4.3 - 8.1 | BX10BK | £2.78 |
| IND 120 031 | Red (Alkali Test) | 4.3 - 8.1 | BX10BK | £2.78 |



Universal Indicator Strips

The indicator pads on these environmentally friendly strips are prepared as a non bleed system therefore the resultant colour change remains far longer and readable until the pad is dry. Each strip is long enough to protect the user from the test solution as the test pads are at the extreme end of the strip.

| Cat No. | Description | pH Range | Quantity | Price |
|-------------|----------------|-------------|----------|-------|
| IND 130 010 | Full Range | pH 1.0 - 14 | PK100 | £3.28 |
| IND 130 020 | Standard Range | pH 1.0 - 11 | PK100 | £3.28 |



Indicator Paper Books

20 leaves per book, 10 books per box.

| Cat No. | Description | Range | Quantity | Price |
|-------------|---------------------------|--------------------------|----------|-------|
| IND 010 005 | Universal Indicator Paper | pH 1.0 - 14.0 | BX10BK | £3.93 |
| IND 010 010 | Universal Indicator Paper | pH 1.0 - 11.0 | BX10BK | £3.67 |
| IND 010 040 | Comparator Paper | pH 5.2 - 6.7 | BX10BK | £5.34 |
| IND 010 050 | Comparator Paper | pH 6.8 - 8.3 | BX10BK | £5.34 |
| IND 010 060 | Comparator Paper | pH 8.4 - 10.0 | BX10BK | £5.34 |
| IND 010 090 | Litmus Neutral | pH 5.0 - 8.0 | BX10BK | £4.22 |
| IND 010 100 | Cobalt Chloride | Detects Moisture | BX10BK | £5.15 |
| IND 010 110 | Lead Acetate | Detects Hydrogen Sulfide | BX10BK | £7.36 |
| IND 010 130 | Starch | Detects Iodine | BX10BK | £4.22 |
| IND 010 140 | Starch & Potassium Iodide | Detects Chlorine | BX10BK | £4.22 |



Acids & Bases

Indicator Paper

Indicator Paper Reels

7mm x 5m.




| Cat No. | Description | pH Range | Quantity | Price |
|--------------------|---------------|-----------|----------|---------------|
| IND 020 011 | Full Range | 1 - 14 | EACH | £14.35 |
| IND 020 021 | Narrow Range | 0.5 - 5.5 | EACH | £11.51 |
| IND 020 031 | Narrow Range | 4 - 7 | EACH | £12.55 |
| IND 020 051 | Narrow Range | 8 - 10 | EACH | £11.51 |
| IND 020 081 | Litmus Red | - | EACH | £13.16 |
| IND 020 101 | Starch Iodide | - | EACH | £14.16 |

Test Paper Reels

7mm x 5m.




| Cat No. | Description | pH Range | Quantity | Price |
|--------------------|----------------------|----------|----------|--------------|
| IND 010 201 | Wide Range Universal | 1 - 11 | EACH | £2.22 |
| IND 010 211 | Full Range Universal | 1 - 14 | EACH | £3.14 |
| IND 010 221 | Litmus Red | - | EACH | £3.12 |
| IND 010 231 | Litmus Blue | - | EACH | £2.99 |

Comparator pH Paper Strips

The unique single pad system of impregnated paper allows the resultant colour change to remain up to 5 times longer than standard comparator papers. Supplied with a colour chart.




| Cat No. | pH Range | Quantity | Price |
|--------------------|--------------|----------|--------------|
| IND 010 021 | pH 1.0 - 3.5 | PK100 | £4.22 |
| IND 010 031 | pH 3.6 - 5.1 | PK100 | £4.22 |
| IND 010 041 | pH 5.2 - 6.7 | PK100 | £4.22 |
| IND 010 051 | pH 6.8 - 8.3 | PK100 | £4.22 |
| IND 010 061 | pH 8.4 - 10 | PK100 | £4.22 |





Student Gas Voltmeter

For student experiments. Embedded platinum electrodes with terminal bushes for 4mm plugs. The gas is collected in the two miniature test tubes (included). Made from acid-proof plastic.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XCH 070 010 | Student Gas Voltmeter | EACH | £28.10 |



Gas Voltmeter

Consists of a plastic container fitted with carbon electrodes and 4mm sockets for connection. The electrodes are designed to support the gas collecting tubes leading all evolved gas in the collecting tubes. Intended for individual student use.

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------------------|-------------|--------------|-------|
| XCH 100 010 | Gas Voltmeter | EACH | £7.62 | |
| Accessories | | Description | Quantity | Price |
| XCH 100 500 | Spare Electrodes for Gas Voltmeter | PAIR | £0.99 | |

Hoffman Voltmeter

Both models are made from borosilicate glass, and are supplied without electrodes.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XCH 010 010 | Graduated Voltmeter | EACH | £73.59 |
| XCH 010 020 | Ungraduated Voltmeter | EACH | £67.97 |



Electrolysis Cells

Each cell consists of a glass cylinder, 75 x 25mm (L x dia), which is fitted with a rubber stopper. The rubber stopper contains two holes which two carbon electrodes are passed through. Crocodile clips provide the electrical contact with the electrodes and an insulating piece of plastic between the electrodes prevents an accidental short circuit. The gases evolved are collected in two glass test tubes, 75 x 10mm (L x dia) that are supported over the electrodes by a wooden dowel and elastic band resting across the cell.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XCH 050 010 | Electrolysis Cells | PK3 | £24.18 |



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Safety Electrolysis Apparatus

Safer design of closed electrolysis apparatus with built in platinum plated titanium electrodes



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XLM 600 010 | Safety Electrolysis Apparatus | EACH | £55.37 |



Electrode Holder

This electrode holder can be used for making simple cells. Insert an electrode plate or rod in the slit and fasten it by tightening the screw. The slit also has a notch which will allow you to fix an electrode rod (max. diameter: 8.5mm) by means of the knurled screw. The knurled screw is also a 4mm terminal for ordinary test leads.

| Cat No. | Description | Quantity | Price | |
|-----------------------------|------------------|-------------|---------------|-------|
| XCH 040 011 | Electrode Holder | EACH | £41.19 | |
| Accessories | | Description | Quantity | Price |
| Electrode Plates, 50 x 87mm | | | | |
| XCH 040 500 | Copper | EACH | £4.11 | |
| XCH 040 520 | Zinc | EACH | £6.17 | |

Electrode Holder

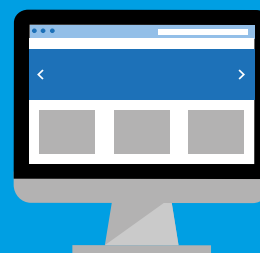
A robust acrylic base, 130mm wide with two crocodile clip holders. The crocodile clips hold standard 5mm carbon rods or strip metal electrodes and can be connected with 4mm leads. For use in electrolysis, electroplating etc. Supplied without electrodes.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XCH 035 010 | Electrode Holder | EACH | £5.65 |
| Carbon Electrodes | | | |
| XCH 020 010 | 200 x 5mm | EACH | £0.46 |
| XCH 020 020 | 100 x 5mm | PK50 | £15.33 |



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Flat Electrodes

For assembling voltaic cells, electrolysis experiments etc.
Size: 125 x 25mm (L x W)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XLE 260 010 | Aluminium | EACH | £0.80 |
| XLE 260 020 | Carbon | EACH | £1.29 |
| XLE 260 030 | Copper | EACH | £1.75 |
| XLE 260 040 | Iron | EACH | £0.85 |
| XLE 260 050 | Lead | EACH | £0.93 |
| XLE 260 060 | Zinc | EACH | £1.39 |



Flat Electrodes with Binding Posts

For assembling voltaic cells, electrolysis experiments etc.
Size: 125 x 50mm (L x W) with 4mm socket binding post terminal.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XLE 260 070 | Aluminium | EACH | £2.30 |
| XLE 260 080 | Carbon | EACH | £3.48 |
| XLE 260 090 | Copper | EACH | £3.99 |
| XLE 260 100 | Iron | EACH | £2.50 |
| XLE 260 110 | Lead | EACH | £2.73 |
| XLE 260 120 | Zinc | EACH | £3.66 |



Carbon Electrodes

| Cat No. | Dimensions | Quantity | Price |
|------------------------------|------------|----------|---------------|
| XCH 020 010 | 200 x 5mm | EACH | £0.46 |
| XCH 020 020 | 100 x 5mm | PK50 | £15.33 |
| For Hoffman Voltmeter | | | |
| XCH 010 520 | 100 x 5mm | PAIR | £9.41 |



Platinum Electrodes

Platinum electrodes in glass for use with the Hoffman Voltmeter.
Sold in pairs.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XCH 010 500 | Wire Terminals | PR | £51.00 |
| XCH 010 510 | Screw Terminals | PAIR | £61.79 |



S Shaped Electrodes

May be hung from a beaker containing an electrolyte and connected by crocodile clip leads. Made from insulated steel and sold as a pair.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XCH 010 600 | S Shaped Electrodes | PK2 | £5.67 |

“ Use washing up liquid as a lubricant for bungs and tubing! ”

— Worth School



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Salt Bridge

The salt bridge consists of an inverted U tube with its ends closed by sintered discs.

- Arms: 13mm diameter
- Width: 80mm
- Height: 100mm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XCH 090 010 | Salt Bridge | EACH | £31.37 |



Daniell Cell

The Daniell Cell consists of a central Zinc anode, dipping into a porous earthenware pot containing Zinc Sulfate solution. The porous pot is, in turn, immersed in a solution of copper Sulfate contained in a Copper can, which acts as the cell's cathode. The use of a porous barrier prevents the copper ions in the Copper Sulfate solution from reaching the Zinc anode and undergoing reduction. This would render the cell ineffective by bringing the battery to equilibrium without driving a current. This Daniell Cell consists of a Copper vessel with a perforated shelf for Copper Sulfate crystals. Supplied with porous pot and Zinc rod.

Size: 135 x 100mm (HxD)

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XCH 090 020 | Daniell Cell | EACH | £12.18 |



Porcelain Porous Pot

Unglazed porcelain cylindrical cups. For use with voltaic cells. Dimensions: 100 x 25mm (H x Diameter)

| Cat No.V | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| DCN 040 005 | Porcelain Porous Pot | EACH | £0.80 |

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A PLUS INTERCHANGE PREMIUM GRADE LABORATORY GLASSWARE

- Bespoke or Standard
- Manufactured to ASTM standards



InterChange

Round Bottom Short Neck Flasks

- Aplus interchange flask for everyday use
- With high quality ground glass socket and short neck
- Manufactured from high quality
- Borosilicate glass and to ASTM standards, these flasks are resistant to thermal shock



QSR 010 016

| Cat No. | Capacity | Socket Size | Quantity | Price |
|-------------|----------|-------------|----------|--------|
| QSR 005 086 | 50ml | 14/23 | EACH | £8.30 |
| QSR 010 016 | 100ml | 14/23 | EACH | £11.03 |
| QSR 010 026 | 100ml | 19/26 | EACH | £11.30 |
| QSR 010 036 | 100ml | 24/29 | EACH | £11.30 |
| QSR 030 016 | 250ml | 14/23 | EACH | £12.15 |
| QSR 030 026 | 250ml | 19/26 | EACH | £12.15 |
| QSR 030 036 | 250ml | 24/29 | EACH | £12.15 |
| QSR 040 026 | 500ml | 24/29 | EACH | £14.77 |

Single Neck Pear Shaped Flasks

- Ideal for semi-micro distillations
- With ground glass socks and a single neck
- The pear shaped design allows distillation of small quantities, there is minimum hold up which reduces losses from thermal decomposition
- Manufactured from high quality Borosilicate glass and to ASTM standards



QFP 050 016

| Cat No. | Capacity | Socket Size | Quantity | Price |
|-------------|----------|-------------|----------|--------|
| QFP 030 026 | 25ml | 14/23 | EACH | £13.13 |
| QFP 040 016 | 50ml | 14/23 | EACH | £9.50 |
| QFP 040 026 | 50ml | 19/26 | EACH | £9.50 |
| QFP 050 016 | 100ml | 14/23 | EACH | £14.53 |

Twin Neck Pear Shape Flask

- Two neck pear shaped flasks with ground glass sockets
- With one vertical centre neck and one angled side neck
- Manufactured from high quality Borosilicate glass and to ASTM standards, these flasks are resistant to thermal shock



| Cat No. | Capacity | Centre Socket Size | Side Socket Size | Quantity | Price |
|-------------|----------|--------------------|------------------|----------|--------|
| QFP 060 016 | 50ml | 14/23 | 14/23 | EACH | £28.97 |

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Adapter, Inlet Or Thermometer

- Adapter, Inlet or Thermometer
- With a compression cap and Viton® O-ring to form a vacuum tight seal
- To use as a syringe port, simply replace the O-ring with Teflon® lined septum
- Cap accommodates 5.0-7.5mm OD thermometer
- Supplied with one Nylon® cap and one Viton® O-ring
- Made from high quality Borosilicate Glass, manufactured to ASTM standards



| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|---------------|
| QAC 010 016 | 14/23 | PK2 | £30.30 |

Adapter, Reducing

- Reduction adapters are used to connect two items of glassware with different joint sizes
- These adapters connect items with a smaller cone to glassware with a larger size socket
- Small size socket at the top and large size cone at the bottom
- Ground glass socket and cone, manufactured from high quality Borosilicate glass, and to ASTM standards



| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| QRA 010 016 | 14/23 | 19/26 | EACH | £9.33 |
| QRA 010 026 | 14/23 | 24/29 | EACH | £9.00 |
| QRA 010 046 | 19/26 | 24/29 | EACH | £9.33 |

Multiple Adaptors

- Ideal for use in distillation assemblies
- These are useful multiple connection adapters with two parallel sockets with a cone at the bottom
- Ground glass sockets and cones, manufactured from high quality Borosilicate glass, and to ASTM standards



| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|---------------|
| QAP 010 016 | 14/23 | 14/23 | EACH | £27.87 |

Plain Receiver Adaptors

- Ideal for use with condensers
- They are used to feed distillate from condensers into the receiving vessel
- Ground glass sockets with a tapered drip tube that extends into open receivers, available with short and long stem
- Manufactured from high quality Borosilicate glass and to ASTM standards



| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|---------------|
| QPD 010 016 | 14/23 | EACH | £15.43 |
| QPD 020 026 | 14/23 | EACH | £14.60 |
| QPD 020 036 | 19/26 | EACH | £14.60 |

Received Bend

- These plain glass bends are used to connect jointed glassware items
- Available with different size sockets and cones to connect glassware ground glass sockets and cones, without vent
- Manufactured from high quality Borosilicate glass and to ASTM standards



| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|---------------|
| QRB 030 016 | 14/23 | 14/23 | EACH | £20.63 |

Received Bend With Vent

- Similar to the Aplus plain bends, however, they include a vent that allows gases from a distillation reaction to vent out
- Avoids problems from closed systems by venting out gases
- Ground glass sockets and cones manufactured from high quality Borosilicate glass and to ASTM standards



| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|---------------|
| QRB 010 026 | 14/23 | 14/23 | EACH | £19.97 |



Still Heads

- These popular distillation adapters are used in most distillation assemblies, connecting a condenser to flask
- Top socket can be used for a thermometer using a screwthread adapter or thermometer pocket
- Manufactured from high quality Borosilicate glass and to ASTM standards

| Cat No. | Socket Size | Cone Size to Fit Condenser | Cone Size to Fit Flask | Quantity | Price |
|--------------------|-------------|----------------------------|------------------------|----------|---------------|
| QSH 010 026 | 14/23 | 14/23 | 14/23 | EACH | £18.70 |
| QSH 010 036 | 14/23 | 19/26 | 19/26 | EACH | £23.83 |



Liebig Condensers

- These jacketed condensers are the most commonly used in distillation and reflux applications
- Manufactured to ASTM standards and from high quality Borosilicate glass
- With detachable plastic screwthread connectors, providing safety when connecting rubber tubing

| Cat No. | Overall Length | Socket Size | Cone Size | Quantity | Price |
|--------------------|----------------|-------------|-----------|----------|---------------|
| QCD 010 016 | - | 14/23 | 14/23 | EACH | £26.65 |
| QCD 010 026 | 380mm | 19/26 | 19/26 | EACH | £24.68 |
| QCD 010 046 | 390mm | 24/29 | 24/29 | EACH | £31.28 |



Distillation Apparatus, One Piece

- This apparatus has all you need for distillation all in one apparatus
- Easy to set up and angled read for use
- No air leakages and no liquid hold up at the joints due to seamless connections
- Manufactured to ASTM standards, made from highest quality Borosilicate glass

| Cat No. | Quantity | Price |
|--------------------|----------|---------------|
| QCD 080 016 | EACH | £91.90 |

Dropping Funnels

- This Aplus Interchange dropping funnel has a PTFE needle valve stopcock for precise control of the liquid flow
- Manufactured from the highest quality Borosilicate glass, with ground sockets and cones, allowing easy integration with other jointed glassware
- Made to ASTM standards



| Cat No. | Capacity | Socket Size | Cone Size | Quantity | Price |
|--------------------|----------|-------------|-----------|----------|---------------|
| QFC 030 016 | 50ml | 14/23 | 14/23 | EACH | £46.50 |





Separating Funnels

- The Aplus Interchange separating funnel is fitted with a ground glass socket at the top and a ground glass cone on the stem of the funnel
- The socket and cone allows for easy connection to other jointed glassware
- Manufactured from the highest quality Borosilicate glass and to ASTM standards

| Cat No. | Capacity | Socket Size | Cone Size | Quantity | Price |
|--------------------|----------|-------------|-----------|----------|---------------|
| QPF 030 026 | 100ml | 19/26 | 19/26 | EACH | £56.50 |

Stoppers

- Ideal for use with all of Aplus jointed glassware
- Manufactured from the highest quality Borosilicate glass, giving them excellent chemical and thermal resistance
- Manufactured to ASTM standards



| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|--------------|
| QST 010 016 | 14/23 | EACH | £3.70 |
| QST 010 026 | 19/26 | EACH | £3.82 |



Joint Clips

- Colour coded according to size, making them easy to identify
- Ideal for connecting jointed glassware
- These are easy to fit and remove, reducing the need for clamping
- The plastic material provides flexibility that you wouldn't find with a metal clamp

| Cat No. | Joint Size | Quantity | Price |
|--------------------|------------|----------|---------------|
| QJC 020 036 | 14/23 | PK10 | £24.67 |
| QJC 020 046 | 19/26 | PK10 | £24.67 |
| QJC 020 056 | 24/29 | PK10 | £24.67 |

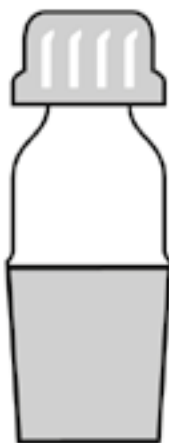


Organic Chemistry Kit 14/23

This Aplus Interchange organic chemistry kit includes everything you'll need for chemistry experiments. Comprising from a range of items all with ground glass joints. Kit comes in a hard case with a foam insert designed to cushion all of the parts increasing safety, this also provides a convenient storage case. Manufactured to ASTM standards and from the highest quality Borosilicate glass.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|----------------|
| QCS 010 016 | Chemistry Kit | EACH | £183.28 |





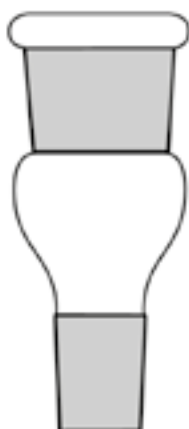
Cone/Screw Thread Adaptor

| Cat No. | Cone Size | Thread | Quantity | Price |
|--------------------|-----------|--------|----------|--------------|
| ACX 010 010 | 14/23 | 13 | EACH | £5.82 |
| ACX 010 020 | 19/26 | 13 | EACH | £5.90 |
| ACX 010 030 | 24/29 | 13 | EACH | £6.39 |



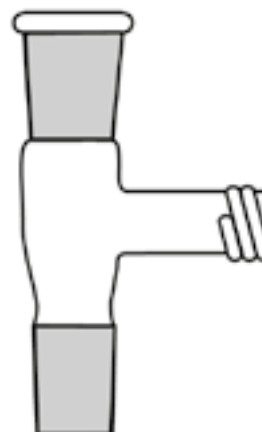
Reduction Adaptor

| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| ARX 010 010 | 14/23 | 19/26 | EACH | £3.74 |
| ARX 010 020 | 14/23 | 24/29 | EACH | £4.36 |
| ARX 010 030 | 14/23 | 29/32 | EACH | £4.74 |
| ARX 010 040 | 19/26 | 24/29 | EACH | £4.58 |



Expansion Adaptor

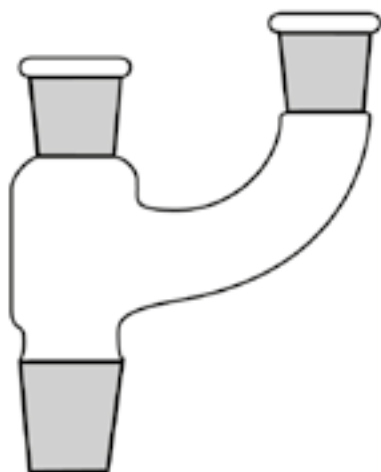
| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| AEX 010 010 | 19/26 | 14/23 | EACH | £3.99 |
| AEX 010 020 | 24/29 | 14/23 | EACH | £4.84 |
| AEX 010 030 | 24/29 | 19/26 | EACH | £4.84 |



T Piece Adaptor

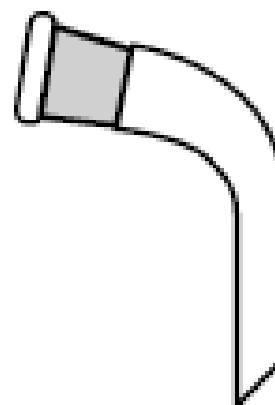
Thread type also available, please ask for details.

| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| ATX 010 010 | 14/23 | 14/23 | EACH | £3.99 |



Multiple Adaptor with Two Parallel Necks

| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| AMX 010 010 | 14/23 | 14/23 | EACH | £7.24 |



Plain Receiver, Short Bend

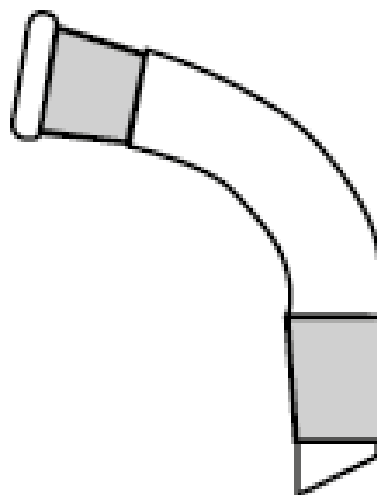
| Cat No. | Cone Size | Length | Quantity | Price |
|--------------------|-----------|--------|----------|--------------|
| BPX 020 010 | 14/23 | 65mm | EACH | £3.99 |
| BPX 020 020 | 19/26 | 65mm | EACH | £3.36 |
| BPX 020 030 | 24/29 | 65mm | EACH | £3.85 |





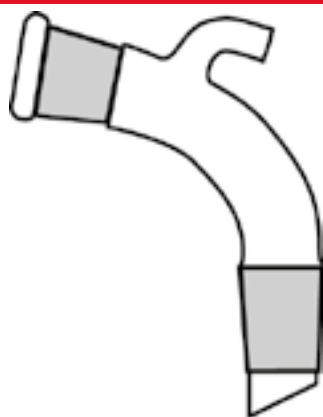
Plain Receiver, Long Bend

| Cat No. | Cone Size | Approx Length | Quantity | Price |
|--------------------|-----------|---------------|----------|---------------|
| QPD 020 046 | 24/29 | - | EACH | £10.96 |
| BPX 010 005 | 14/23 | 130mm | EACH | £4.36 |
| BPX 010 010 | 14/23 | 190mm | EACH | £4.36 |
| BPX 010 020 | 19/26 | 200mm | EACH | £4.47 |



Plain Socket To Cone Bend

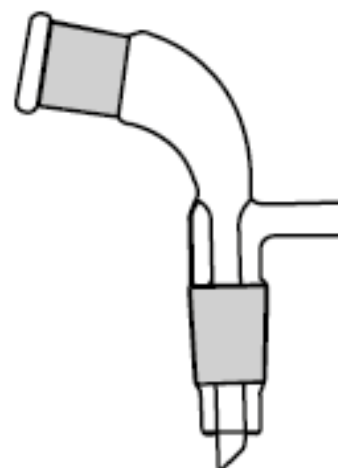
| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| BPX 030 030 | 19/26 | 24/29 | EACH | £4.94 |



Bend with Vent

For thread type, please add 'T' after catalogue code.

| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| BWX 010 010 | 14/23 | 14/23 | EACH | £4.61 |
| BWX 010 030 | 19/26 | 24/29 | EACH | £4.88 |



Bend with Vacuum Connection

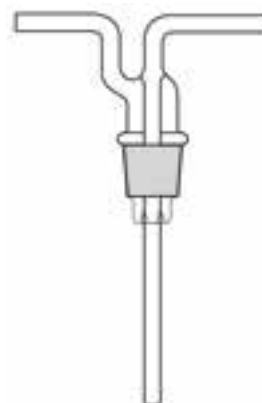
For thread type, please add 'T' after catalogue code.

| Cat No. | Socket Size | Cone Size | Quantity | Price |
|--------------------|-------------|-----------|----------|---------------|
| BVX 010 010 | 14/23 | 14/23 | EACH | £27.50 |



Dreschel Bottle

| Cat No. | Socket | Capacity | Quantity | Price |
|--------------------|--------|----------|----------|---------------|
| QDB 020 026 | 24/29 | 250ml | EACH | £12.99 |
| DRX 010 010 | 29/32 | 100ml | EACH | £6.83 |
| DRX 010 020 | 29/32 | 250ml | EACH | £12.20 |



Dreschel Bottle Plain Head

Supplied with a plain head. Sintered heads are also available. Please state which porosity is required.

| Cat No. | Socket Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| QDB 010 036 | 24/29 | EACH | £15.80 |
| DRX 020 010 | 29/32 | EACH | £6.56 |





Air Condensers (No Screw Thread)

| Cat No. | Socket Size | Cone Size | Effective Length | Quantity | Price |
|--------------------|-------------|-----------|------------------|----------|---------------|
| COX 010 010 | 14/23 | 14/23 | 200mm | EACH | £5.38 |
| COX 010 030 | 24/29 | 24/29 | 300mm | EACH | £11.19 |



Liebig Condensers (Screw Thread)

| Cat No. | Socket Size | Cone Size | Effective Length | Quantity | Price |
|--------------------|-------------|-----------|------------------|----------|---------------|
| COX 020 010 | 14/23 | 14/23 | 150mm | EACH | £8.99 |
| COX 020 020 | 19/26 | 19/26 | 200mm | EACH | £9.68 |
| COX 020 030 | 24/29 | 24/29 | 200mm | EACH | £10.99 |



Short Neck Round Bottom Flask

| Cat No. | Nominal Capacity | Socket Size | Quantity | Price |
|--------------------|------------------|-------------|----------|---------------|
| FSX 010 060 | 25ml | 14/23 | EACH | £2.99 |
| FSX 010 080 | 50ml | 14/23 | EACH | £2.99 |
| FSX 010 090 | 50ml | 19/26 | EACH | £3.79 |
| FSX 010 010 | 100ml | 14/23 | EACH | £3.61 |
| FSX 010 020 | 100ml | 19/26 | EACH | £3.91 |
| FSX 010 030 | 100ml | 24/29 | EACH | £5.15 |
| FSX 010 070 | 250ml | 24/29 | EACH | £5.15 |
| FSX 010 100 | 500ml | 24/29 | EACH | £9.58 |
| FSX 010 050 | 1000ml | 24/29 | EACH | £15.37 |



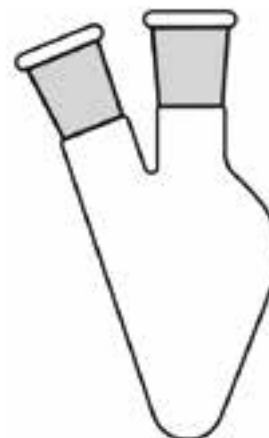
Conical Erlenmeyer Flask

| Cat No. | Nominal Capacity | Socket Size | Quantity | Price |
|--------------------|------------------|-------------|----------|--------------|
| FCX 010 060 | 50ml | 14/23 | EACH | £4.48 |
| FCX 010 010 | 100ml | 14/23 | EACH | £5.87 |
| FCX 010 020 | 100ml | 19/26 | EACH | £5.71 |
| FCX 010 040 | 250ml | 19/26 | EACH | £7.99 |



Single Neck Pear Shape Flasks

| Cat No. | Nominal Capacity | Socket Size | Quantity | Price |
|--------------------|------------------|-------------|----------|--------------|
| FPX 010 050 | 50ml | 14/23 | EACH | £3.91 |
| FPX 010 010 | 100ml | 14/23 | EACH | £4.84 |



Twin Neck Pear Shape Flask

Centre neck and one angled side neck.

| Cat No. | Nominal Capacity | Centre Socket | Side Socket | Quantity | Price |
|--------------------|------------------|---------------|-------------|----------|---------------|
| FPX 010 040 | 50ml | 14/23 | 14/23 | EACH | £10.15 |





Cylindrical Funnels

Please note: All funnels are fitted with glass interchangeable stopcocks. PTFE or Rotaflo taps may be fitted on request.

| Cat No. | Capacity | Socket Size | Quantity | Price |
|-----------------------|----------|-------------|----------|---------------|
| QFC 040 016 | 100ml | B14/23 | EACH | £22.55 |
| Plain Stem | | | | |
| CFX 010 031 | 50ml | B14/23 | EACH | £17.88 |
| CFX 010 021 | 250ml | B29/32 | EACH | £16.69 |
| Stem with Cone | | | | |
| CFX 010 030 | 50ml | B14/23 | EACH | £17.88 |



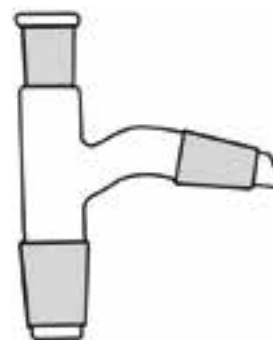
Pear Shape Funnels

Stem with cone. Please note: All funnels are fitted with glass interchangeable stopcocks. PTFE or Rotaflo taps may be fitted on request.

| Cat No. | Nominal Capacity | Cone/Socket Size | Quantity | Price |
|--------------------|------------------|------------------|----------|---------------|
| QPF 030 016 | 100ml | 14/23 | EACH | £21.80 |
| PFX 010 030 | 50ml | 14/23 | EACH | £13.26 |
| PFX 010 010 | 100ml | 19/26 | EACH | £16.93 |
| PFX 010 020 | 250ml | 19/26 | EACH | £20.97 |

Plain Stillhead with Thermometer Socket

| Cat No. | Cone Size Flask | Cone Size Condenser | Thermometer Socket | Quantity | Price |
|--------------------|-----------------|---------------------|--------------------|----------|--------------|
| SHX 010 010 | 14/23 | 14/23 | 14/23 | EACH | £6.54 |
| SHX 010 020 | 19/26 | 19/26 | 14/23 | EACH | £6.28 |
| SHX 010 030 | 24/29 | 24/29 | 14/23 | EACH | £7.64 |



Stopper, Both Ends Closed

| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|--------------|
| STX 010 010 | 14/23 | EACH | £1.58 |
| STX 010 020 | 19/26 | EACH | £2.37 |
| STX 010 030 | 24/29 | EACH | £2.72 |



Thermometer Pocket

Stem length: 60mm



| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|--------------|
| THX 010 010 | 14/23 | EACH | £3.36 |

Plastic Joint Clips



| Cat No. | Size | Quantity | Price |
|--------------------|------|----------|---------------|
| QJC 020 066 | B29 | PK10 | £18.66 |



Column Vigreux



| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|---------------|
| QCK 020 016 | 24/29 | EACH | £55.76 |

Joint clips PTFE



| Cat No. | Size | Quantity | Price |
|--------------------|-------|----------|---------------|
| QJC 010 036 | 14/23 | PK5 | £27.70 |

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SciChem Organic Chemistry Set A

A 5 part introductory set to the principal techniques of preparative organic chemistry. An ideal set for students. Supplied in a cardboard box.

Contents:

- Liebig condenser
- 50ml pearshaped flask
- Stillhead
- Receiver adaptor
- Adaptor, screw thread



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| SCX 020 010 | Organic Chemistry Set A | EACH | £35.41 |

SciChem Organic Chemistry Set B

A highly versatile 8 part set, purposely designed to cover the essential requirements for the teaching of organic chemistry. A highly popular set for use in schools, colleges and universities. Supplied in a cardboard box.

Contents:

- Liebig condenser
- 50ml pearshaped flask
- Stillhead
- Receiver adaptor
- Adaptor, screw thread
- 50ml cylindrical funnel
- Air leak/steam inlet tube
- Stopper B14/23



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| SCX 030 010 | Organic Chemistry Set B | EACH | £40.33 |

SciChem Organic Chemistry Set D

Comprising sets B & C to form a comprehensive set that covers the requirements for preparative organic chemistry for the more advanced student. Particularly suitable for colleges and universities. Supplied in two cardboard boxes.

Contents:

- Adaptor, cone/screw thread (x2)
- Adaptor - T piece
- Bend - plain, long
- Condenser - Air (no screw thread)
- Condenser - Liebig (no screw thread)
- Flask - 50ml pearshaped
- Flask - 50ml pearshaped, two necks
- Flask - 25ml round bottom
- Funnel - 50ml cylindrical
- Stillhead - plain with thermometer socket
- Stopper both ends closed
- Tube - Air leak/steam inlet (x2)
- Tube - Drying angled



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|---------|
| SCX 050 010 | Organic Chemistry Set D | EACH | £114.00 |



Separating Funnels

| Cat No. | Capacity | Quantity | Price |
|--|----------|----------|---------------|
| Cylindrical with Glass Stopcock | | | |
| FDC 020 010 | 50ml | EACH | £22.35 |
| FDC 020 020 | 100ml | EACH | £31.56 |
| FDC 020 030 | 250ml | EACH | £20.86 |
| Cylindrical with PTFE Stopcock | | | |
| FDC 030 010 | 50ml | EACH | £31.15 |
| FDC 030 020 | 100ml | EACH | £36.57 |
| FDC 030 030 | 250ml | EACH | £32.60 |
| FDC 030 040 | 500ml | EACH | £48.52 |
| FDC 030 050 | 1000ml | EACH | £60.81 |
| Conical with Glass Stopcock | | | |
| FDC 040 010 | 50ml | EACH | £13.80 |
| FDC 040 020 | 100ml | EACH | £14.68 |
| FDC 040 030 | 250ml | EACH | £16.97 |
| FDC 040 040 | 500ml | EACH | £23.98 |
| Conical with PTFE Stopcock | | | |
| FDC 050 010 | 50ml | EACH | £13.99 |
| FDC 050 020 | 100ml | EACH | £15.45 |
| FDC 050 030 | 250ml | EACH | £17.46 |
| FDC 050 040 | 500ml | EACH | £25.96 |
| FDC 050 050 | 1000ml | EACH | £35.26 |



Economy Regulated Heating Mantles

Heating mantles with electronic temperature regulation are essential pieces of equipment in any lab. Offering quick and homogeneous heating and low energy consumption, these heating mantles:

- Feature electronic temperature regulation
- Can be used for distillation, digestion, evaporation, extraction and boiling
- Have an outer frame made of furnace-painted steel and a thermally isolated inner vessel
- Feature chromium-nickel heating elements
- Include a clamp for supporting rods

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| HEM 080 010 | 100ml | EACH | £113.30 |
| HEM 080 020 | 250ml | EACH | £119.48 |
| HEM 080 030 | 500ml | EACH | £131.84 |

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Chromatography Paper

Larger width reels available on request, please ask Customer Services for details.

Whatman®



| Cat No. | Grade | Size | Quantity | Price |
|---|---------|-------------|----------|----------------|
| Sheets | | | | |
| CHR 010 010 | 1 Chr | 100 x 300mm | PK100 | £41.73 |
| CHR 010 020 | 1 Chr | 200 x 200mm | PK100 | £47.70 |
| CHR 010 030 | 1 Chr | 250 x 250mm | PK100 | £74.85 |
| CHR 010 040 | 1 Chr | 460 x 570mm | PK100 | £162.14 |
| CHR 020 010 | 3MM Chr | 200 x 200mm | PK100 | £62.57 |
| Reels (100m) | | | | |
| CHR 040 010 | 1 Chr | 10mm | REEL | £17.99 |
| Reels | | | | |
| CHR 040 020 | 1 Chr | 20mm | REEL | £25.84 |
| CHR 040 030 | 1 Chr | 30mm | REEL | £35.52 |
| CHR 040 040 | 1 Chr | 40mm | REEL | £39.62 |
| Slotted Paper, Pre-cut sheets of 12 strips 15mm wide with a 3mm slot between | | | | |
| CHR 080 010 | | 110 x 215mm | PK100 | £78.37 |



Polygram Pre Coated TLC Plates

A general purpose plate which can be used for most separations. Coated with Silica Gel, average pore diameter 60, layer thickness 0.25mm with fluorescent indicator. Easily cut with scissors forming smaller plates which may be used to facilitate the further development of a given spot. The plates can be rolled to fit into Chromatography cylinders. The carrier sheet is polyester, 0.2mm thick and resistant to all organic solvents commonly used in T.L.C.

| Cat No. | Dimensions | Quantity | Price |
|--------------------|------------|----------|----------------|
| TLC 010 010 | 80 x 40mm | PK50 | £51.49 |
| TLC 010 020 | 200 x 50mm | PK50 | £101.97 |



Chromatography Jar and Lid

Glass chromatography jar 125mm diameter x 210mm high. A lid is also available.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| CHR 100 011 | Chromatography Jar | EACH | £9.26 |
| Accessories | | | |
| CHR 100 501 | Chromatography Jar Lid | EACH | £11.32 |



Digital Melting Point Apparatus

The SMP range has been designed with safety and ease of operation in mind making it ideal for use in education. The temperature is selected, measured and displayed digitally making it accurate and negating the need for a thermometer. Two samples can be tested simultaneously. They are viewed via a magnifying lens with clear observation aided by built in illumination. Extendible back feet allow the unit to be operated at the optimum viewing angle. Full access to the block aids cleaning.

- Digital selection & display of temperature
- High accuracy
- Easy to operate with plateau facility
- Ideal for education use
- With BioCote antimicrobial protection

| | |
|-------------------------------|--|
| No. of Samples | 2 |
| Temperature Range | Ambient to 300°C |
| Temperature Resolution | 1.0°C |
| Temperature Accuracy | ± 1% of displayed temperature |
| Display | 3 digit LED |
| Sensor | Platinum resistance PT100 |
| Ramp Rates | 20°C per min to plateau: 2°C per min to melt |
| Dimensions (WxDxH) | 160 x 220 x 170 mm |
| Net Weight | 1.8kg |
| Electrical Supply | 230V, 50Hz, 75W |

| Cat No. | Model | Accuracy | Quantity | Price |
|--------------------|-------|----------|----------|----------------|
| MPA 040 010 | SMP10 | 1.0°C | EACH | £680.40 |
| MPA 040 020 | SMP20 | 0.1°C | EACH | £916.70 |



SMP11 Analogue Melting Point Apparatus

The SMP11 measures the melting point of chemicals from ambient to 250°C. Samples need to be placed in a sealed end capillary tube and located in the heating block. Up to three tubes can be tested at one time. The heating rate can be adjusted manually between 20°C/min for rapid heating and 1°C/min to obtain an accurate melting point range. The sample and melt process can be viewed via the magnifying lens, which is illuminated by bright LEDs. Record the melt temperatures from the thermometer, positioned horizontal to the samples to allow simultaneous viewing. Comes complete with thermometer and pack of 100 melting point tubes (open both ends).

| | |
|---------------------------|-------------------|
| No. of Samples | 3 |
| Temperature Range | Ambient to 250°C |
| Heating Rate | 1 to 20°C/min |
| Dimensions (WxDxH) | 370 x 140 x 110mm |
| Net Weight | 1.7kg |
| Electrical Supply | 230V, 50Hz, 50W |

| Cat No. | Model | Quantity | Price |
|--------------------|---|----------|---------|
| MPA 010 020 | SMP11 | EACH | £557.55 |
| MPA 010 520 | Spare Thermometer, Spirit Filled, 0°C to 250°C | EACH | £36.75 |
| MPA 010 530 | Brass Cooling Plug (for rapidly reducing heating block temperature after use) | EACH | £23.10 |



Melting Point Tubes

VITREX melting point tubes are quality products perfect for handling and transporting small volumes of liquid, melting point determinations and many other purposes. The tubes are uniform and are cut at right angles.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| MPA 020 005 | Open Ended | PK100 | £4.12 |
| MPA 020 010 | Open Ended | PK1000 | £32.94 |
| MPA 020 020 | Sealed One End | PK1000 | £43.80 |

Thiele Tubes

Borosilicate glass for heating melting point tubes in the determination of melting points.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| CMZ 060 010 | Thiele Tubes | EACH | £13.75 |



Air Posters

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|-------|
| XCP 030 010 | Air | EACH | £3.61 |
| XCP 030 020 | Air Pollution | EACH | £3.61 |



XCP 030 031



XCP 030 041



XCP 030 080



XCP 030 091

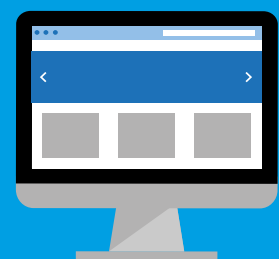
Gases Posters

Size: 760mm x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| XCP 030 031 | Oxygen | EACH | £3.61 |
| XCP 030 041 | Hydrogen | EACH | £3.61 |
| XCP 030 080 | Carbon Dioxide | EACH | £3.61 |
| XCP 030 091 | Nitrogen | EACH | £3.61 |

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Litre Set

This set of 5 clear measuring containers of different heights and shapes is ideal to help children understand the concept of volume. Four of the containers hold exactly 1 litre and the fifth holds a half litre. Each is clearly marked with 100ml increments so that smaller amounts can be measured.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XME 030 010 | Litre Set | EACH | £15.99 |



Vernier Microscope

This vernier microscope (travelling microscope) has horizontal and vertical scales of stainless metal with a base of heavy cast iron fitted with levelling screws. Fine adjustment for final reading is with a micrometer screw. The microscope with rack and pinion is fitted on the vertical carriage and can be clamped in a vertical or horizontal position. The microscope uses achromatic lenses and the slides travel 165mm horizontally and 140mm vertically. Vernier reading 0.01mm. The unit is packed in a wooden case.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| MIV 010 010 | Vernier Microscope | EACH | £354.00 |

Calliper

Measures depth, width and thickness of most shapes from 1cm to 30cm.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XME 070 010 | Calliper | EACH | £5.38 |

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Digital Millisecond Timer

This timer is most suited for an investigational approach for students to gain a sound understanding of the concepts of time and motion. Two pairs of sockets alternatively start and stop the timer, one pair operating in make mode and the other in break mode. The stop/start switches can be either mechanical or electrical. The timer is auto ranging for ease of use and has a clear 13mm digital display. Built in a robust metal case with a durable powder coat finish. An illuminated on/off switch is mounted on the rear panel adjacent to a fused appliance inlet.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XLM 040 011 | Digital Millisecond Timer | EACH | £115.00 |



Millisecond Timer

The millisecond timer is a fully functional, easy to use millisecond timer and has a clear, 4 digit LED display. Three sockets provide START and STOP inputs which respond to any change of switch settings ie. normally closed to open or vice versa making triggering very simple and reliable. A single switch changes the timer from GATE 1 start and stop to GATE 1 start GATE 2 stop. In addition 3.5mm sockets are provided to allow Lascells timer light gates to be connected. The timer has millisecond resolution for times up to 10 seconds and then the display auto-ranges for longer periods up to 9999s with corresponding reduced resolution. Supplied with mains plug-top adaptor and full instructions.

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|-------------------|------|----------|---------------|
| XLM 220 010 | Millisecond Timer | UK | EACH | £75.00 |



Triple Time Millisecond Timer

The Lascells Triple Timer has an LCD and three modes of operation activated by START and STOP switch contacts (4mm sockets) or by using Lascells Light Gates which plug in directly.

Mode 1: Uses one light gate or a switch across the START sockets.

Mode 2: Uses activation of the START sockets to initiate timing and activation of the STOP sockets to stop the timing.

Mode 3: Uses both the start and stop sockets or two light gates. The time taken to pass through gate 1 is recorded, then the time taken to pass through gate 2 is measured and finally the time taken to move from gate 1 to gate 2 is measured. All three times are displayed giving all the readings needed for measuring acceleration. The unit is housed in a robust aluminium case and is supplied with a mains plug-top, low-voltage power supply.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XLM 175 010 | Timer Light Gate 3.5mm Jack | EACH | £59.73 |
| XLM 175 020 | Light Gate Adaptor 3.5mm Jack | EACH | £24.71 |



Light Gates

Self contained light gates for the Lascells range of timers. Connection is via a 3.5mm jack and the gates take their power directly from the timers so no additional power supplies are necessary.

For use with other brands of timer an adaptor is available which brings the connector out to 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XLM 175 010 | Timer Light Gate 3.5mm Jack | EACH | £59.73 |
| XLM 175 020 | Light Gate Adaptor 3.5mm Jack | EACH | £24.71 |





Dynamics Trolleys

Traditional hardwood trolleys on three double row ball bearing wheels for exceptional free running. Wheels are set back from main body of chassis to reduce the chance of collision damage and a flat top is provided to allow the trolleys to be stacked in order to double mass. A spring loaded pin version is also available for conservation of momentum and impulse studies etc.
Dimensions: 260 x 100 x 60mm, excluding pin



| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|--------|
| XDS 140 521 | Dynamics Trolley Unsprung | EACH | £51.49 |
| XDS 140 531 | Dynamics Trolley Sprung | EACH | £72.00 |

Dynamics Tracks

Robust and versatile runways for use in all dynamics investigations with trolleys or model cars etc. The base board is 12mm MDF with hardwood side walls. Additional items available are a run-off ramp which allows vehicles to easily make the transition on to a flat floor and a height adjustable stand to vary the slope angle. The tracks are available in 4, 6 and 8 feet long versions.

Track Support Frame

A height adjustable stand for use with dynamics tracks. The strap length can be easily changed to give heights ranging from 10 to 45cm. Provides a stable support for heavy tracks. Constructed in 12mm MDF.

Dimensions: 600 x 300 x 40mm (closed)
Mass: 3.1kg

Track Run Off Ramp

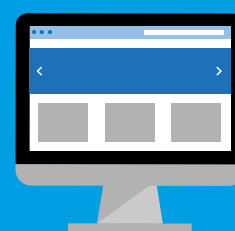
Sloping wooden surface to give a smooth transition from track to floor for dynamics vehicles.

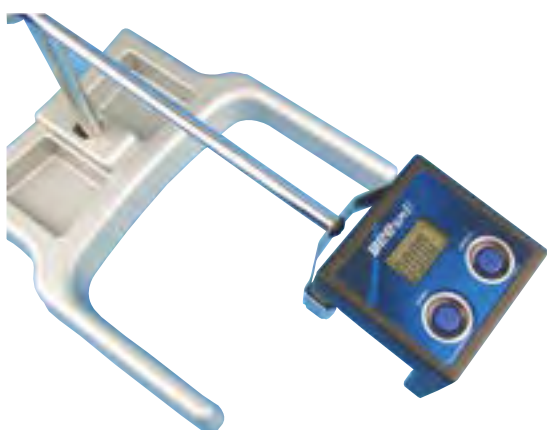


| Cat No. | Description | Length | Quantity | Price |
|-------------|---------------------|--------|----------|--------|
| XDS 140 010 | Dynamics Track | 4ft | EACH | £39.99 |
| XDS 140 500 | Track Support Frame | | EACH | £32.11 |
| XDS 140 020 | Dynamics Track | 6ft | EACH | £51.74 |
| XDS 140 030 | Dynamics Track | 8ft | EACH | £64.20 |

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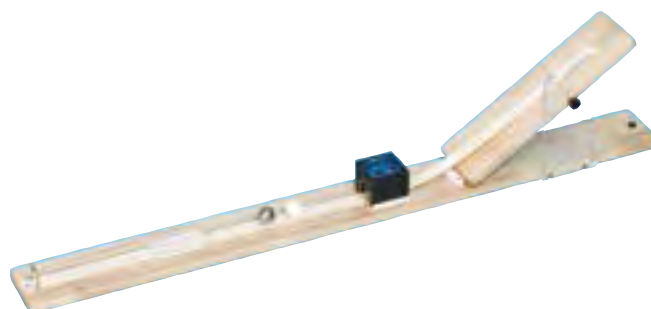
BeeSpi V Light Gate

Measure speed and acceleration in an instant with the BeeSpi V. Unlike traditional tape-based velocity measuring experiments that are hard to set up and can be inaccurate, BeeSpi V uses advanced light gate technology to instantly measure the speed of an object. Using multiple BeeSpi V Light Gates you can easily calculate acceleration of an object. This provides additional class time to analyse the results of the experiment, as well as helping students improve their understanding.

Power Source: two size AAA batteries (sold separately)

Holding Rod Specially designed holder enables your BeeSpi V to be fixed at the desired angle or height depending on the experiment you wish to carry out.

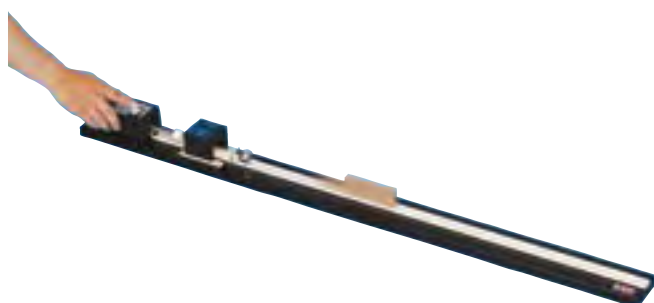
| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------|-------------|---------------|-------|
| XLM 200 010 | BeeSpi V Light Gate | EACH | £22.77 | |
| Accessories | | Description | Quantity | Price |
| XLM 200 550 | Holding Rod | EACH | £17.49 | |



I - Gauge dynamic track

A useful piece of apparatus to allow investigations into potential and kinetic energy. Supplied with a steel and ceramic sphere of differing mass and a scale with which to measure the distance moved of objects after collision. Adding a Bee Spi V light gate also allows the velocity of the spheres to be measured directly.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|----------------|
| XLM 200 510 | I-Gauge Dynamic Track | EACH | £104.94 |
| XLM 200 520 | I-Gauge Dynamic Track with BeeSpi V | EACH | £120.00 |



Collision Apparatus with BeeSpi V

This apparatus includes a "Horizontal Ball Launcher" and BeeSpi V for measuring velocity of the launched ball. Kinetic energy changes depending on the velocity of the ball and can be quantitatively obtained by measuring the distance moved by the sliding wood block.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| XLM 200 530 | Collision Apparatus | EACH | £268.25 |

G-Gauge Inclined Plane

This equipment is specially designed for experiments of velocity and acceleration in free fall motion and others. Motion is adjustable to multiple angles not only for free fall but also for motion on the slope. Use 2 BeeSpi V units to calculate acceleration.

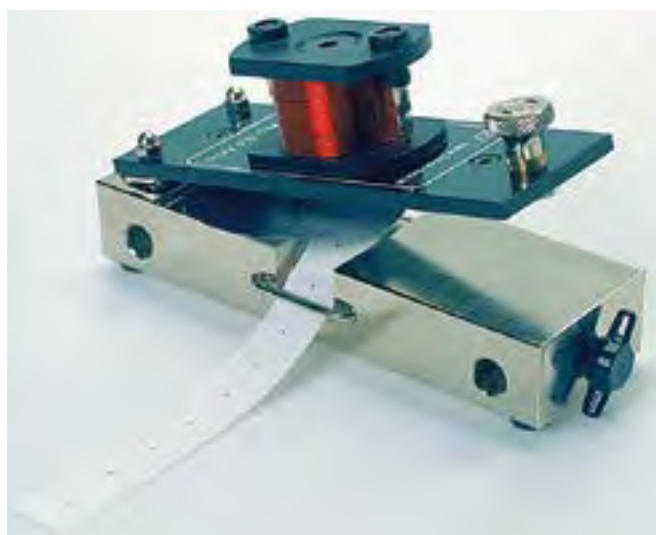
Set includes:

- 1x G-Gauge
- 2x BeeSpi V units
- 1x Steel ball (25mm dia)
- 1x Screwdriver



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|----------------|
| XLM 200 540 | G-Gauge Inclined Plane | EACH | £192.37 |





Ticker Tape Timer

For measuring elapsed time of rectilinear movements. The timer comprises an AC coil acting on a spring suspended marker plate that in conjunction with a spring loaded ball (adjustable from the bottom plate) makes dots on a 17.5mm wide paper tape with the time interval 0.02 sec. Special self-marking tape or a 64mm diameter carbon disc can be used for marking. The ticker tape timer is made of nickel-plated steel. The top plate with the AC coil is hinged to the steel body and locked by means of a magnet.

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------|-------------|----------------|-------|
| XTT 030 010 | Ticker Tape Timer | EACH | £161.83 | |
| Accessories | | Description | Quantity | Price |
| XTT 030 510 | Spare Carbon Discs | PK50 | £8.99 | |

“ Use wire coat hangers to keep 4mm wires with crocodile clips in order. Label the coat hanger using a sticky label with the length of the wire, then clip the wires to the bottom part of the coat hanger. Easily keep different length wires together. ”

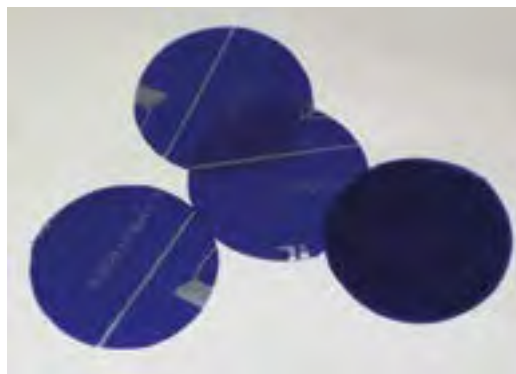
— John Whitgift Academy



Ticker Tape Timers

To demonstrate the concept of time and timing in applications such as measurement of velocity and acceleration, free fall experiments, projectiles and circular motion. It employs a concealed electromagnet with spring-loaded armature, which vibrates and produces dots on a paper tape via carbon disc.

Working voltage: 6-12V



XTT 040 500



XTT 040 010

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------|-------------|---------------|-------|
| XTT 040 010 | AC Ticker Tape Timer | EACH | £52.97 | |
| XTT 040 020 | DC Ticker Tape Timer | EACH | £56.38 | |
| Accessories | | Description | Quantity | Price |
| XTT 040 500 | Carbon Discs | PK100 | £3.99 | |
| XTT 040 510 | Paper Rolls, 17.5mm width | PK5 | £22.00 | |





Magnetic Levitation Track

New type of Dynamic equipment replacing traditional air tracks! This is the world's first "Easy and Quiet" operation Dynamics Track, without requiring electric power. Dynamics experiments are available for:

- Uniform motion of a sliding body
- Verification of Momentum-conservation law
- Simple harmonic oscillation as 'spring pendulum'

Specifications:

- Total Length of Sliding Way: 2,000mm
- Sliding Body: 2x 100g, 2x repulsion springs mounted
- Metal Weights: 6x 44g
- Accessories: 4x spring pendulums, 6x repulsion springs, 2x springs for spring pendulum

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XLM 070 010 | Magnetic Levitation Track | EACH | £702.00 |



SciChem Dynamics System

Allows investigations into experiments such as acceleration along an inclined plane, the effect of different accelerating forces on different masses, investigation of elastic and inelastic collisions between two trolleys, change of momentum between two trolleys, kinetic energy and many more. Eliminates all the frustrations of using the traditional runways and trolleys and ensures repeatable results.

- Modern approach to teaching dynamics
- Low friction trolleys
- Repeatable results
- Includes all accessories and ticker tape timer

Contents:

- Track
- Standard trolley
- Sprung trolley
- 2x Masses 700g
- 10x 10g mass
- Pulley
- Ticker tape timer
- 5x Spare reels of ticker tape
- Pack 20 carbon discs
- Cotton reel
- Spirit level
- Stopwatch

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|----------------|
| XDS 010 012 | SciChem Dynamics System | EACH | £108.14 |



Linear Air Track with Accessories

This kit is designed to provide a cost-effective system for the study of all aspects of dynamics in a virtually friction free environment. It is particularly effective in the field of collisions where conservation of momentum is dramatically demonstrated. The kit contains everything required for a vast array of experiments covering velocity, force and acceleration, potential energy, kinetic energy, conservation of energy, SHM, motion on level and inclined planes etc. The track itself measures 2 metres overall and is made from strong 56 x 56mm aluminium extrusion. Gliders are designed to accept standard slotted masses for additional loads. It is supplied with a comprehensive accessory pack to facilitate every type of interaction.

Overall dimensions: 2055 x 224 x 180mm
 Total weight: 9 kg
 Glider length: 120mm
 Recommended operated temperature: 10 to 40°C
 Recommended operating humidity: <85%

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|----------------|
| XLM 180 010 | Linear Air Track with Accessories | EACH | £277.00 |



Air Blower for Air Track

Extremely quiet air blower with continuously adjustable speed. The Air Blower is designed especially for operation on the XLM 110 series of Air Tracks.

Complete with 1.7m hose.

Mains supply: 220-240V AC

Dimensions: 280 x 250 x 210mm

Weight: 5.7Kg



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|----------------|
| XLM 110 600 | Air Blower for Air Track | EACH | £370.86 |



Standard Linear Air Track

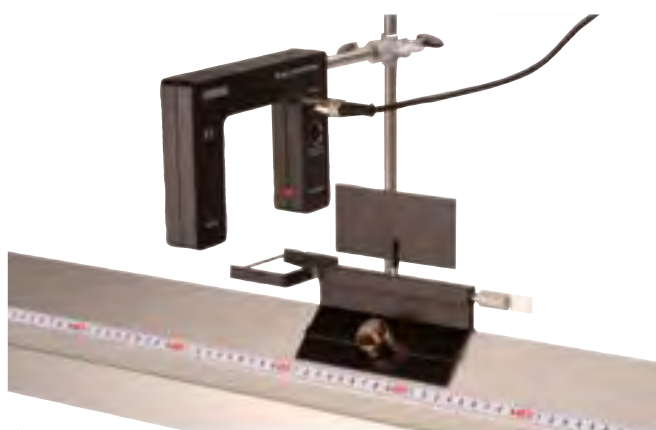
For checking smooth movement, smoothly accelerated movement, Newton's Second Law, elastic and inelastic collisions. The air track is made from a large square aluminium extrusion in conjunction with a supporting 'U' channel. A series of 7 screws allow adjustment of the air track to a typical linearity of ± 0.03 mm. The air track rests on three rubber feet of which two can be height adjusted. Each side of the track has a scale graduated in mm. The overall length of 2 metres yields a working length of 1.9 metres. Two carts and a standard set of accessories are included. The set includes a selection of carefully balanced plug-in parts (a hook for string attachment, bumpers for elastic and inelastic collisions) all weighing 10g. These are all provided with a 4mm plug that fits into holes at the end of the carts as well as at the end stops of the track. Two flags of different lengths are provided for timing with Photocell Units (XLM 110 610 - not provided). A set of weights are included in order to increase the mass of one of the carts by 50 or 100%.

Standard Accessories:

- Bumper fork with rubber band x3
- Bumper plate x3
- Needle x1
- Tube with wax x1
- Holder with hook x1
- Pulley x1 * Available separately - see accessories
- 100mm flag x1*
- 50g weight for cart x4

| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|----------------|
| XLM 110 010 | Standard Linear Air Track | EACH | £493.52 |
| Accessories | | | |
| | Description | Quantity | Price |
| XLM 110 500 | 100mm Flag with Plug | EACH | £7.15 |
| XLM 110 540 | Slotted Weights (Comprising: 1 Holder 2g, 2 Masses of 1g, 1 Mass of 2g, 1 Mass of 5g and 1 Mass of 10g) | EACH | £12.47 |
| XLM 110 580 | Protective Cover | EACH | £26.00 |





Photocell Unit 1

The unit is suitable for measuring time intervals on an air track. The unit consists of a photocell illuminated by LED via a 1mm aperture. The Photocell Unit is provided with two 6 pole DIN connectors for connection to the Digital Scaler Timer (XLM 120 500) and for daisy chain connection to additional photocell units. The unit has a rugged plastic housing with threads for horizontal or vertical mounting using the 10mm mounting rod provided.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|----------------|
| XLM 110 610 | Photocell Unit 1 for Air Track | EACH | £101.15 |



Loop The Loop Demonstrator

See the change from potential to kinetic energy using the loop-shaped rail and two different metal balls.

Contents:

- Aluminium rail: 1.3m (approx.)
- Wooden base: 42 x 10cm
- 1x Metal ball: 16mm dia.
- 1x Metal ball: 19mm dia.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XMC 182 010 | Loop The Loop Demonstrator | EACH | £27.80 |



Elastic and Inelastic Balls

You can't see the difference in these balls by appearance alone. Each pair contains two balls of the same size - but one of the pair will bounce (elastic) and the other doesn't (inelastic). These balls are great when used to teach about elastic and inelastic collisions and momentum (force and kinetic energy). Inelastic balls possess excellent impact absorption properties. The rubber has great internal absorption of the input energy and is able to dampen the impact from a colliding object without giving the object a reaction force - therefore it does not bounce. Elastic balls do not absorb energy and bounce. Diameter: 25mm

Contents:

- 10 Elastic rubber balls (Neoprene)
- 10 Inelastic rubber balls (Norbornene Polymer)

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| XLM 230 010 | Elastic and Inelastic Balls | PACK | £20.98 |



Vacuum Bazooka

This amazing device attaches to a vacuum cleaner and launches lightweight, hollow projectiles at high velocity. When aimed vertically typical heights reached are 5 to 6 metres. Additional weights can be added to the projectiles for all manner of investigations into energy, acceleration, momentum etc. An essential item to brighten up the subject of dynamics or to amaze everyone on open days and science fairs. As featured in the book 'Vacuum Bazookas and Electric Rainbow Jelly' by Neil Downie.

Extension Tube This add-on tube extends the barrel of the basic Vacuum Bazooka (XDS 150 010) which means that the accelerating force is applied to the projectile for a longer time. The corresponding increase in momentum can be explored as part of an investigation into the impulse equation in mechanics.

- Ideas for investigations into projectile motion, acceleration, momentum etc.
- Powered by a vacuum cleaner

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| XDS 150 010 | Vacuum Bazooka | EACH | £56.64 |
| XDS 150 500 | Extension Tube | EACH | £33.98 |
| XDS 170 050 | High Powered Blower | EACH | £141.50 |



Gauss Gun

This novel apparatus provides a safe but dramatic demonstration of the acceleration of a body in a magnetic field and the conservation of momentum.

It uses groups of high strength neodymium magnets to accelerate steel ball bearings with the whole assembly contained in a closed, transparent plastic tube for safety. A highly effective discussion experiment on the nature and strength of magnetic fields, momentum, conservation of energy etc.

Dimensions: 700 x 20 x 20mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| NPD 040 010 | Gauss Gun | EACH | £29.86 |



Monkey & Hunter

An essential part of projectile studies is the 'Monkey and Hunter' problem. A monkey sees a hunter take aim. If he lets go when the hunter fires will he drop so that the bullet passes harmlessly overhead or should he sit still and watch the bullet pass harmlessly underneath since it is pulled down by the gravitational field? This apparatus allows for an interactive study of the problem by students. An elastic powered 'gun' fires ping pong ball 'bullets' at a model monkey supported from a small electromagnet. The electromagnet is switched off at the instant the projectile leaves the gun. Both monkey and bullet fall at the same rate and the bullet hits the monkey. The system has everything required except a low voltage power supply and laboratory stand for the electromagnet.

Dimensions: main unit 500 x 120 x 90mm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|----------------|
| XDS 120 010 | Monkey & Hunter | EACH | £122.56 |
| XDS 120 500 | Spare Monkey for Monkey & Hunter | EACH | £22.65 |
| XMC 455 030 | Magnetic Release Unit | EACH | £26.77 |

Marbles



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XPS 091 011 | Marbles | PK100 | £5.71 |

Ball Bearings

Chrome plated steel ball bearings.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| XPS 080 010 | 1.5mm | PK100 | £3.08 |
| XPS 080 020 | 3mm | PK100 | £4.11 |
| XPS 080 030 | 6mm | PK100 | £4.45 |
| XPS 080 040 | 12mm | PK10 | £6.17 |
| XPS 080 050 | 16mm | PK10 | £8.23 |
| XPS 080 060 | 20mm | PK2 | £9.26 |
| XPS 080 070 | 25mm | PK2 | £10.29 |



Mechanics

Motion

Free Fall Tube (Guinea and Feather)

Demonstrates that objects fall at the same speed regardless of weight in a vacuum.

Contents:

- 1 Glass tube 600 x 50mm (length x diameter)
- 2 rubber stoppers
- 1 length of rubber tubing.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XMC 200 010 | Free Fall Tube | EACH | £27.19 |



Free Fall Tube (Safety)

This apparatus comprises a 1m long, 50mm diameter acrylic tube which can be partially evacuated using a hand pump through the end stopper. Enclosed in the tube is a small balsa wood block and a plastic square. If the tube is inverted before evacuation the plastic falls faster than the block because of air resistance effects. After partial evacuation they both fall at the same rate. Often referred to as the Guinea and Feather experiment after Robert Boyle's investigation where the objects used were a guinea coin and a feather.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XMC 205 010 | Free Fall Tube (Safety) | EACH | £66.94 |

Terminal Velocity/Viscosity Kit

The kit comprises a 1m long, 50mm diameter acrylic tube, fitted with two rubber bungs and supplied with five nitrile O-rings on the outside. Also included is a pack of 4mm and 6mm diameter ball bearings. In use, the tube is filled with a liquid such as water, glycerol, wallpaper paste etc and the O-rings arranged at even, measured intervals down the tube. Ball bearings can be dropped into the liquid and timed over the measured distances with a stop watch. The distances and timings allow the idea of terminal velocity to be explored as well as the concept of different viscosities.

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------------|-------------|---------------|-------|
| XMC 940 010 | Terminal Velocity/Viscosity Kit | EACH | £64.88 | |
| Accessories | | Description | Quantity | Price |
| XPS 080 020 | 3mm Ball Bearings | PK100 | £4.11 | |
| XPS 080 030 | 6mm Ball Bearings | PK100 | £4.45 | |

ASCELLS



Newton's Second Law

This apparatus can be used to demonstrate Newton's Second Law of Motion. It consists of a spring-loaded metal device with two steel balls. This demonstrates that a ball released vertically will hit the floor at the same speed as a ball released horizontally.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XMC 930 020 | Newton's Second Law | EACH | £14.40 |



Falling Bodies Apparatus

This apparatus is designed specifically to show the complex concept that a body impelled horizontally will fall vertically at the same rate as a similar body allowed to fall freely. Comprises a spring loaded L section launcher with holes for loading two 19mm diameter steel spheres which act as projectiles. The launcher is released by pushing the trigger which projects one sphere forward while allowing the other to fall freely. Mounted on a wooden block 180 x 60 x 30mm with storage pocket for the spheres. The unit is supplied complete with the steel spheres.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XMC 050 011 | Falling Bodies Apparatus | EACH | £26.78 |



'g' by Free Fall System

The simplest approach yet to this basic experiment in mechanics. By squeezing the 'ears' of the release unit the ball bearing is released and the circuit connections to a timer are broken at the same instant. The base unit is a sensitive microswitch 'trapdoor' giving either make or break contacts at the moment of impact. No power supplies are required, just a sensitive timer with any START and STOP triggering. Manufactured in acrylic to modern design standards with a rubber impact plate.

Base dimensions: 150 x 130 x 30mm

Connections by 4mm leads.

Alternative Magnetic Release Unit Designed for use with either 'g' by Free Fall Systems or the Monkey and Hunter apparatus. The unit requires a low voltage, smoothed DC power supply at 4-6V and 0.5A.

Supplied with 4mm sockets and an aluminium handle for use with a standard laboratory clamp stand.

Dimensions: 40 x 40 x 35mm, excluding 200mm handle

Mass: 0.2kg

NB: Retort stand and clamps are not included



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| XMC 455 010 | 'g' by Free Fall System | EACH | £64.88 |
| XMC 455 030 | Magnetic Release Unit | EACH | £26.77 |



'g' by Free Fall Release Unit

For use in 'g' by free fall investigations with alternative lower sensors such as the Impact Plate (XDS 170 030). The unit releases a ball bearing when the 'ears' are squeezed together. Connection is by standard 4mm leads.

Dimensions: 110 x 50 x 100mm overall

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|--------|
| XMC 455 020 | 'g' by Free Fall Release Unit | EACH | £20.59 |



Impact Plate

A sensitive vibration detector coupled to an electronic latching circuit all contained within a sturdy enclosure with rubber top mat. An external 9V supply is required. When an impact occurs the output (available at two 4mm sockets) changes from 0V to 7V and then resets after a period of 5 seconds. Suitable for triggering timers etc.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XDS 170 030 | Impact Plate | EACH | £70.00 |



Mechanics

Motion

SECONDARY



Rotary Investigation

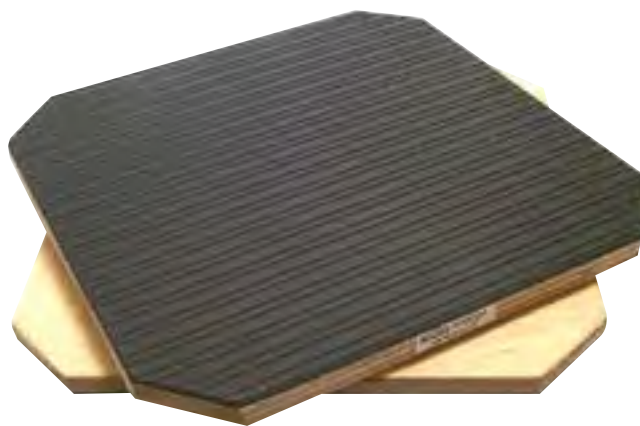
This simple but effective system makes a complicated topic into one of the most enjoyable lessons possible for all ages at secondary level. It allows students to easily investigate the forces of circular motion so that they get hands-on experience of the effects. A spring system is enclosed in an acrylic tube so that the student can whirl a rubber ball around in a horizontal circle to measure the centripetal force. Radius and mass are easily varied and rotational speed is simply measured by timing the revolutions. The forces acting can be measured in 'force increments' or in Newtons, if the spring is calibrated beforehand.

Full instructions included.

Size of main unit: 150 x 15mm

- Ideal for teaching circular motion

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XDS 100 010 | Rotary Investigation | EACH | £44.29 |



Rotary Table

A strong turntable suitable for rotational motion demonstrations. Constructed from two 18mm plywood platforms covered in carpet and measuring 450 x 450 with a 150mm diameter ball race bearing in between. The turntable can support balanced loads up to 100kg and is most effectively used to demonstrate conservation of angular momentum.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XDS 090 010 | Rotary Table | EACH | £87.54 |

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

Water Rocket Kit

This Water Rocket Kit self-releases at a pre-set pressure for repeatable experiments. Visual teaching: use this kit to build an exciting water rocket which flies to 20 metres, study laws of motion, flight trajectory etc. A 46 page Rocket Manual is also available (XPG 044 010).

NOTE: Bottle and pump not supplied.

Foot Pump With Gauge Suitable for use with Water Rocket Kit (XPG 040 010). Pressure dial marked 0-100 psi and 0-7kg/cm² (0-7 bar). The pressure dial on this model is for guidance only.



XPG 040 010



XPF 040 500

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XPG 040 010 | Water Rocket Kit | EACH | £8.88 |
| XPG 044 010 | 46 page Rocket Manual | EACH | £4.11 |
| XPF 040 500 | Foot Pump With Gauge | EACH | £13.99 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

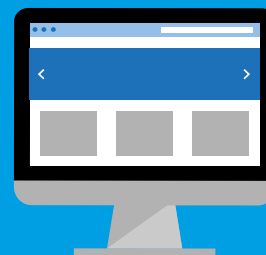
CHEMICALS

GENERAL LABWARE

SAFETY

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Lever and Pendulum Set

This set includes a lever unit, a pendulum unit, weights, and a steel stand. The lever unit has numbered holes on it to hook weights, while the pendulum unit has a semi-circular protractor for measuring angle of pendulum as well as an adjusting knob to adjust the length of thread. With the lever unit, students can carry out "Motion of Force" experiments such as the correlation between fulcrum point and point of effort/load. With the pendulum unit, students can carry out "Pendulum motion" experiments such as finding the correlation between the length of thread with weight and the cycle, as well as energy conversion of potential/kinetic energy.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XLM 200 500 | Lever & Pendulum Set | EACH | £157.52 |



Levers Kit

Investigations into the principle of moments are amongst the most rewarding for KS3/KS4 students, but lack of care often gives inconclusive results. This apparatus solves the problem since the strong plywood beam (480 x 50 x 4mm) has locating holes for specially designed mass carriers suitable for standard 10g slotted masses and the fulcrum is above the C of G giving sensible balance conditions. When used with the aluminium cradle and pivot system students get very predictable results. Supplied with photocopyable worksheets and full instructions. The kit contains five complete sets with three carriers per set and 15 x 10g masses, all that's needed to for the kit to work.

Dimensions: 480 x 50 x 4mm (beam)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XMC 180 010 | Levers Kit | EACH | £69.42 |



Levers Kit

Supplied as a kit for 8 pupils and consisting of five plywood beams 600 x 44 x 3mm graduated every 38mm and with a groove across its centre to locate a fulcrum point. Also included are 4 fulcrums 32 x 32 x 64mm and 40 metal blanks 25mm square. The masses of the blanks are matched to within $\pm 1\%$.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XMC 210 010 | Levers Kit | EACH | £22.74 |





Balance Beam

This class kit has five wooden beams drilled to take a central pivot point and hooks to support laboratory slotted masses. The beam can be supported in a laboratory clamp stand to enable levers to be investigated.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XCA 020 010 | Balance Beam | PK5 | £49.43 |



Unbalanced Rod

When discussing levers, forces, moments etc. at any level, this apparatus provides a science puzzle which opens the opportunity for discussion. A 15mm wooden dowel rod, 1 metre long, is loaded with a weight at one end so that its centre of mass is about 30cm from one end. It can be supported on two fingers initially, 30cm in from each end, and then one can be removed without the rod falling. A second, unmodified dowel, identical in appearance to the first, is supplied so that a 'magic' show can be developed around the idea. Length: 1m

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XMC 450 010 | Unbalanced Rod | EACH | £16.48 |



Centre of Gravity Kit

This kit contains all of the necessary apparatus for a class to determine the centre of gravity of an irregularly shaped object.

Contents:

- 15 shapes (3 Sets of 5) irregular acrylic shapes
- 15x Pins
- 15x Pendula allowing a full class to complete the experiment

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XMC 070 010 | Centre of Gravity Kit | EACH | £38.10 |



Wheel & Axle

A pair of coupled solid acrylic wheels, 150 and 50mm diameter, on a freely running bearing supported on an alloy handle suitable for holding in a standard laboratory clamp. Threads can be attached so that mechanical advantage and velocity ratio can be measured.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XMC 440 010 | Wheel & Axle | EACH | £45.31 |



Inclined Plane

For the determination of the coefficient of kinematic and static friction, mechanical advantage and efficiency of an inclined plane. Comprises hardwood inclined plane 600 x 100mm (L x W), fitted with a pulley 22mm (dia.) at the free end. It is hinged to a horizontal polished wooden base 450 x 100mm (L x W), which is fitted with an aluminium arc graduated both vertically and angularly. The Inclined Plane can be fixed at any angle up to 45° or at a suitable height with a clamping wing unit. Supplied with a cylindrical plated metal roller (weight 500g, length 50mm); two wooden blocks 200 x 75mm and 100 x 75mm (L x W); a steel block 100 x 75mm (L x W); a scale pan 75mm (dia.); cord and a hook.



Friction Surfaces Four plates offering five very different surfaces for use with friction studies on inclined planes. Each surface measures 590 x 75mm to suit the Inclined Plane (XMC 465 011). Surfaces available are carpet, glass paper, rubber, shiny plastic and matt plastic. Secure to ramp with elastic bands top and bottom.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XMC 465 011 | Inclined Plane | EACH | £38.76 |
| XMC 465 500 | Friction Surfaces | PACK | £14.29 |



XDS 200 500



XDS 200 011

Compact Ramp Kit

Dynamics on a small scale; ideal for bench top investigations with multiple groups. The kit contains 5 ramps, 5 stands, 5 blocks, 5 cars and a pack of 5 different surfaces. The ramps are 430 x 60mm and the ingenious stands give simple height adjustment from zero to 250mm in 10 steps. The blocks have a central pin to take slotted masses for varying the load. Use for investigations into motion and friction. The Ramp Surfaces are also available separately (XDS 200 500).

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| XDS 200 011 | Compact Ramp Kit | EACH | £141.10 |
| Accessories | | Quantity | Price |
| XDS 200 500 | Ramp Surfaces | PK5 | £33.98 |

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Mechanics

Forces

Flexi-Ramp

A fully flexible surface made from expanded PVC measuring 120 x 1220 x 3mm suitable for creating curved, sloping tracks for the investigation of various dynamics situations with small vehicles or model cars. The edges of the ramp are built up to provide 5mm high 'walls' to help keep the vehicles on track. Provided with three clamping bars to facilitate forming of the track profile.



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XDS 080 010 | Flexi-Ramp | EACH | £54.58 |



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Friction Investigation

A sturdy base fitted with a low friction pulley provides the basis for investigations into dynamic friction between sliding surfaces. The carriage can support any applied load and the frictional force to move the carriage can be measured by applying weights to a string passing over the pulley in the usual way. Different types of surface can be examined by slotting the carriage onto pads of rubber, plastic and different wood surfaces (all supplied in the kit). A particular feature allows the 'force independent of surface area' concept to be explored using a special set of three pads.

Dimensions: 900 x 100 x 80mm
Mass: 3.2kg

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XDS 170 060 | Friction Investigation | EACH | £61.79 |



Action/Reaction Platforms

These trolleys are large enough for students to sit on to experience the effect of Newton's Third Law. The strong wooden platforms measure 600 x 340 x 60mm and are constructed from plywood with nylon tyre wheels at each corner. The surfaces are covered in carpet to provide a non-slip surface. In use, the platforms are placed in line on the floor and two students sit on them, facing each other. One student is instructed to push the other away but the end result is that both students move equal amounts. The platforms have many other uses in large scale load dynamics investigations as well as whenever heavy weights are involved.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XDS 110 010 | Action/Reaction Platforms | EACH | £106.08 |



Pop Pop Boat

Made from recycled tin. Length: 14cm

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XDS 180 011 | Pop Pop Boat | EACH | £3.22 |



Resolved Forces Board

By using modern spring balances on an easy to understand layout the concept of balanced and resolved forces is easy to demonstrate. The attachment points can be put in line for collinear forces where the single force is the sum of the other two. For 2D work angles and vectors can be easily examined. The durable white plastic-coated board measures 800 x 450mm and comes complete with balances and full instructions.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XMC 470 010 | Resolved Forces Board | EACH | £72.00 |

“ Make a photo library of practical set ups. This will help enable you to set up difficult practicals or those which are only done annually - particularly physics. ”

— Stafford Grammar School





Newton Meters

A series of six colour coded spring balances which can be used for both force and measurements. Each scale is calibrated in both Newtons and grams. The top is flat sided so that the scale can be used with an inclined plane. The scale incorporates a zero adjustment. Features a clear transparent tube.

| Cat No. | Newtons / Grams | Colour | Quantity | Price |
|--------------------|-----------------------|--------|----------|--------------|
| BME 030 010 | 2.5N/250g | Blue | EACH | £2.11 |
| BME 030 020 | 5N/500g | Green | EACH | £2.11 |
| BME 030 030 | 10N/1kg | Beige | EACH | £1.97 |
| BME 030 040 | 20N/2kg | Red | EACH | £2.11 |
| BME 030 050 | 30N/3kg | White | EACH | £1.98 |
| BME 030 060 | 50N/5kg | Yellow | EACH | £2.11 |
| BME 030 070 | Set of All 6 Balances | | SET6 | £7.64 |



Push/Pull Spring Balances

The unique design of the Push/Pull Spring Balances means that they not only weigh suspended objects but in addition, using the extended rod, can also measure the force of pushing or pulling an object. They are colour coded, calibrated in grams and Newtons and have a clear flat area on the rod so you can, using a dry wipe marker, create your own scales. An instruction and ideas sheet is included.

| Cat No. | Newtons / Grams | Colour | Quantity | Price |
|--------------------|-----------------------|--------|----------|---------------|
| BME 120 010 | 2.5N/250g | Blue | EACH | £4.11 |
| BME 120 020 | 5N/500g | Green | EACH | £4.11 |
| BME 120 030 | 10N/1kg | Beige | EACH | £4.11 |
| BME 120 050 | 30N/3kg | White | EACH | £4.11 |
| BME 120 070 | Set of All 4 Balances | | SET4 | £22.65 |

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Hooke's Law, Multiple Spring

This apparatus provides a robust and convenient method of verifying Hooke's Law. Unlike many other versions this apparatus is designed to allow students to investigate single springs and spring combinations in both series and parallel. The apparatus gives sensible single spring readings using only 100g. The apparatus is supplied with a robust hanger and pointer, Hooke's Law rule and 3 springs. (Clamp stand, boss and masses required but not included.)

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XMC 475 010 | Hooke's Law, Multiple Spring | EACH | £45.31 |

Hooke's Law Apparatus

This apparatus will demonstrate that the extension of a spring is in direct proportion with the load added to it as long as this load does not exceed the elastic limit. The apparatus consists of an adjustable mirrored scale 15cm long, graduated in mm, mounted on a support rod 30cm long fitted on a base. A hook attached to the rod supports a spring and indicator. Complete with a 50g brass hanger. Slotted weights need to be ordered separately.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XMC 930 030 | Hooke's Law Apparatus | EACH | £15.69 |



Strip Testing Clamps

A pair of strong acrylic clamps which allow strip material to be investigated for breaking strain, stretch etc. The clamps have fixing system and an attachment system which ensures freedom from slip. Typical investigations would include comparison of carrier-bag material strength, newspaper strength including 'grain' stretch of fabrics and plastics etc. The top clamp can be hooked onto a support such as a laboratory clamp and the lower one loaded with standard slotted weights. Suitable for KS3 to Post-16 with full instructions included.

Dimensions: 65 x 50 x 20mm each

Max load: 10kg

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XPS 130 010 | Strip Testing Clamps | EACH | £11.32 |



Wire Testing Clamps

Similar to the strip clamps, these provide a simple and effective clamping system for wires, threads etc. A clamp traps the material between washers and the wire is then routed through guide holes in the clamps. Investigations would include strength and stretch comparisons of sewing threads, fishing lines, ductile wires such as copper, human hair etc. Full instructions included.

Dimensions: 65 x 50 x 20mm each

Max load: 10kg

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XPS 140 010 | Wire Testing Clamps | EACH | £11.32 |



Mechanics

Forces

DATA LOGGING



NEW!

Young's Modulus of Wire Apparatus

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XPS 070 011 | Young's Modulus of Wire | EACH | £38.99 |

BIOLOGY



Extension Springs

With loops at each end for easy attachment. Ideal for the demonstration of Hooke's law. Unextended length of coiled spring 20mm. Weights up to 700g may be applied without distortion. The spring runs out with a 1kg weight.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XPS 050 010 | Extension Springs | PK100 | £10.30 |

CHEMISTRY



Air Zookas

This toy has a serious scientific purpose because it provides a stunning demonstration of vortex formation and transmission. When the toy is 'pumped' a doughnut shaped ring of air (the vortex) is generated and moves outwards at high speed. It has sufficient energy to create a noticeable impact at some distance.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XPG 200 010 | Air Zookas | EACH | £23.41 |

ENVIRONMENTAL SCIENCE



Balloons

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| XPG 010 011 | Round Balloons | PK100 | £7.66 |
| XPG 010 030 | Cylindrical Balloons | PK100 | £6.19 |
| Accessories | | | |
| Cat No. | Description | Quantity | Price |
| XPG 010 020 | Balloon Pump | EACH | £2.84 |

FORENSIC SCIENCE



Pressure Toadstools

A set of 5 clear, square section, acrylic rods ranging from 6 to 15mm in size. Each rod is 10cm long with a securely fastened top platform to support applied loads and the square section design makes area calculations simple. Unlike wooden dowels the acrylic does not absorb water and is far more durable. Supplied in a vacuum-formed tray, which can be used to hold the moist sand during the investigation.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XCA 080 010 | Pressure Toadstools | EACH | £51.49 |

CHEMICALS

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Hardness Tester

The hardness of metals, plastics and many other materials can be reliably tested using this apparatus. The material to be tested is placed in the base and a weight is dropped from a standard height on to a punch. The impact cone diameter is analysed to compare the material's hardness.

Size: 120 x 80 x 520mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XPS 320 010 | Hardness Tester | EACH | £72.00 |



Magic Carpet (Hovercraft)

Magic Carpet

A 115cm diameter MDF base is fitted with a tough vinyl underskirt, non-slip upper surface, sturdy support handles and PVC rim buffer to provide a hovercraft platform which can easily support a student or adult in a 'friction free' environment. The hovercraft can be powered by the High Powered Blower (XDS 170 050) or by a battery powered leaf-blower which has the advantage of no mains cable but limited time, typically 15min max per charge. The High Powered Blower includes all hoses and adaptors required. If the Leaf Blower option is chosen the hose and adaptor pack should be purchased as well.

Magic Carpet Battery Leaf Blower

The Magic Carpet (Hovercraft) can be powered by a portable battery blower to give independence from the mains and more flexibility in applications. This unit comes complete with two rechargeable batteries and mains battery charger. It requires the Accessory Pack if the hose and adaptor from the High Powered Blower are not available. Run time is approximately 10 - 20 minutes per charge.
Dimensions: 200 x 300 x 500mm approx
Mass: 5kg incl. batteries and charger

Magic Carpet Accessory Pack

This pack provides the hose and adaptor required to link the battery powered Leaf Blower (XMC 940 500) to the Magic Carpet Hovercraft.
Dimensions: 3m x 40mm diameter
Mass: 1.2kg



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|----------------|
| XMC 940 020 | Magic Carpet (Hovercraft) | EACH | £226.59 |
| Accessories | | Quantity | Price |
| XMC 940 500 | Magic Carpet Battery Leaf Blower | EACH | £236.89 |
| XDS 170 050 | High Powered Blower | EACH | £141.50 |
| XMC 940 510 | Magic Carpet Accessory Pack | EACH | £28.83 |



Polydron Bridges Class Set

Polydron Bridges will unlock the secrets of bridge building to all of its users. The unique and simple design allows pupils to quickly come to terms with making the most recognisable and world famous bridge constructions that span some of the most famous landmarks on Earth. Comprehensive work cards and lesson plans will challenge your pupils to experiment with their own creations. An excellent addition to the classroom that will inspire engineers of the future on the road to creativity.

- Class set will build all 8 bridges at the same time

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|----------------|
| XMC 600 020 | Polydron Bridges Class Set | SET | £205.99 |



Mechanics

Forces



Pulleys

These pulleys have ball races mounted on a metal frame for smooth running.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XMC 130 010 | Single on 8mm Rod | EACH | £5.92 |
| XMC 130 020 | Single with Hook | EACH | £5.25 |
| XMC 130 030 | Double with 2 Hooks | EACH | £7.76 |
| XMC 130 040 | Double in Tandem with 2 Hooks | EACH | £7.76 |
| XMC 130 050 | Triple in Tandem with 2 Hooks | EACH | £10.43 |



Aluminium Pulleys

Aluminium 50mm diameter pulleys, mounted in a metal frames.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|--------------|
| XMC 220 020 | Single with Hook | EACH | £3.71 |
| XMC 220 050 | Double in Tandem with 2 Hooks | EACH | £5.25 |



Pulley Blocks

A choice of three pulley blocks with sturdy plastic wheel in metal frame.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XMC 010 010 | Single | EACH | £1.03 |
| XMC 010 020 | Double | EACH | £1.39 |
| XMC 010 030 | Triple | EACH | £1.91 |



Bench Clamp Pulley

A light alloy 70mm diameter pulley held in metal bracket, with two clamping screws for bench and rod support respectively. Bracket may be clamped to a bench edge or similar 38mm thick support, screwed to flat surface, or held on 13mm diameter support rod.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XMC 220 070 | Bench Clamp Pulley | EACH | £13.65 |

Cotton Twine

Ideal for pulley projects.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| CMZ 130 010 | Cotton Twine | 125GM | £1.65 |

S Shape Hooks

Length: 38mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XMC 170 010 | S Shape Hooks | PK20 | £4.77 |



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Slotted Brass Masses with Hanger

Each set comes with 1 hanger and 9 masses.



| Cat No. | Complete Set | Hanger | Quantity | Price |
|--------------------|--------------|--------|----------|---------------|
| MAS 030 010 | 100g | 10g | EACH | £14.13 |
| MAS 030 020 | 200g | 20g | EACH | £16.99 |
| MAS 030 030 | 500g | 50g | EACH | £27.99 |
| MAS 030 040 | 1000g | 100g | EACH | £39.99 |

Slotted Brass Masses without Hanger

Slotted brass weight, without hanger. (For hangers see accessories, MAS 020 range).



| Cat No. | Mass | Quantity | Price |
|-----------------------|------|----------|--------------|
| Slotted Masses | | | |
| MAS 010 030 | 5g | EACH | £0.67 |
| MAS 010 040 | 10g | EACH | £1.03 |
| MAS 010 050 | 20g | EACH | £1.13 |
| MAS 010 060 | 50g | EACH | £2.50 |
| MAS 010 070 | 100g | EACH | £2.97 |
| Accessories | | | |
| | Mass | Quantity | Price |
| Hangers | | | |
| MAS 020 010 | 10g | EACH | £2.24 |
| MAS 020 020 | 20g | EACH | £2.60 |
| MAS 020 030 | 50g | EACH | £2.91 |
| MAS 020 040 | 100g | EACH | £4.14 |

Slotted Steel Masses

A low cost set of 9x 100g slotted steel masses and 1x 100g hanger. The masses and hanger are zinc plated. Spare slotted masses and hangers are available.

NB: These masses are not interchangeable with other slotted mass sets.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| MAS 070 010 | Slotted Mass Set | EACH | £15.70 |
| Accessories | | | |
| | Description | Quantity | Price |
| MAS 074 010 | Spare Slotted Masses | PK5 | £8.73 |
| MAS 074 020 | Spare Hangers | PK5 | £8.73 |

Slotted Masses & Hangers

A range of heavy slotted iron masses which interlock onto the 1kg iron hanger. The iron hanger will hold up to 17 slotted iron masses.

NB: These masses are not interchangeable with other slotted mass sets.



| Cat No. | Mass | Quantity | Price |
|-----------------------|-------|----------|---------------|
| Slotted Masses | | | |
| MAS 060 010 | 0.5kg | EACH | £5.97 |
| MAS 060 020 | 1kg | EACH | £10.97 |
| Accessories | | | |
| | Mass | Quantity | Price |
| Hanger | | | |
| MAS 050 010 | 1kg | EACH | £8.90 |

Steel Newton Masses

A range of slotted brass masses and hanger for applying Newton forces.

NB: These masses are not interchangeable with other slotted mass sets.



| Cat No. | Newton Force | Mass | Quantity | Price |
|------------------------------|--------------|-------|----------|---------------|
| Slotted Newton Masses | | | | |
| MAS 090 010 | 1N | 102g | EACH | £2.10 |
| MAS 090 040 | 10N | 1020g | EACH | £7.93 |
| Accessories | | | | |
| | Newton Force | Mass | Quantity | Price |
| Hanger | | | | |
| MAS 080 020 | 10N | 1020g | EACH | £11.10 |



Newton's Apples

Feel the force of 1 Newton and learn about how we measure force. Tough foam apples give a real feeling of what a Newton of force is equal to on Earth! Set includes 6 Newton's Apples and teacher's guide.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| MAS 110 020 | Newton's Apples | PK6 | £41.19 |



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Forces

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Mass Set

A combined set of accurate steel and brass weights supplied in a strong blue moulded tray. For weighing objects from 10g to 1990g in 10g increments.

Contents:

- 1x 1kg
- 1x 500g
- 1x 200g
- 1x 50g
- 1x 20g
- 2x 100g
- 2x 10g

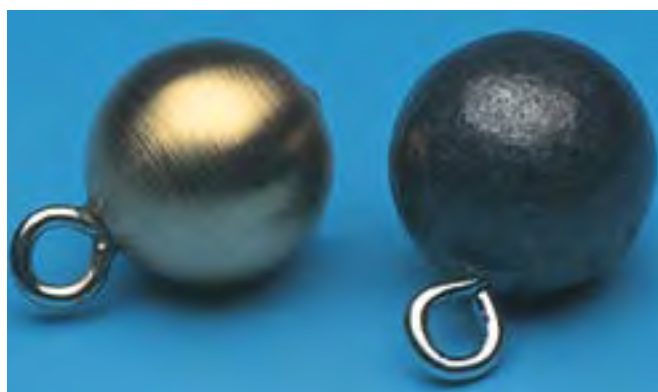
| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BAL 070 010 | Mass Set | EACH | £22.81 |



Hexagonal Masses

Hexagonal iron masses with ring.

| Cat No. | Mass | Quantity | Price |
|--------------------|-------|----------|---------------|
| MAS 040 010 | 100g | EACH | £2.47 |
| MAS 040 020 | 200g | EACH | £3.55 |
| MAS 040 030 | 500g | EACH | £5.97 |
| MAS 040 040 | 1000g | EACH | £10.76 |
| MAS 040 050 | 2000g | EACH | £17.99 |



Plumb Bobs

Approximate dimensions. With open hook.

| Cat No. | Diameter | Metal | Quantity | Price |
|--------------------|----------|-------|----------|---------------|
| XMC 020 010 | 13mm | Lead | PK10 | £8.89 |
| XMC 020 020 | 19mm | Lead | PK5 | £8.89 |
| XMC 020 030 | 25mm | Lead | PK5 | £14.16 |
| XMC 030 010 | 13mm | Brass | PK2 | £2.35 |
| XMC 030 020 | 20mm | Brass | PK2 | £3.71 |
| XMC 030 030 | 25mm | Brass | EACH | £3.06 |

Forces and Movement Posters

Size: 760mm x 520mm



XPP 040 080



XPP 040 090

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XPP 040 080 | Gears | EACH | £3.61 |
| XPP 040 090 | My Bicycle | EACH | £3.61 |



Joule & Watt Meter

Capable of making direct measurement of electrical energy or power supplied to a load and is therefore a valuable tool for pupil based work as well as simplifying many demonstrations. The direct readings mean that the need for voltmeters, ammeters, stop watches and calculators is eliminated and fast and accurate results can be obtained. The science understanding can therefore be gained from scientific investigations rather than mathematical manipulation, making it ideal for pupil based investigations at GCSE, Standard Grade level and A-level in Science and Technology courses.

Its many uses include experiments with an electrical heater, determination of energy stored in a capacitor, calculating the power supplied by a DC source to a resistive load and measurement of the specific latent heat of steam.

The meter is capable of measuring energies from 1mJ to 9999J or power from 1mW to 200W in AC or DC circuits. Two ranges selected by a switch labelled mJ/mW and J/W are available. The auto-ranging four digit display will give direct readings of energy or power. The maximum current input is 10A. All electrical connections are via 4mm sockets.



| | |
|-------------------|---|
| Supply Voltage | 20V DC 14V AC (rms) |
| Input Resistance | 2M ohm (No load) |
| Max Load Current | J/W range - 10A : mJ/mW range - 10mA |
| Max Energies | J range - 9999J : mJ range - 9999mJ |
| Max Power | W range - 200W : mW range - 200mW |
| Accuracy | Typically $\pm 2\%$ of full scale reading |
| Electrical Supply | 220-240V a.c. 50-60Hz 10VA |
| Dimensions | 175 x 190 x 85mm |
| Mass | 1.4kg |

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|---------|
| XEC 240 010 | Joule & Watt Meter | EACH | £204.00 |



SEP Energymeter Starter Pack

This pack consists of an SEP Energymeter, developed to provide a simple low-cost way of measuring energy and power, and the booklet 'Making Energy Real: Using The SEP Energymeter' that includes a wide range of ideas for classroom activities and photocopiable student sheets.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------------|----------|--------|
| XEC 590 010 | SEP Energymeter Starter Pack | EACH | £89.87 |

Energy Kit

This kit provides students with a full range of apparatus for studying energy changes. Lamps, motors, rechargeable battery, capacitor, flywheel, pulleys and temperature detector are all included so that chemical, electrical, thermal, light and mechanical energy can all be interchanged and investigated. Everything is provided including battery pack but a simple multi-meter and set of slotted masses would need to be available. The whole kit is supplied in a Certwood storage tray which fits Certwood or Gratnell racking systems. Complete experiment booklet included.



| Cat No. | Description | Quantity | Price |
|------------------------------------|------------------------|----------|---------|
| XEC 510 010 | Energy Kit | EACH | £160.93 |
| EMM 040 010 | Digital Multimeter | EACH | £9.60 |
| Accessories | | Quantity | Price |
| Slotted Brass Mass Set with Hanger | | | |
| MAS 030 010 | 10g Masses, 100g Total | EACH | £14.13 |



Energy System

A foolproof system for allowing students to investigate the raising of a mechanical load by an electrical input. A small DC electric motor is geared down to rotate a shaft around which a thread is wound. The thread is attached to a load and the students time the lifting process while noting the electrical input to the system. It enables investigations to be carried out into efficiency, energy transfer, power etc. Useful at all levels from KS3 to Post 16. A limit switch automatically stops the motor when the load reaches the top. Supplied complete with detailed instructions for many investigations at many levels. This popular apparatus has been updated. Dimensions: 200 x 90 x 75mm
Ideal for energy efficiency investigations
Suitable for all ages up to and including A-level

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XEC 420 011 | Energy System | EACH | £75.18 |



Air Power Racer

Learn about alternative energies and the power of air. This racer uses air as fuel, and it is fast! The easy-to-assemble kit demonstrates the technology needed to turn air into energy - propulsion via compressed air. The car, when the tank (which is a PET recycled bottle) was completely filled can race up to 50 metres in 35 seconds. Can be used indoors and outdoors, in any weather condition and on a wide variety of terrains. No batteries required. Dimensions: 22 x 16 x 16cm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XEC 210 010 | Air Power Racer | EACH | £44.28 |



Large Motor Generator

A high quality motor used for driving a dynamo, fitted with a 12mm diameter pulley. Electrical connection is via 4mm sockets. The motor operates between 2 and 6V DC. Base dimensions: 146 x 100 x 10mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XEC 010 011 | Large Motor Generator | EACH | £27.19 |



Small Motor Generator

A high quality unit supplied to compare the power output and input against the larger version. The motor is fitted with a 12mm diameter pulley and is operated between 1.5 to 4.5V DC. Base dimensions: 146 x 100 x 10mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XEC 020 011 | Small Motor Generator | EACH | £25.21 |



Spring Unit

To show the conversion of potential energy stored in the twisted bands of rubber into electrical energy. The rubber bands are attached to a fixed point and to a shaft with a pulley supported on pillars. The bands are wound up and when released drive the shaft which in turn drives a generator via a belt and pulley.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XEC 030 011 | Spring Unit | EACH | £31.16 |





Line Shaft Unit

The line shaft is used to show the conversion from electrical energy, via mechanical, to potential energy by winding up a mass on a cord. The falling mass drives the generator and produces the power to light up a lamp showing the reversal of the conversion cycle. Base dimensions: 200 x 100 x 10mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XEC 050 011 | Line Shaft Unit | EACH | £26.50 |

Work and Energy Posters

Size: 760mm x 520mm



XPP 040 100

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XPP 040 100 | Work Poster | EACH | £3.61 |



Demonstration Lead-Acid Battery

Two lead plates contained in a glass, screw-top jar with integral 4mm sockets. The jar can be filled with dilute Sulfuric acid and used in a charge/discharge arrangement to demonstrate the storage of energy in chemical changes. The apparatus includes an empty jar so that by changing over the lids the acid can be securely stored and the plates protected in between uses. Full instructions included together with suggestions for using the system as the basis of an investigation into storage of energy. Supplied without acid.

Dimensions (2 batteries, each with same dimensions): 90 x 100mm (Diameter x Height)

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| XEL 620 170 | Demonstration Lead-Acid Battery | EACH | £36.00 |



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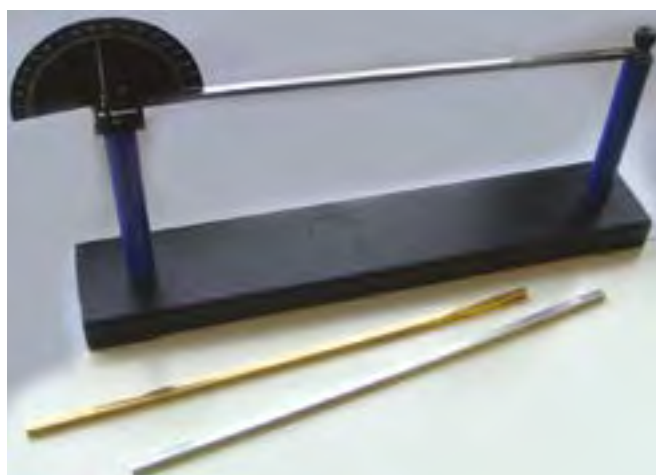
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Linear Expansion Apparatus

This piece of apparatus consists of a solid base with two supports, one of which is fixed whilst the other carries the scale and pivot. Three different types of expansion bar are provided, one each of brass, aluminium and steel, all 360mm long. The end result is a very convincing demonstration of linear expansion of metals when subjected to heat.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| XHE 030 011 | Linear Expansion Apparatus | EACH | £38.96 |



Bar Breaking Apparatus

A heavy cast iron frame with slotted end pillar to carry a thick steel bar. This bar is threaded at one end for a large tensioning nut. It has hole at other end to accommodate a cast iron breaking bar. Supplied with 6 breaking bars.

CAUTION: This instrument can become very hot when being used and will take a long time to cool down. To prevent injury, be careful that a breaking cast iron pin cannot strike an observer. Strictly supervise the heating of the bar, the insertion of the cast iron pins and any adjustments to the heated steel bar.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| XPS 010 010 | Bar Breaking Apparatus | EACH | £20.04 |



Bar & Gauge Apparatus

For demonstrating expansion by heating and contraction by cooling. Comprising a steel rod 110 x 12.5mm mounted on a support bar with wooden handle and a brass gap gauge with handle. The gauge just fits over the bar at room temperature and has two holes which just accept the ends of the bar.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| XPS 020 010 | Bar & Gauge Apparatus | EACH | £10.92 |





Ring & Ball Apparatus

For demonstrating volumetric expansion of metals. Consists of a brass ring with a wooden handle and a 25mm diameter brass ball attached by a chain.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|-------|
| XPS 030 010 | Ring & Ball Apparatus | EACH | £5.28 |



Ring & Ball Apparatus

Two piece set to demonstrate heat expansion. Ring and ball are mounted on separate handles, 200mm long. Supplied with full supporting teacher's notes.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|-------|
| XPS 030 020 | Ring & Ball Apparatus | EACH | £9.84 |



Bi-Metal Strip Kit

A class kit which consists of 10 bi-metal strips measuring 100 x 8 x 0.5mm securely attached to wooden supports, 50 x 35 x 12mm. Students can produce thermostats while revising simple circuit ideas in an excellent investigation. KS3/4.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| XHE 100 020 | Bi-Metal Strip Kit | PK10 | £43.25 |



Compound Bar

This consists of a bi-metallic strip 220 x 18 x 1mm attached to a wooden handle. Gentle heating causes the strip to bend into a pronounced curve demonstrating that different metals expand by different amounts.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XHE 320 050 | Compound Bar | EACH | £20.59 |



Compound Cylinder

A cylindrical brass tube jointed with a wooded cylinder. Dimensions: 200 x 30mm

| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| XHE 180 010 | Compound Cylinder | EACH | £16.58 |



Rivets

| Cat No. | Description | Quantity | Price |
|---------|-------------|----------|-------|
| RI0 10 | Aluminium | 100GM | £2.30 |
| RI0 16 | Brass | 100GM | £2.86 |
| RI0 20 | Copper | 100GM | £2.99 |



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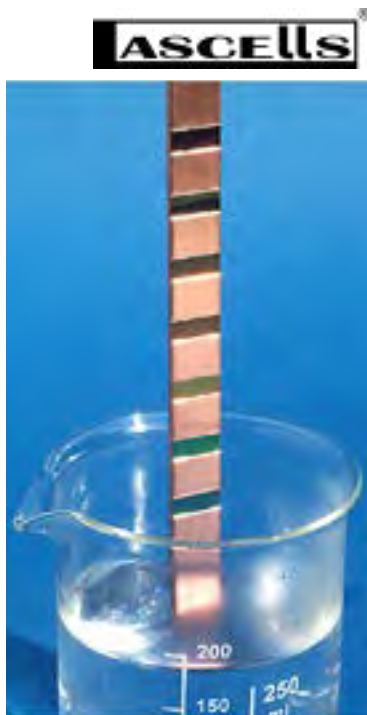
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ThermoSTRIP

- Show heat conduction instantly
- Compare brass and copper (both included)
- Use only hot tap water - no kettles or Bunsen burners needed
- Simple, low cost and fun to use

ThermoSTRIP bars show heat conduction with easy to see inset strips of thermochromic liquid crystal film. The discrete steps make timing easy for comparing the rates for copper and brass. Students can plot two lines on a graph of distance and time to show the difference in conductivity. Instructions included.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XHE 330 010 | ThermoSTRIP | KIT | £23.68 |



Ingenhousz's Apparatus

This is a metal tank (210 x 80 x 75mm) with 5 inlets to accommodate 3mm rods of copper, iron, brass, aluminium and glass, which are mounted in rubber stoppers. Once the rods are coated in paraffin wax, the thermal properties of each rod can be compared. The coefficient of thermal conductivity is a measure of the steady-state rate at which a rod of a given material conducts thermal energy when the two ends of the rod are held at different temperatures. The rate at which a temperature pulse travels down the rod depends on the thermal conductivity, and the reciprocals of the density and the specific heat capacity; this combination is called the diffusivity.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XHE 220 011 | Ingenhousz's Apparatus | EACH | £17.02 |

ASCELLS



FreezeROD

FreezeROD is a device to show conduction from a low temperature to an even lower temperature. It has been designed to stimulate discussion of basic thermodynamics in a memorable way. A salt-ice mix at about -20°C provides the heat sink and causes rapid freezing of water in the reservoir.

- New learning experience
- Focus for discussion
- Promotes understanding
- Instruction sheet included



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XHE 330 030 | FreezeROD | EACH | £9.26 |



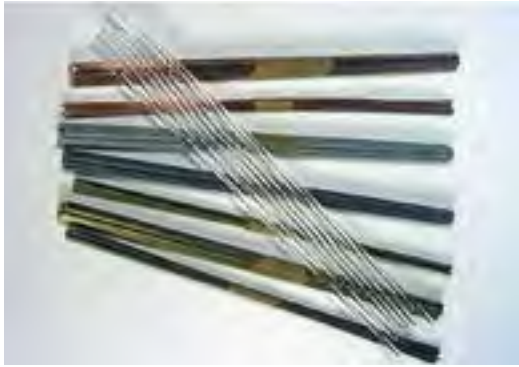
Conductivity Star

For demonstrating the different heat conductivity of five metals by observing the melting of wax. It consists of five rods 75mm x 5mm (LxD) made of aluminium, brass, iron, copper and stainless steel which are fitted radially onto a brass disc approximately 27mm diameter. Each of the rods has a cavity at the outer end for holding paraffin wax. The central disc is joined to an insulated handle by a 125mm long plated steel rod.

The overall length is approximately 320mm.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| XHE 340 010 | Conductivity Star | EACH | £9.97 |





Conductivity Kit

This kit, for the investigation of thermal conductivity in solid materials, consists of eight of each aluminium, iron, copper, brass and borosilicate glass rods, all 3mm diameter x 250mm long; and in addition eight of each copper, brass and iron 1.5mm diameter x 250mm long.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XHE 060 010 | Conductivity Kit | EACH | £41.19 |



Conductivity Rods

Each set contains 3mm diameter x 250mm long rods in copper, brass, aluminium, iron and glass (one of each type).

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| XHE 065 010 | Conductivity Rods | SET | £6.01 |



Conductivity Rods

Packs of 10 rods in either aluminium, copper or iron. Dimensions: 300 x 3mm (Length x Diameter)

| Cat No. | Metal | Quantity | Price |
|--------------------|-----------|----------|--------------|
| XHE 350 010 | Aluminium | PK10 | £6.62 |
| XHE 350 020 | Copper | PK10 | £7.99 |
| XHE 350 030 | Iron | PK10 | £4.79 |



Steam Generator Kettle

A 3 pint kettle with automatic cut-off, design may vary.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XHE 020 010 | Steam Generator Kettle | EACH | £15.44 |

Steam Generator - Copper

Cylindrical copper vessel. Capacity 1.5 litres with riffled side tube and water gauge.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XHE 050 010 | Steam Generator - Copper | EACH | £32.58 |



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Calorimeter Vessels

Spun vessels with rolled rims.

Calorimeter Covers

Hardwood covers with holes for thermometers and stirrers.

NB: Supplied without covers.

| Cat No. | Height | Diameter | Quantity | Price |
|---------------------------|---------------------|----------|----------|--------------|
| Copper | | | | |
| XHE 160 010 | 75mm | 50mm | EACH | £4.41 |
| XHE 160 020 | 100mm | 65mm | EACH | £7.81 |
| XHE 160 030 | 100mm | 90mm | EACH | £9.92 |
| Aluminium | | | | |
| XHE 170 010 | 75mm | 50mm | EACH | £1.03 |
| XHE 170 020 | 100mm | 65mm | EACH | £1.60 |
| XHE 170 030 | 100mm | 90mm | EACH | £1.96 |
| Accessories | | | | |
| Calorimeter Covers | | | | |
| XHE 160 500 | 50mm | | EACH | £1.85 |
| XHE 160 510 | 65mm | | EACH | £1.99 |
| XHE 160 520 | 90mm | | EACH | £2.42 |
| Stirrers | | | | |
| XHE 160 601 | Metal Wire Stirrers | | PK10 | £8.50 |

Calorimeter Insulation Jackets

Thick felt sleeves and a base mat to fit four sizes of calorimeter.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XHE 160 530 | For 50mm Calorimeters | PK5 | £20.59 |
| XHE 160 540 | For 65mm Calorimeters | PK5 | £20.59 |
| XHE 160 545 | For 75mm Calorimeters | PK5 | £20.59 |
| XHE 160 550 | For 90mm Calorimeters | PK5 | £20.59 |

Joule's Calorimeter



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XHE 250 012 | Joule's Calorimeter | EACH | £8.00 |



Calorimeter Blocks

These calorimeter blocks have two holes, one for the immersion heater and one to take a thermometer. Range of brass, copper, steel and aluminium. (1000g ±2%).

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XHE 010 010 | Brass | EACH | £19.50 |
| XHE 010 020 | Copper | EACH | £21.50 |
| XHE 010 030 | Steel | EACH | £6.67 |
| XHE 010 040 | Aluminium | EACH | £14.99 |
| XHE 010 500 | Immersion Heater 12V 50W | EACH | £30.89 |

Immersion Heater

A simple Immersion Heater that is suitable for use with polystyrene cups. The plastic lid has a mounted 2.2Ω heating element which is connected to two standard 4mm jack receptacles. There is also a centre hole for a thermometer.

Diameter: 65mm
Height: 75mm
Mass: 30g



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XHE 240 010 | Immersion Heater | EACH | £14.62 |
| Accessories | | | |
| CMZ 010 010 | Polystyrene Cups | PK500 | £15.86 |



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Joule & Watt Meter

Capable of making direct measurement of electrical energy or power supplied to a load and is therefore a valuable tool for pupil based work as well as simplifying many demonstrations. The direct readings mean that the need for voltmeters, ammeters, stop watches and calculators is eliminated and fast and accurate results can be obtained. The science understanding can therefore be gained from scientific investigations rather than mathematical manipulation, making it ideal for pupil based investigations at GCSE, Standard Grade level and A-level in Science and Technology courses.

Its many uses include experiments with an electrical heater, determination of energy stored in a capacitor, calculating the power supplied by a DC source to a resistive load and measurement of the specific latent heat of steam.

The meter is capable of measuring energies from 1mJ to 9999J or power from 1mW to 200W in AC or DC circuits. Two ranges selected by a switch labelled mJ/mW and J/W are available. The auto-ranging four digit display will give direct readings of energy or power. The maximum current input is 10A. All electrical connections are via 4mm sockets.



| | |
|-------------------|---|
| Supply Voltage | 20V DC 14V AC (rms) |
| Input Resistance | 2M ohm (No load) |
| Max Load Current | J/W range - 10A : mJ/mW range - 10mA |
| Max Energies | J range - 9999J : mJ range - 9999mJ |
| Max Power | W range - 200W : mW range - 200mW |
| Accuracy | Typically $\pm 2\%$ of full scale reading |
| Electrical Supply | 220-240V a.c. 50-60Hz 10VA |
| Dimensions | 175 x 190 x 85mm |
| Mass | 1.4kg |

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|---------|
| XEC 240 010 | Joule & Watt Meter | EACH | £204.00 |



Thermal System

This new approach to measuring Specific Heat Capacity provides a self-contained apparatus to replace the traditional metal blocks and immersion heaters. A 300g brass block (aluminium and steel also available) is mounted on an insulating base with a heating element attached to the underside. The block has a 4mm hole for data-logging probes, thermometer hole and felt insulating jacket. The heater is 30W at 12V and requires a standard laboratory power supply to provide up to 3A. Typical temperature rises are 20°C in 5 minutes providing a convenient investigation for students using thermometers and stopwatches as well as computer based data systems. Full instructions and theory included.

Dimensions: 110 x 90 x 60mm
Mass: 0.4Kg

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| XHE 320 020 | Thermal System - Brass | EACH | £82.39 |
| XHE 320 030 | Thermal System - Aluminium | EACH | £82.39 |
| XHE 320 040 | Thermal System - Steel | EACH | £82.39 |



Ventilation Apparatus

For demonstrating the phenomenon of convection in air and the principle of room ventilation. Consists of an enamelled metal box 20 x 10 x 10cm (L x W x H) having a sliding glass door and two glass chimneys. When a candle is paced under one chimney and a smouldering tape or splint is placed underneath the other chimney, the flow pattern of smoke dramatically illustrates the formation of convection currents. Candles are not supplied.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------------|----------|--------|
| XHE 190 010 | Ventilation Apparatus | EACH | £14.44 |
| XHE 190 500 | Chimney for Ventilation Apparatus | EACH | £1.60 |
| BRN 100 011 | Night Lights | PK50 | £4.11 |





Convection Tube

To show the convection of heat in a liquid. Glass tube, 20mm external diameter shaped into a rectangle 380 x 300mm.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| XHE 200 010 | Convection Tube | EACH | £12.15 |



Radiant Heat Source

This safe mains radiant heat source has been tested by CLEAPSS and SSERC and meets the highest electrical safety standards. The quartz glass enclosed 300W element provides a safe unidirectional source of infrared radiation. Mains operated with illuminated rocker switch and detachable IEC lead.

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|---------|
| XHE 130 010 | Radiant Heat Source | EACH | £205.99 |



'Leslie's' Radiation Plate

This apparatus allows the demonstration of the dramatic differences in radiated heat from various surfaces. Being electrically heated it is more convenient than some of the more conventional methods involving water or Bunsen flames. The apparatus contains a single aluminium plate divided into 3 different regions: a matt black section, a polished aluminium section and a roughened aluminium section. The plate is heated using a resistive element, ensuring that each section is at the same temperature. Readings of each surface may then be taken using an infrared thermometer (not supplied). Connection to power supply is via 4mm sockets. The plate requires an adjustable 12V DC power supply capable of providing 1A continuously.

- Alternative to Leslie's Cube
- No water required
- Offers excellent results with SciChem Infrared Thermometer (THZ 350 010)

Dimensions: 120 x 140 x 20mm

Mass: 0.2kg

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| XHE 045 010 | 'Leslie's' Radiation Plate | EACH | £46.34 |



Thermistor

This apparatus contains an NTC bead thermistor with a nominal resistance of 4.7kΩ in a glass tube with electrical connection made by means of 4mm sockets. Students from KS3 to Post-16 can carry out practical investigations into the thermistor characteristics. Full instructions and specimen results included.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XHE 230 010 | Thermistor | EACH | £24.71 |





Leslie Cube

The sides of this cube are painted dull black, bright black, white and dull brass.

Size: 75 x 75 x 75mm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XHE 055 011 | Leslie Cube | EACH | £16.95 |

Radiation Cans

Not all colours are created equal. Investigate how colour can influence radiation and absorption.

How to use:

1. Place black and silver containers near each other with thermometers inserted in each
2. Angle a lamp so the light points directly at the sides of both containers
3. Read off temperatures of each, with the light on, then off. Observe and record 10 minutes. The cans are finished with black, white, and silver exteriors, so students can easily determine the effect of surface colour on heat transfer. Set of three 500ml cans with stoppers to accommodate a thermometer. Thermometer supplied separately.



| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------|-------------|--------------|-------|
| XHE 290 011 | Radiation Cans | SET | £9.99 | |
| Accessories | | Description | Quantity | Price |
| THM 200 010 | Economy Thermometer | EACH | £0.82 | |



Radiometer

A partially evacuated bulb with four coloured vanes. Light falling on the vanes cause them to rotate.

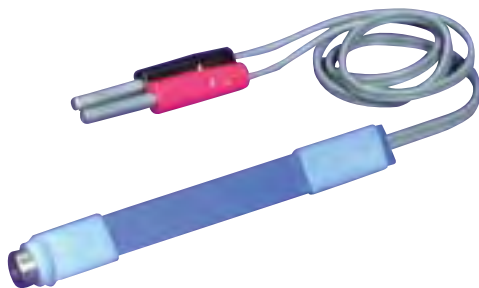
| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XHE 150 010 | Radiometer | EACH | £10.49 |

Heat Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XPP 040 180 | Heat Poster | EACH | £3.35 |



Thermopile

A miniature multi junction thermopile mounted on a 90mm rod with a 500mm cable terminated with red and black 4mm plugs. By using a sensitive galvanometer or digital voltmeter capable of reading to 0.1mV, the differing radiant energies from the surface of a Leslie Cube (XHE 055 011) can be demonstrated. Supplied with instructions.

Dimensions: Rod 90mm with 500mm cable

Mass: 0.03kg

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XHE 090 010 | Thermopile | EACH | £85.83 |



Thermal Physics & Properties of Matter

Fluid & Pressure

SECONDARY



Fluid Pressure Apparatus

To show that pressure in a liquid at rest increases with depth. The apparatus consists of a perspex pipe and 3 equally sized outlets at different heights down one side. The variation in liquid height is easily visible through the clear perspex.

Pipe Dimensions: 400 x 60mm (Height x Dia)

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XPF 010 021 | Fluid Pressure Apparatus | EACH | £24.34 |

Fluid Pressure Apparatus

A simple but most effective method of illustrating how pressure increases with depth. Comprises a length of plastic tubing welded to a solid base with three identical orifices placed at selective depths down the tube.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XPF 010 011 | Fluid Pressure Apparatus | EACH | £22.25 |

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Equality of Pressure in Liquids

Demonstrates that fluid pressure transmits equally in all directions. Comprised of a glass tube with plunger that terminates in a glass bulb (50mm diameter). The bulb contains 6 holes, which are evenly distributed.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| XPF 070 010 | Equality of Pressure in Liquids | EACH | £28.00 |



Liquid Level Apparatus

For showing that liquid levels are independent of shapes of the containing vessel and liquid will rise to the same level in the vessel, regardless of its shape. Consists of a reservoir and three borosilicate glass tubes with the same internal diameter but different shapes. Mounted on a stand.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XPF 030 011 | Liquid Level Apparatus | EACH | £10.64 |

FORENSIC SCIENCE

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Bursting Bottles

Demonstrates the anomalous expansion of water on freezing. Bottles are constructed from cast iron.

Bottle dimensions: 90 x 20mm (Length x Dia.)

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| XPG 020 010 | Bottle with Plug | EACH | £6.68 |

Tornado Tube

Create the effect of a Tornado safely inside a standard drinks bottle using this device. This simple device consists of a plastic collet with a centre hole.

NB: Bottle not included.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XPF 130 010 | Tornado Tube | EACH | £1.99 |



Experimental Cloud Generator

A dramatic demonstration of cloud formation and temperature change with pressure change. Place a few drops of water into the bottle and increase the pressure using the attached hand pump. When the seal is opened the rapid pressure change leads to the formation of a cloud inside the bottle. The temperature change can then be shown on the liquid crystal thermometer included.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|--------------|
| XLM 500 010 | Experimental Cloud Generator | EACH | £9.78 |



Crushing Cylinder
1000ml capacity.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| XPG 030 011 | Crushing Cylinder | EACH | £2.99 |

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Magdeburg Hemispheres

To demonstrate the existence of atmospheric pressure. Fitted with handles and a stopcock. Made from brass and nickel.

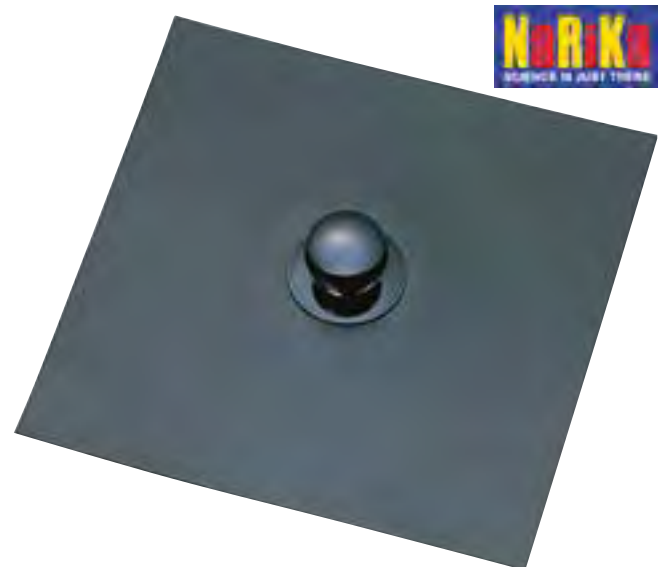
| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| XPG 170 010 | 62mm | EACH | £39.66 |



Magdeburg Hemispheres

An alternative to traditional magdeburg hemispheres, made from black rubber.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| XPG 160 011 | Magdeburg Hemispheres | PR | £8.23 |



Atmospheric Mat

Atmospheric pressure applies evenly onto surfaces. The purpose of this product is to make students aware of atmospheric pressure. It is easy to use, when you put the rubber mat onto a smooth surface (such as a table, chair etc.) and try to lift it up, it is very hard, because atmospheric pressure is pushing the mat. On the other hand, sliding the mat is not difficult. When lifting a corner of the mat, the mat may be lifted easily because atmospheric pressure does not have big effect at the corner which has a small area. After the corner is lifted once, air goes under the mat and the pressure equalises on the face and underside of the mat.

Size: 300 x 300 x 3mm

Knob diameter: approx. 30mm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XPG 150 010 | Rubber Mat for Air Lifting | EACH | £27.00 |

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Charles' Law Apparatus

The apparatus is designed to demonstrate the way in which the volume of a fixed mass of gas is directly proportional to the absolute temperature provided the pressure remains constant. The apparatus consists of Joly's apparatus which is mounted on an anodised stand. The scale is on traditional boxwood and marked in mm. Spring clips secure a glass air reservoir and adjustments are made using a vertical clamping rod. The system comes complete with a mercury levelling tube and a Joly air thermometer.

- Large size for clarity
- Simple to use

Please Note: Mercury is not included with this item.



| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| XPG 080 011 | Charles' Law Apparatus | EACH | £79.31 |



Bourdon Gauge

A circular gauge having overall dia. of 100 mm and a depth of 40 mm. The dial reads 0-2.5 kg/cm² dia about 100 mm. An actual working gauge is mounted in our specially designed transparent polycarbonate case so the actual working parts are visible.

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| XPG 195 011 | Bourdon Gauge | EACH | £56.60 |



Charles' Law Tube

A capillary tube calibrated in cm and mm, sealed at one end. A mercury bead is inserted into the tube which is then heated in a water bath to investigate temperature/volume for the enclosed air column. Readings can be taken directly from the tube without the need for attached rulers or elastic bands. Supplied with full instructions. Size: 300 x 8mm diameter

Please Note: Supplied without mercury

| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|-------|
| XPG 210 010 | Charles' Law Tube | EACH | £9.26 |

Mounted Manometer

For measuring the pressure of gases. Suitable for moderate pressures. Consists of a borosilicate glass U-tube, diameter 25mm and 30cm high, open at both ends. Has one riffled arm for easy connection to rubber tubing. Mounted on a wooden board fixed on a metal stand. A metric scale is fitted between the arms of the tube. It is recommended to use coloured water for greater visibility in a lecture hall.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| XPG 240 010 | Mounted Manometer | EACH | £29.87 |



Digital Boyle-Mariotte's Law Apparatus

The Digital Boyle-Mariotte Law Apparatus provides a self contained, reliable and simple way of demonstrating Boyle-Mariotte's Law. The volume may be reduced or increased by means of a 2.5ml syringe connected to a digital pressure sensor. The sensor output is calibrated to display the pressure in kPa on the easy to read LCD display. There is a measurable change in pressure for every 0.1ml change in volume allowing many data points to be taken and a graph plotted to confirm Boyle's Law. For demonstration purposes two 4mm sockets are provided to allow the pressure reading to be displayed on a large demonstration voltmeter meter (not supplied) and a length of tubing is provided to allow a larger syringe to be used if necessary. Supplied with full instructions and one 9V PP3 battery.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|----------------|
| XPG 300 010 | Digital Boyle-Mariotte Law Apparatus | EACH | £113.29 |
| Accessories | | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |

Digital Joly Bulb

- High Sensitivity
- SI Unit readout
- Reliable Data

Visually and effectively demonstrate the relationship between temperature and pressure with this new Joly Bulb. The Digital Joly Bulb is the perfect alternative to the traditional bulb and analogue gauge, pressures can be read directly from the built in digital display and the apparatus is sensitive enough to register an increase in pressure when the bulb is held gently in the hand. By submerging the 60mm bulb in water at different temperatures the relationship between temperature and pressure may be demonstrated and the digital readout allows a quantitative investigation to be carried out if required.

For demonstration purposes two 4mm sockets are provided to allow the pressure reading to be displayed on a large demonstration voltmeter (not supplied).

Supplied with 9V PP3 Battery and full instructions.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|----------------|
| XPG 290 012 | Digital Joly Bulb | EACH | £113.29 |
| Accessories | | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |

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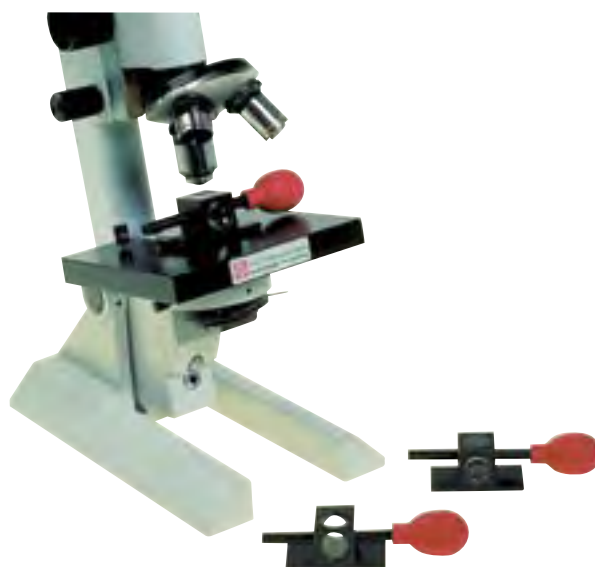


Fire Syringe

This fire syringe demonstrates the rise in temperature when a fixed mass of gas is compressed. A portion of tinder supported inside a transparent cylinder is ignited when the contained air is compressed by a hand operated syringe. You can also demonstrate the need for oxygen to support combustion by attempting to re-ignite a piece of tinder. It will only occur if the syringe is completely removed from the cylinder and a supply of fresh air introduced. A cloud can be formed in the cylinder by having compressed the air inside it, allowing a sudden decompression. The reduction in pressure lowers the temperature and immediately condenses the water vapour inside the cylinder. This can be seen quite easily but is often mistaken for smoke given the combustion that has already taken place.



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XPG 180 011 | Fire Syringe | EACH | £20.59 |



Brownian Movement Apparatus

For observation of Brownian movements of smoke through a microscope. The apparatus is supplied with a convex lens, condensing the light to the viewing point. The smoke is sucked into the chamber by means of a rubber teat.

Dimensions: 100 x 25 x 24 mm height

NB: Does not fit with the 136/145/146 series of BMS microscopes. An external light source will be required.

Microscope not included in purchase price.

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| XPG 140 010 | Apparatus | EACH | £60.01 |
| XPG 140 020 | Apparatus (Laser Light) | EACH | £79.20 |

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Thermal Physics & Properties of Matter

Modelling A Gas

Solid Materials Kit

A selection of materials in the form of rectangular blocks to familiarise students with the appearance, feel, texture, hardness and density of a range of common substances. Replacement/Spare blocks are also available.

Contents:

- 2x Aluminium, 5 x 4 x 3cm
- 2x Aluminium, 5 x 5 x 8cm
- 2x Aluminium, 2 x 2 x 10cm
- 2x Hardwood, 5 x 4 x 3cm
- 2x Hardwood, 5 x 5 x 20cm
- 2x Iron, 4 x 4 x 2cm
- 2x Iron, 5 x 4 x 3cm
- 2x Softwood, 2 x 2 x 10cm
- 2x Softwood, 5 x 4 x 3cm
- 2x Brass, 5 x 2 x 2cm
- 2x Glass, 2 x 2 x 10cm
- 2x Lead, 5 x 5 x 2cm
- 2x Marble, 2 x 2 x 10cm
- 2x Paraffin wax, 5 x 4 x 3cm
- 2x Perspex, 2 x 2 x 10cm
- 2x Foam polystyrene, 5 x 4 x 3cm
- 2x Slate, 2 x 2 x 10cm



| Cat No. | Dimensions | Description | Quantity | Price |
|--------------------|-----------------|---------------------|----------|----------------|
| XPS 060 011 | 20 x 20 x 100mm | Solid Materials Kit | EACH | £178.45 |
| Accessories | | | | |
| XPS 064 150 | 20 x 20 x 100mm | Aluminium | PK4 | £19.99 |
| XPS 064 080 | 50 x 40 x 30mm | Aluminium | PK4 | £29.77 |
| XPS 064 010 | 20 x 20 x 50mm | Brass | PK4 | £30.49 |
| XPS 064 130 | 20 x 20 x 100mm | Glass | EACH | £3.99 |
| XPS 064 060 | 50 x 40 x 30mm | Hardwood | PK8 | £13.32 |
| XPS 064 110 | 50 x 50 x 200mm | Hardwood | PK8 | £32.84 |
| XPS 064 020 | 40 x 40 x 20mm | Iron | PK4 | £17.64 |
| XPS 064 090 | 50 x 40 x 30mm | Iron | PK4 | £26.86 |
| XPS 064 040 | 50 x 50 x 20mm | Lead | PK4 | £35.62 |
| XPS 064 070 | 50 x 50 x 20mm | Paraffin Wax | PK8 | £15.48 |
| XPS 064 120 | 20 x 20 x 100mm | Perspex | PK8 | £14.45 |
| XPS 064 100 | 50 x 40 x 30mm | Polystyrene | PK24 | £40.12 |
| XPS 064 140 | 20 x 20 x 100mm | Slate | PK8 | £17.80 |
| XPS 064 160 | 20 x 20 x 100mm | Softwood | PK8 | £9.79 |
| XPS 064 050 | 50 x 40 x 30mm | Softwood | PK8 | £13.32 |





Displacement Vessels

Aluminium displacement vessels (Eureka cans) with spouts.

| Cat No. | Description | Dimensions (Height x Dia.) | Quantity | Price |
|-------------|-------------|-------------------------------|----------|--------|
| XPF 020 010 | Small | 100 x 50mm | EACH | £3.49 |
| XPF 020 020 | Large | 180 x 110mm | EACH | £10.42 |

Matter Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|-------|
| XCP 030 060 | Density of Matter | EACH | £3.61 |



Density Cubes

A wooden box containing twelve 20mm cubes of different materials to enable students to compare masses and calculate densities.

Contents:

- Copper
- Iron
- Tin
- Acrylic
- Cork
- Softwood
- Brass
- Aluminium
- Zinc
- Lead
- Polythene
- Hardwood

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| XPS 410 010 | Density Cubes | PACK | £30.28 |



Metal Cube Sets

A set of 7 metal cubes. Two sizes available.

Contents:

- Aluminium
- Lead
- Brass
- Zinc
- Copper
- Tin
- Iron

| Cat No. | Approx. Size | Quantity | Price |
|-------------|--------------|----------|--------|
| XPS 110 010 | 20mm Cubes | SET7 | £26.11 |
| XPS 110 020 | 10mm Cubes | SET7 | £8.60 |

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Lever and Pendulum Set

This set includes a lever unit, a pendulum unit, weights, and a steel stand. The lever unit has numbered holes on it to hook weights, while the pendulum unit has a semi-circular protractor for measuring angle of pendulum as well as an adjusting knob to adjust the length of thread. With the lever unit, students can carry out "Motion of Force" experiments such as the correlation between fulcrum point and point of effort/load. With the pendulum unit, students can carry out "Pendulum motion" experiments such as finding the correlation between the length of thread with weight and the cycle, as well as energy conversion of potential/kinetic energy.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XLM 200 500 | Lever & Pendulum Set | EACH | £157.52 |



Double Compound Pendulum

This apparatus provides a dramatic demonstration of physical pendulum behaviour. For small amplitudes of oscillation the pendulum exhibits predictable behaviour; however, for large amplitudes the motion is chaotic. Students will be amazed at the apparent random oscillation and that the motion is different every time. In addition the apparatus may be locked in two positions giving two different length physical pendula. The variation in period between the physical pendulum and an approximated simple pendulum can be demonstrated. From the given data of mass distribution the centre of oscillation may be determined and therefore a value for g may be found.

Dimensions: 270 x 45 x 30mm folded

Dimensions: 460 x 45 x 30mm unfolded (excluding mounting handle)

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XMC 520 010 | Double Compound Pendulum | EACH | £43.25 |



Barton's Pendulums

Barton's Pendulums is a well known resonance effect but usually difficult to set up and store. This apparatus stores flat and can be quickly unfolded to show the resonance between similar length pendulums. Once the demonstration is over it can be closed up again to safely store the pendulum arrangement until required again.

Dimensions: 350 x 300 x 60mm

Mass: 1.4kg

- Observe resonance in coupled pendulums
- Fold away or set up for use in seconds

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XWV 800 010 | Barton's Pendulums | EACH | £72.00 |



Inertia Balance Kit

For measuring inertial masses and qualitatively understanding the terms mass and weight. This principle can be used to determine mass under weightless conditions in space flight. The apparatus consists of two aluminium trays joined together by a pair of spring steel strips attached to their sides. The trays are about 200mm apart. One of the trays (the oscillating tray) is drilled to hold three equal cylindrical masses and the other tray acting as an anchorage is clamped to the bench. Supplied with 3 masses and a cord (does not include bench clamp).

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XMC 930 010 | Inertia Balance Kit | EACH | £16.38 |



Optical Bench Kit

Optical Bench Pipe with supporting feet. Joint link in black-anodised aluminium with graduation for coupling of the optical bench to the extension section.

Contents:

- 6x Riders
- Bulb holder
- Candle holder
- Plain glass
- Lens DCX f.l. 20cm
- Lens DCC f.l. 15cm
- Lens DCX f.l. 50cm
- Slit arrow
- 2x Lens holders, round disc
- Slide holder (can also be used as a lens holder)



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| XOP 180 012 | Optical Bench Kit | EACH | £166.72 |

Optical Bench Pair

An optical set designed to be used with standard metre rules (not included). Each box contains two full sets. The set allows students to easily perform quantitative optical investigations using convex lenses. Students can investigate focal lengths of convex lenses, calculate magnification and project real images on a screen.

Each box contains:

- 4x Lens holders
- 2x Screens
- 2x Objects (Triangular with gauze allows inversion and magnification to be easily seen)
- 6x Lenses (2 off 50mm, 100mm and 200mm)

3 LED Object for Optical Bench Pair

This apparatus is an optional extra for the Optical Bench Pair (XOP 170 010). It replaces the object screen in the box and removes the need for a bench lamp. Three bright orange LEDs allow magnification and inversion experiments to be easily carried out without the necessity of a blackout.

Dimensions: 70 x 100 x 50mm including foot



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| XOP 170 010 | Optical Bench Pair | EACH | £113.29 |
| Accessories | | Quantity | Price |
| XOP 170 500 | 3 LED Object | EACH | £28.83 |

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Optical Bench

A stable optical bench, offering a convenient way of carrying out optical experiments as well as different experiments with radioactive sources. The bench is made of black-anodised aluminium and equipped with a ruler on the side.

Supplied with the following standard equipment:

- 2 sliding saddles (XOP 560 500) with 10mm diameter hole for fixing various equipment

Dimensions: Total length 100cm, Cross section 26 x 82mm.

Sliding Saddle

For fixing of optical equipment with maximum 10mm diameter fixing rod. Made of black-anodised aluminium with thumb screw and measuring line.

Dimensions: 35 x 50 x 84mm.



XOP 560 010

XOP 560 500

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|---------|
| XOP 560 010 | Optical Bench | EACH | £195.00 |
| Accessories | Description | Quantity | Price |
| XOP 560 500 | Sliding Saddle | EACH | £29.30 |



Light Source

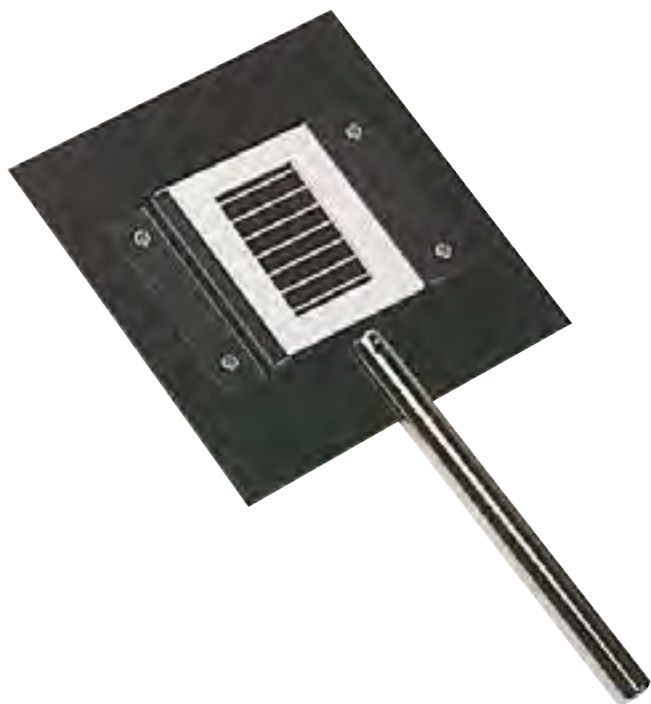
A brilliant parallel beam of light, ideal for many types of optical experiments and demonstrations. It has focusing adjustment and the filament lamp can be adjusted horizontally by turning the handle for focusing. Equipped with socket for 50 and 100W halogen lamp (supplied with 50W lamp) and two-pole line filament lamp 35W. Power supply 12V. Supplied without base, but has a 10mm diameter fixing rod.

Length: 270mm

Height inc. fixing rod: 165mm

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|---------|
| XOP 560 630 | Light Source | EACH | £278.81 |

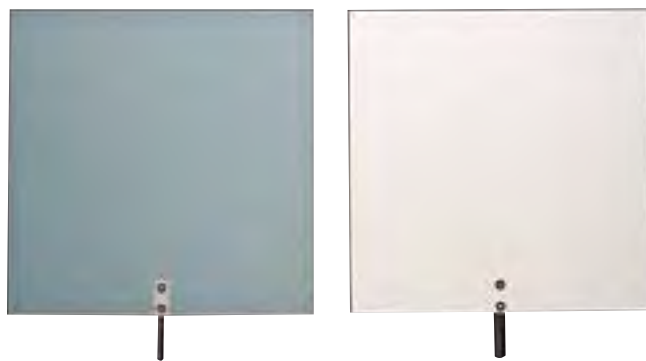




Slits & Filter Holder

Designed to accept slits and filters etc.
50mm square by a maximum of 3.5mm thickness.
100 x 100mm plastic guard with 10mm diameter fixing rod.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| XOP 560 600 | Slits & Filter Holder | EACH | £32.35 |



Screens

Dimensions: 250 x 250mm (H x W), with 10mm fixing rod.
In laminated plastic with white surface.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XOP 560 670 | White Screen | EACH | £29.62 |



Lens & Slide Holder

A versatile holder made to fix slides max. 50 x 50mm and 50mm diameter lenses. 2 spring loaded clips allow you to fix slides and max. 16mm thick lenses. Supplied with a 10mm diameter steel rod for fixing in an optical bench etc.
Overall length: 170mm
Net weight: 130g

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| XOP 560 590 | Lens & Slide Holder | EACH | £30.19 |

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Pinhole Camera Set

For investigation of basic image production. Each 'Camera' is constructed from a durable, black PVC square-section tube, which can stand repeated use and storage while leaving the students scope to construct the rest of the system. A black paper square is taped across one end and a pinhole made with a standard optical pin. At the other end a frosted screen can be taped in a similar way to view the image. Unlike cardboard systems the tape can easily be removed and the kit restored for other students to use. The kit comes complete with 10 tubes, black paper and frosted plastic film. Requires a bright light source.

Dimensions: 80 x 200mm

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XOP 580 010 | Pinhole Camera Set | EACH | £56.64 |

Ray Box

Useful for studies of fundamental principles of optics using the ray tracing technique. Comprising a well painted, die-cast metal box with an enclosure that houses the electric bulb for use as a light-source in the experiments. Open front of the bulb enclosure with holes all around the bulb holder and extended side-fins on the outside of the enclosure assist in the heat dissipation of the bulb. Integral side-rails are provided with a set of vertical grooves on the inner side for accommodating various 45mm wide mountings such as slit plate and cylindrical lens. The 12V bulb with vertical straight filament is mounted in an SBC bulb holder with a two core flexible connecting lead terminating in a pair of 4mm banana plugs for connecting it to a low voltage AC power source. Additional slots permit the mounting of other accessories or components such as colour filters for added experiments in ray optics. Supplied complete with slit plate, double ended single/triple but without collimating lens.

Note: Please ensure that when ordering replacement bulbs, the correct fitting is used.



OPT 060 011

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------|-------------|---------------|-------|
| OPT 060 011 | Ray Box | EACH | £10.29 | |
| Accessories | | Description | Quantity | Price |
| OPT 090 500 | Spare Slit for Ray Box | EACH | £0.74 | |



LED Ray box

- Voltage protected
- Super bright
- Low temperature

A classic ray box for ray tracing in optics experiments. The light source is a high intensity white LED which runs at low temperature. Ships with removable slit plate and lens to provide one or three parallel rays. The unit will operate at constant intensity from either a DC lab supply or plug top power adaptor in the range of 9 to 30V. A set of six primary and secondary colour filters are available as an accessory.

Input Voltage: Minimum 9V DC

Dimensions (L x W x H): 190 x 58 x 52mm

Supplied with:

- Slit plates
- Lens
- Full instructions

| Cat No. | Description | Quantity | Price | |
|--------------------|-------------------|-------------|---------------|-------|
| OPT 030 011 | LED Ray Box | EACH | £50.31 | |
| Accessories | | Description | Quantity | Price |
| OPT 030 500 | Spare Slit Plates | PK2 | £8.88 | |
| OPT 030 510 | Colour Filter Set | PK | £8.47 | |





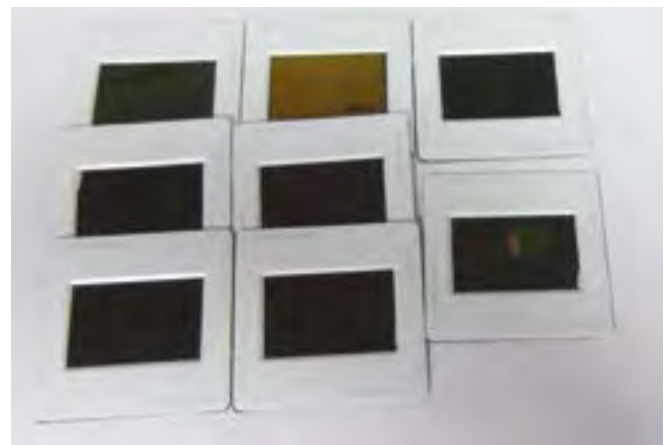
LED Ray Box

This economical LED ray optics box, housed in a traditional die cast enclosure, delivers white light rays but runs much cooler than conventional incandescent lamp models. It uses the latest cool ultra bright LED technology giving a superior white light. Supplied complete with slit plate and its own power source.

Features:

- Ultra cool temperature
- Long life LED
- Rays are more continuous and of uniform intensity

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------|-------------|---------------|-------|
| OPT 090 010 | LED Ray Box | EACH | £12.35 | |
| Accessories | | Description | Quantity | Price |
| OPT 090 500 | Spare Slit for Ray Box | EACH | £0.74 | |



Economy Raybox Filters

Eight colour filters, mounted in a plastic frame 50 x 50mm: Green, Blue, Cyan, Violet, Magenta, Red, Yellow, Colour Mixing.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| XOP 996 010 | Economy Raybox Filters | SET8 | £5.99 |



LED Light Box & Optical Set

Comprehensive light and optics set which includes a 3 beam Ray Box (each beam available in dual colours - white or red) and an array of lenses and prisms, teacher's notes and 9 pupil work cards. The set is an ideal accompaniment to any study of light and optics with experiments to show refraction and reflection through various shaped prisms and lenses, the splitting of light into the rainbow colours, how internal reflection is used in fibre optic cables and the appropriate lenses to use to correct long and short sightedness.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| XOP 192 010 | LED Light Box & Optical Set | EACH | £92.70 |



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Ray Box Kit

This light box consists of a 12V vertical filament bulb, fitted in a holder through the top of the box. A cylindrical, concave lens, which can create divergent, convergent, or parallel rays, as required, is suspended in front of the bulb and can be moved to-and-fro for focus and fixed in position by a tightening screw on top of the box. The other end of the box has a triple aperture system. Hinged windows along the sides of the box have a mirror surface on their insides, useful for colour-mixing experiments. All windows in the box have vertical channels inside and outside to hold slit plates and colour filters. A 1.5m electric cord with banana plugs is included. Matte black finish. With instructions. Box size: 16.5 x 7 x 6cm (LxWxH)

Optical accessories set for light box (included):

- 5 Perspex blocks, free of optical imperfections and sharp edges: 1 rectangle, 1 triangle 60°-60°-60°, 1 triangle 90°-60° 30°, 1 triangle 90°-45°-45° and 1 semicircle
- 3 Perspex, cylindrical lenses: 1 double convex, 1 double concave, both with same radius of curvature; and 1 thick double convex
- 3 mirrors, freestanding: 1 plane (mounted), 1 semicircular metallic, and 1 parabolic
- 2 slit plates, metal, matte-black: one with three narrow slits at one end, and one narrow slit at the other; the other with four narrow slits at one end, and one wider slit at the other
- 8 colour filters, mounted: 3 primary and 5 secondary colours
- 8 colour cards, mounted
- Spare bulb, 12V



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XOP 200 011 | Ray Box Kit | EACH | £69.99 |

RayZer Lightbox (The 21st Century Ray Box)

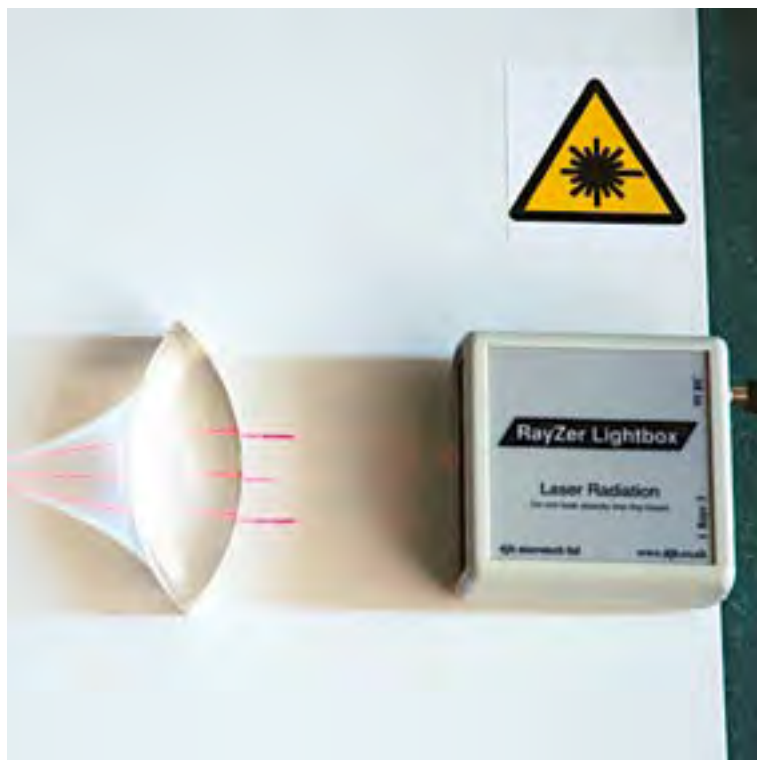
Bring modern technology into your classroom with this ray box for the 21st century.

This unit is for studying ray optics. It contains 3 laser diode modules. The power of each diode is less than 1mW and the wavelength is 650nm

- The RayZer is supplied with a plugtop power supply and is mounted on a white plastic baseboard. The beams may be switched between one and three
- Paper can be placed on top of the baseboard and the rays traced. The unit can be used with a 9V PP3 type battery and our battery connector
- Classroom management is eased as no blackout is required to operate the RayZer
- When the RayZer is switched to one beam and a diffraction grating is placed in the path of the beam the wavelength of the laser light can be calculated
- The RayZer has been tested for safety and it is class 2 to the current versions of IEC 60825-1 and BS EN 60825-1

Lens & Prism Set

This set of lenses, prisms and mirrors is intended for use with the RayZer Lightbox (XOP 610 011). The plastic lenses are 15mm thick. The base of each lens has been treated so that the passage of the beam can be clearly seen inside the plastic. The two plane mirrors enable reflection to be studied and parabolic mirror is for demonstrating the focusing of the three parallel rays - this set should enable basic school optics to be studied.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XOP 610 011 | RayZer Lightbox | EACH | £99.00 |
| Accessories | | Quantity | Price |
| XOP 610 500 | Lens & Prism Set | EACH | £54.53 |





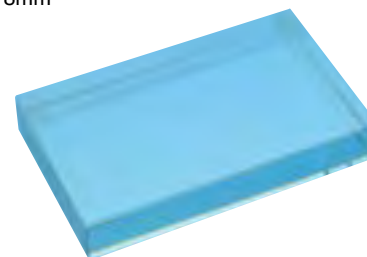
Acrylic Prisms & Lenses Boxed Sets

The prisms and lenses in these attractively boxed sets are manufactured from high quality optical grade acrylic, precision engineered and hand polished for a high degree of accuracy.

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| XOP 380 010 | Acrylic Prisms & Lenses | SET7 | £51.74 |
| XOP 390 010 | Acrylic Prisms & Lenses | SET10 | £54.41 |

Rectangular Glass Block

For refraction experiments. Polished on all sides with slightly bevelled edges and free from bubbles. Dimensions: 114 x 62 x 18mm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|-------|
| XOP 030 010 | Rectangular Glass Block | EACH | £6.44 |

Acrylic Blocks, Prisms & Lenses

Manufactured from high quality, optically pure cast acrylic, precision engineered and hand polished for a high degree of accuracy. 25mm thick, unless otherwise stated.



| Cat No. | Shape | Dimensions | Quantity | Price |
|---------------|------------------------|-------------------|----------|-------|
| Blocks | | | | |
| XOP 350 010 | Rectangle | 75 x 50mm | EACH | £4.83 |
| XOP 350 020 | Rectangle | 100 x 45mm | EACH | £4.83 |
| XOP 350 030 | Equilateral Triangle | 75mm Sides | EACH | £4.83 |
| XOP 350 040 | Equilateral Triangle | 57mm Sides | EACH | £4.83 |
| XOP 350 050 | Isosceles Triangle 90° | 71mm Hypotenuse | EACH | £4.83 |
| XOP 350 060 | Scalene Triangle 90° | 78mm Hypotenuse | EACH | £4.83 |
| XOP 350 070 | Semicircle | 75mm Dia. | EACH | £4.83 |
| Prisms | | | | |
| XOP 360 010 | Equilateral Triangle | 25mm Sides | EACH | £2.65 |
| XOP 360 020 | Isosceles Triangle 90° | 53mm Hypotenuse * | EACH | £2.78 |
| XOP 360 030 | Scalene Triangle 90° | 50mm Hypotenuse * | EACH | £6.11 |
| Lenses | | | | |
| XOP 370 010 | Plano Convex | 75mm | EACH | £5.99 |
| XOP 370 020 | Biconvex | 75mm | EACH | £5.90 |
| XOP 370 030 | Plano Concave | 75mm | EACH | £5.90 |
| XOP 370 040 | Biconcave | 75mm | EACH | £5.90 |

* 38mm Thick

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Giant Prisms

Ideal for both experimentation and demonstration. They are precision engineered from optical grade acrylic and expertly polished. 25mm thick.



| Cat No. | Shape | Size | Quantity | Price |
|--------------------|----------------------|-------------------|----------|---------------|
| XOP 400 010 | Equilateral Triangle | 180 x 180 x 180mm | EACH | £16.76 |
| XOP 400 020 | Isosceles Triangle | 180mm Hypotenuse | EACH | £16.76 |
| XOP 400 030 | Rectangle | 180 x 125 x 25mm | EACH | £18.99 |

Glass Prisms

Non optically worked, with polished faces and negligible bubbles.



| Cat No. | Shape | Size | Quantity | Price |
|--------------------|-----------------------|-----------|----------|--------------|
| XOP 120 010 | Equilateral Triangle | 37 x 37mm | EACH | £3.30 |
| XOP 120 020 | Equilateral Triangle | 50 x 50mm | EACH | £4.97 |
| XOP 130 010 | Right Angled Triangle | 37 x 37mm | EACH | £3.71 |
| XOP 130 020 | Right Angled Triangle | 50 x 50mm | EACH | £3.66 |

Internal Reflection Demonstrator

An S-shaped acrylic bar 220 x 15 x 15mm, which can be used to demonstrate total internal reflection and help students to understand the principles of optical communications. The bottom of the bar is painted white to aid visibility.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|---------------|
| XOP 480 011 | Internal Reflection Demonstrator | EACH | £27.00 |



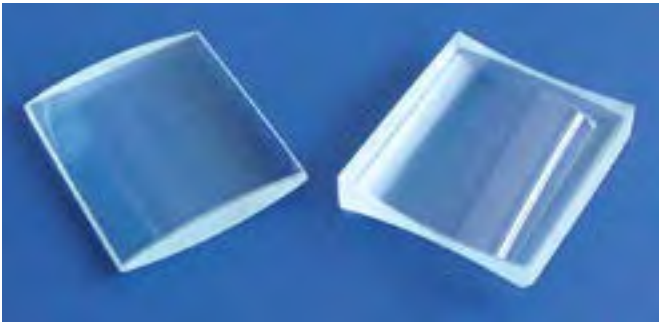
Glass Biconvex Lenses

| Cat No. | Focal Length | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XOP 070 010 | 50mm | EACH | £2.88 |
| XOP 070 020 | 100mm | EACH | £1.44 |
| XOP 070 030 | 120mm | EACH | £1.44 |
| XOP 070 040 | 150mm | EACH | £1.34 |
| XOP 070 050 | 200mm | EACH | £1.13 |
| XOP 070 060 | 250mm | EACH | £1.13 |
| XOP 070 070 | 300mm | EACH | £1.13 |
| XOP 070 080 | 50mm | EACH | £1.61 |
| XOP 070 090 | 100mm | EACH | £0.90 |
| XOP 070 100 | 150mm | EACH | £0.90 |
| XOP 070 110 | 200mm | EACH | £0.90 |
| XOP 070 120 | 300mm | EACH | £0.90 |
| XOP 070 130 | 500mm | EACH | £0.90 |
| XOP 070 140 | 1000mm | EACH | £0.90 |

Glass Biconcave Lenses

| Cat No. | Focal Length | Quantity | Price |
|----------------------|--------------|----------|--------------|
| 50mm Diameter | | | |
| XOP 060 010 | 50mm | EACH | £3.60 |
| XOP 060 020 | 100mm | EACH | £1.96 |
| XOP 060 030 | 120mm | EACH | £1.96 |
| XOP 060 040 | 150mm | EACH | £0.88 |
| XOP 060 050 | 200mm | EACH | £1.13 |
| XOP 060 060 | 250mm | EACH | £1.13 |
| XOP 060 070 | 300mm | EACH | £1.13 |
| XOP 060 090 | 1000mm | EACH | £1.13 |
| 38mm Diameter | | | |
| XOP 060 100 | 50mm | EACH | £3.27 |
| XOP 060 110 | 100mm | EACH | £1.21 |
| XOP 060 120 | 150mm | EACH | £0.99 |
| XOP 060 130 | 200mm | EACH | £0.99 |





Cylindrical Lenses

Suitable for use with ray boxes.

| Cat No. | Shape | Focal Length | Quantity | Price |
|--------------------|-----------|--------------|----------|---------------|
| XOP 080 010 | Biconvex | 50mm | EACH | £13.46 |
| XOP 080 020 | Biconvex | 67mm | EACH | £12.29 |
| XOP 080 030 | Biconvex | 133mm | EACH | £13.46 |
| XOP 080 040 | Biconcave | 50mm | EACH | £13.46 |
| XOP 080 060 | Biconcave | 133mm | EACH | £13.46 |



Meniscus Lenses

| Cat No. | Diameter | Dioptre | Quantity | Price |
|--------------------|----------|---------|----------|--------------|
| XOP 910 020 | 50mm | 8 | EACH | £5.43 |
| XOP 910 050 | 50mm | -3 | EACH | £5.43 |

Wooden Lens Holder

Mounted on a base with a slot to accommodate lenses up to 75mm diameter.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| XOP 060 500 | Wooden Lens Holder | EACH | £2.64 |



Adjustable Wooden Lens Holder

Can hold lenses up to 75mm diameter.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|--------------|
| XOP 060 510 | Adjustable Wooden Lens Holder | EACH | £3.78 |



Photo Detector

This broad sensitivity detector provides a simple solution to show that the electro-magnetic spectrum extends either side of the visible. The detector area is only 1mm diameter so that it can be passed through the visible spectrum produced by a projector and prism. The output is monitored on a multimeter and gives measurable readings from 300nm to 1000nm demonstrating the presence of invisible UV and IR. The high sensitivity and linear response make the unit ideal for a whole range of investigations such as how much light is reflected from different papers etc. Requires 9V battery (held inside the case) and multimeter with 200mV scale or similar (not included). Supplied with full instructions. KS3 to Post-16.

- Will demonstrate presence of UV and IR in a spectrum produced by a prism
- Ideal for reflection and absorption experiments due to the linear response

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XOP 855 011 | Photo Detector | EACH | £59.99 |



Waves

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Pins for Optical Experiments

| Cat No. | Description | Length | Quantity | Price |
|-------------|-------------|--------|----------|-------|
| XOP 630 011 | Brass Pins | 40mm | PK100 | £6.21 |
| XOP 630 020 | Iron Pins | 40mm | PK100 | £2.71 |
| XOP 630 030 | Iron Pins | 75mm | PACK | £5.15 |

LED Light Source

This apparatus has been updated to simplify the construction and provide improved performance at reduced cost. The unit provides a robust high intensity light source which replaces a lamp and illuminated object in ray optics experiments. Three, bright orange LEDs allow magnification and inversion experiments to be easily carried out without needing a blackout.

Dimensions: 70 x 120 x 20mm incl. handle
Mass: 0.03kg

NB: Lenses, holders and screen are not included.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| XOP 865 011 | LED Light Source | EACH | £35.00 |

Plane Mirror Strips

Glass plane mirrors in various sizes.

Mirror Support Blocks

45 x 45 x 35mm softwood blocks with a 3mm slot for supporting plane mirrors vertically.



| Cat No. | Size | Quantity | Price |
|-------------|-----------------------|----------|--------|
| XOP 110 010 | 75 x 25mm | PK10 | £4.12 |
| XOP 040 500 | 75 x 50mm | PK10 | £13.38 |
| XOP 110 020 | 75 x 75mm | PK10 | £5.81 |
| XOP 110 030 | 100 x 25mm | PK10 | £4.97 |
| XOP 110 040 | 150 x 50mm | PK10 | £9.75 |
| XOP 110 050 | 150 x 150mm | EACH | £2.78 |
| Accessories | Size | Quantity | Price |
| XOP 110 500 | Mirror Support Blocks | PK10 | £17.50 |

Optics Screen

A 120 x 175mm white screen on a simple base for use in lens investigations where a real image is projected on to a screen.



| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|-------|
| XOP 110 510 | Optics Screen | EACH | £6.17 |



Optics Board

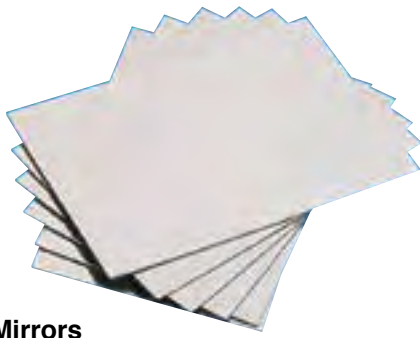
9mm fibre board bonded to an MDF backing sheet for optics work.

The fibre board takes optical pins for ray tracing etc.

- Produce ray diagrams with ease
- Ideal for refraction, reflection and lens work

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XOP 930 010 | Optics Board | EACH | £18.53 |





Plastic Mirrors

Single-sided, optically excellent plastic mirrors. Simply score the surface with a sharp edge or cutting knife and bend to render to the required size. They are covered with a peel off protective film to keep them clean and blemish free. Ideal for reflective symmetry, light experiments or in model making.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XOP 490 010 | 210 x 300mm | PK10 | £26.78 |
| XOP 490 020 | 100 x 150mm | PK10 | £7.20 |



Glass Mirrors

Optically worked, unmounted, silver backed with protective coating. 50mm diameter.

| Cat No. | Shape | Focal Length | Quantity | Price |
|--------------------|---------|--------------|----------|--------------|
| XOP 090 010 | Concave | 100mm | EACH | £1.31 |
| XOP 090 020 | Concave | 200mm | EACH | £1.72 |
| XOP 100 010 | Convex | 100mm | EACH | £1.72 |
| XOP 100 020 | Convex | 200mm | EACH | £1.33 |



Unbreakable Plastic Mirrors

High quality mirror finish, protected with a film. These mirrors can be bent or cut with scissors. They are available in double sided, single sided self-adhesive and concave/convex versions.

| Cat No. | Size | Shape | Quantity | Price |
|--------------------|-------------|--------------------|----------|--------------|
| XOP 310 020 | 150 x 100mm | Double Sided Plane | PK10 | £6.18 |
| XOP 310 050 | 100 x 100mm | Concave/Convex | PK10 | £7.73 |



Cylindrical Mirrors

Semi-circular mirrors, stainless steel.
Size: 170mm x 25mm (Diameter x Height)

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XOP 570 010 | Cylindrical Mirrors | PK4 | £35.20 |



Kaleidoscope Kit

An effective and entertaining self-assembly kit ideal for the demonstration of the properties of light. The assembled kaleidoscopes contain no internal objects and can be used to view the surroundings to great effect. Alternatively a number of colourful marks made on thin paper can be observed and rotation of the kaleidoscope leads to a more traditional pattern.

Supplied with:

- 10 pre-scored cardboard nets
- 30 acrylic mirror pieces
- Full instructions

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XOP 820 010 | Kaleidoscope Kit | PK10 | £24.71 |



Periscope Kit

A simple yet entertaining self-assembly kit to teach and reinforce the laws of reflection.

Supplied with:

- 30 pre-scored cardboard nets
- 60 acrylic mirror squares
- Full instructions

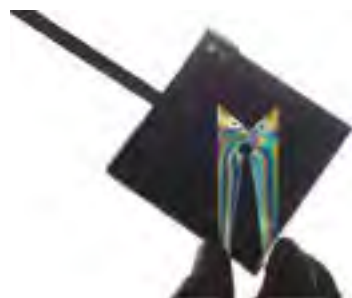
| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XOP 810 010 | Periscope Kit | PK30 | £23.68 |



Waves

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Polaroid Analyser

This simple apparatus allows students to experience the ideas behind polarisation stress analysis. The equipment consists of a pair of crossed Polaroid sheets on a support bar with handle, so that specimens can be inserted and rotated between the sheets. Each Polaroid is nearly 1mm thick and is formed from a semi-rigid plastic with a working area of 55 x 70mm. Two special transparent polycarbonate shapes are included, which allow stress patterns to be demonstrated when forces are applied to a structure. Additional material is available to enable teachers to construct their own structures for analysis. The system also demonstrates pressing stresses in such objects as protractors and rulers. With suitable projection equipment the images can be displayed on a screen for whole class viewing or a class set enables students to see the effects for themselves.

- Hands on demonstration of the uses of polarisation
- Analyse areas of weakness in stressed plastics

Stress Structure Set

A set of four additional shapes for use with the Polaroid Analyser (XOP 590 010) and a sheet of material 200 x 200 x 2mm from which other shapes may be cut.

- Different shapes for use with the Polaroid Analyser
- Uncut sheet allows teachers and students to design and test their own shapes

| Cat No. | Description | Quantity | Price | |
|--------------------|----------------------|-------------|---------------|-------|
| XOP 590 010 | Polaroid Analyser | EACH | £22.61 | |
| Accessories | | Description | Quantity | Price |
| XOP 590 500 | Stress Structure Set | PK4 | £24.70 | |

Polarimeter

Polarimetry is a rewarding field of study in any Post-16 course to explore the applications of polarised light. This student polarimeter uses a mono-chromatic yellow LED light source and simplified construction to make the topic available for study in any laboratory. A 10cm long specimen tube contains the sugar solution under test and this is placed in the body of the apparatus above the polariser and light source. The lid contains the second polariser and has a scale on the outer edge so that as it is rotated the position for extinction can be found for different solution concentrations and the angle of rotation recorded. Full instructions included with everything supplied except the DC power supply (up to 10V) and the sugar!

- Demonstrate the effect concentration of solution on the rotation of polarised light
- Ideal for quantitative investigations into polarisation



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| XOP 870 010 | Polarimeter | EACH | £101.96 |



Polaroid Squares

A pair of rigid plastic Polaroid squares measuring 50 x 50mm each for use in polarised light investigations.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XOP 050 010 | Polaroid Squares | PR | £15.24 |



Malus's Law

Students can investigate the relationship between the proportion of transmitted light and the angle of rotation of two polarising filters. A graduated cartridge containing two polarising filters allows students to observe the change in intensity as they are rotated relative to one another. The analyser allows quantitative readings to be taken using a voltmeter at five degree intervals as the polarising filters are rotated from minimum to maximum transmission. The output from the analyser changes linearly with light intensity and so the resulting data can be used to verify Malus's Law.

- Allows quantitative verification of Malus's Law
- Complete resources available

| Cat No. | Description | Quantity | Price | |
|--------------------|-----------------------|-------------|---------------|-------|
| XOP 150 011 | Malus's Law | EACH | £80.33 | |
| Accessories | | Description | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 | |



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Colour Filters Set

Flexible acetate transmission filter material suitable for making slides for colour mixing experiments or any work involving coloured light. Each pack contains seven A5 pieces: primary red, primary blue, primary green, magenta, cyan, yellow and neutral density. The neutral density material gives 50% light transmission with no colour change.

Dimensions: 210 x 150mm

Weight: 0.1kg

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| XOP 995 010 | Colour Filters | PK7 | £9.48 |

Colour Filters

Gel filters with transmissions peaking at the primary and secondary colour wavelengths. For use in colour absorption, reflection etc. with ray boxes and projectors. Active area 34 x 23mm. Gels mounted in standard glass projector slide mounts. XOP 995 081 is a neutral density filter which reduces the intensity of light without affecting the colour profile of the light.



| Cat No. | Colour | Quantity | Price |
|-------------|---------|----------|-------|
| XOP 995 021 | Green | EACH | £6.17 |
| XOP 995 031 | Red | EACH | £6.17 |
| XOP 995 041 | Blue | EACH | £6.17 |
| XOP 995 051 | Yellow | EACH | £6.17 |
| XOP 995 061 | Magenta | EACH | £6.17 |
| XOP 995 071 | Cyan | EACH | £6.17 |



Coloured Acetate Sheets

High quality A4 sized coloured acetate sheet in five bright colours.

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|-------|
| XOP 300 010 | Coloured Acetate Sheets | PK5 | £7.21 |



Colour Paddles

Transparent 150mm paddles in 3 primary colours and 3 secondary colours with 3 textures. An excellent way of demonstrating the tricky concepts of colour mixing hold all the colours together and you get black. Mix red and blue and you get purple. Mix red and yellow and you get orange. Mix blue and yellow and you get green.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| XOP 780 010 | Colour Paddles | PACK | £2.12 |



Colour Wheel (Newton's Disc) & Spinner

A spectrum colour wheel with motorised drive unit for mounting in a laboratory stand. The discrete colours mix when rotated to give a single uniform pale colour demonstrating spectral colours merging to give 'white'. Requires 0-5V variable power supply (not included). Wheel diameter: 20cm

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| XOP 985 010 | Colour Wheel & Spinner | EACH | £56.64 |



Waves

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Colour Mix

Three high power LEDs are used to provide a projection unit which brilliantly demonstrates the mixing of primary red, green and blue to give magenta, cyan, yellow and white. Bright enough for use in subdued lighting with the opal screen supplied or for wall projection in a darkened lab. Supplied with a plug-in low voltage mains supply. Dimensions: 130 x 110 x 100mm, excluding the power unit



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|---------|
| XOP 940 010 | Colour Mix | EACH | £144.19 |

Colour Dot

Modern LED technology and innovative design come together to give you the ultimate in effective and simple colour mixing. Colour Dot has three independently controlled coloured light sources combined on to the same chip. The unit can display the three primary colours separately; they can be mixed in any ratio to give the secondaries, yellow, cyan and magenta and finally combined to give white. Direct vision, no screens or mirrors, just pure brilliant colours bright enough for a whole class and at a sensible price. Fully self-contained running from a PP3 battery. The sliding filter at the front gives crystal clear or diffused colours. Overall size: 100 x 60 x 40mm

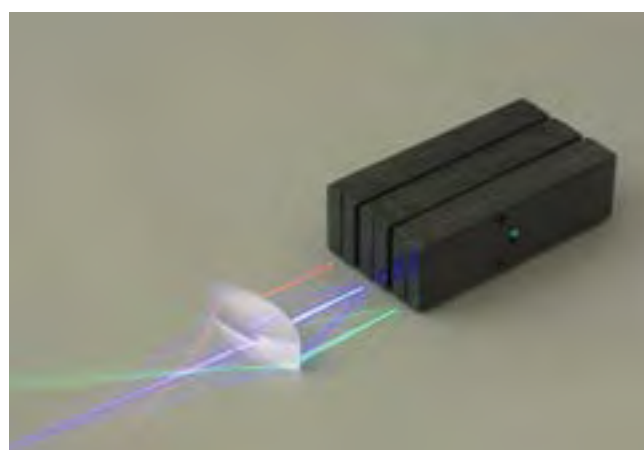


| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XOP 920 010 | Colour Dot | EACH | £61.79 |

3 Colour LED Light Source Set

- Three light source devices with super luminous red, blue, and green LEDs!
 - Removable cover cap! Use all three colours to learn about the composition of light
 - Magnets on the bottom make whiteboard presentations easy!
- Dimensions: 120 x 35 x 20mm
Power source: 2x AA batteries required for each light source (included)

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|-------|
| XOP 680 010 | 3 Colour LED Light Source Set | EACH | £6.70 |



Spectral Tube Holder & Power Supply

This holder makes the use of spectral lamps easier and safer. The spectral lamp is mounted from the front in the insulated holders with electrodes, where the lower holder is spring-loaded parallel to the lamp axis. The holder is provided with a power supply, which can deliver 6 kVDC at max. 2mA to the electrodes built into the base of the insulated holder. Can be used with Spectral Lamps (XOP 510 series) and with many other types of spectral lamps. Dimensions: 78 x 78 x 290mm For 220V AC.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------------|----------|---------|
| XOP 510 010 | Spectral Tube Holder & Power Supply | EACH | £248.85 |

Frederiksen
SCIENTIFIC



Spectral Tubes

Straight pattern, capillary length approximately 70mm. Fitted with 6.5mm diameter contact caps at each end. For observing line and band spectra from various noble and diatomic gasses.

| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| XOP 510 500 | Argon | EACH | £39.98 |
| XOP 510 510 | Hydrogen | EACH | £40.09 |
| XOP 510 520 | Helium | EACH | £39.98 |
| XOP 510 550 | Nitrogen | EACH | £40.08 |
| XOP 510 560 | Neon | EACH | £40.08 |
| XOP 510 570 | Oxygen | EACH | £43.13 |
| XOP 510 590 | Sodium and Helium | EACH | £56.04 |



Economy Spectrum Tube

Economy Spectrum Tube Power Supply Specially designed, economy power supply safely runs spectrum discharge tubes of approximately 260mm length. Encased in a metal body. Spring loaded with clips to connect the tubes securely. Dual voltage capability (110V / 220V) by the flip of a switch! RoHs and CE Certified. With UK adapter plug.

Economy Spectrum Tubes To show spectral lines of pure substances. These are glass tubes approximately 260mm long, central capillary portion approximately 90-100mm long with electrodes sealed at both ends and connected to lead wires protected by metal caps. Requires our Spectrum Tube Power Supply unit (XOP 998 0110) or an induction coil 50mm spark. Length of capillary portion can be varied as required. These can not be used as lamps. For intermittent use only.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------------|----------|----------------|
| XOP 998 010 | Economy Spectrum Tube Power Supply | EACH | £153.14 |
| Accessories | | Quantity | Price |
| Spectrum Tubes | | | |
| XOP 998 510 | Argon | EACH | £20.59 |
| XOP 998 530 | Helium | EACH | £13.96 |
| XOP 998 540 | Hydrogen | EACH | £20.59 |
| XOP 998 570 | Mercury | EACH | £20.59 |
| XOP 998 580 | Neon | EACH | £12.71 |
| XOP 998 590 | Nitrogen | EACH | £20.59 |
| XOP 998 600 | Oxygen | EACH | £20.59 |

Spectroscope

This low cost spectroscope uses a CD or DVD as a reflective diffraction grating and clearly shows Fraunhofer lines in the spectrum from natural light and the distinctive emission bands from artificial light sources. Made from ultra-tough polypropylene, supplied in flat pack form and easy to assemble. Comes complete with a free CD, although any CD or DVD can be used.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| OPT 050 020 | Spectroscope | EACH | £3.77 |

Direct Vision Spectroscope

For quantitative examination of spectral composition of white light, radiant bodies etc. Comprises a metal draw-out tube of 20mm diameter with an adjustable slit at one end. The light passing through this slit falls on the prism elements and break up into a spectrum. This Direct Vision Spectroscope can be viewed through an eye piece at the other end of the tube. Fully drawn-out length is 130mm. Supplied in a wooden box.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| OPT 050 011 | Direct Vision Spectroscope | EACH | £21.64 |

Diffraction Grating Spectroscope

A pocket size diffraction grating spectroscope for viewing the spectral composition of various light sources. The large eyepiece aperture facilitates the easy viewing of a single, large and bright spectrum which is centrally placed in the field of view.

Uses include:

- Fraunhofer lines
- Flame test in chemicals analysis
- Absorption spectra through liquids
- Bright line spectra from discharge tubes

Overall dimensions: 105 x 25mm (Length x Diameter)
Supplied in a rigid box.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|---------------|
| XOP 450 010 | Diffraction Grating Spectroscope | EACH | £72.00 |





Advanced Spectrometer

Consists of a heavy cast base and a pillar for collimator support. The telescope arm moves along a fixed circular plate 150mm diameter graduated in degrees. This plate has a double ended vernier for better and accurate measurements, with at least count of 30. Fine adjustment is accomplished by using a knob while the coarse adjustment can be done by hand. Both the collimator and the telescope are mounted with an axis adjustment system. The telescope has a 10x Ramsden eyepiece and is fitted with a cross hair reticle.

Both the telescope and the collimator are fitted with coated achromatic objectives of 178mm focal length and 32mm diameter. Focusing is done by a concealed rack and pinion. The collimator slit 6mm long, is specially designed for retention of initial accuracy during the life of the instrument. The 75mm diameter prism table is held with the help of a clamping screw enabling the table to be rotated in any direction. It has lines and concentric rings marked to assist positioning of prism in relation to levelling screws. It is fitted with a diffraction grating holder of aperture 25mm x 25mm and a clamp for holding prisms up to 38mm high.

| Cat No. | Description | Quantity | Price | |
|--------------------|-----------------------------|-------------|----------------|-------|
| XOP 535 011 | Advanced Spectrometer | EACH | £306.47 | |
| Accessories | | Description | Quantity | Price |
| XOP 535 501 | Prism Crown Glass | EACH | £18.85 | |
| XOP 535 521 | Diffraction Grating Replica | EACH | £27.43 | |
| XOP 535 581 | Diffraction Grating | EACH | £26.16 | |



Spectral Source

This unique unit has been specially developed to provide a varied range of light sources for examination by spectrometers. Various monochromatic LEDs are available together with a full set of transmission filters which can be used with the tungsten filament lamp. Compare yellow filter with yellow LED; examine the wavelength distribution from a white LED; compare clear envelope and red envelope LEDs; examine the band spectrum from a tungsten filament at various brightnesses etc. Requires a 12V DC power supply. Connection via 4mm leads or 2.1mm centre positive jack.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| SPE 410 011 | Spectral Source | EACH | £64.88 |



Dual Colour Laser

- <1mW Output Power
- Dual Colour
- Internal Modulation

Display two different colour diffraction patterns simultaneously. The Lascells semiconductor laser contains two independently controlled laser diodes, one at the standard 650nm red and a second at 532nm green. Both lasers may be simultaneously passed through a double slit slide and both diffraction patterns may be displayed one above the other for an immediate comparison. The unit is equipped with internal 1 MHz modulation which when used in conjunction with the laser receiver and an oscilloscope allows the speed of light to be determined in the laboratory. In addition, the facility to modulate the laser from an external source is provided allowing audio to be sent to the receiver from a smartphone or mp3 player. The apparatus is switched using a removable key which prevents unauthorised use and is supplied with a 9V power supply and full instructions.



Supplied with:

- 9V Power Supply
- Full instructions

| | |
|-------------------------------|---|
| Laser Wavelength | Red: 650 +/- 5nm Green: 532 +/- 5nm |
| Modulation | 1MHz internal, audio frequencies external |
| Output Power | <1mW max |
| Input Voltage | External 9V DC +ve pin (Included) |
| Dimensions (L x W x H) | 150 x 110 x 65mm |
| Weight | 390g |

| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|---------|
| XLL 040 010 | Dual Colour Laser | EACH | £236.89 |

Laser Receiver

- Large target area
- Internal Amplifier
- Built in Speaker

A dual purpose receiver designed for use with the Lascells Dual Colour Laser, the unit contains a planar chip photodiode tied to a 1Mhz amplifier for speed of light calculations along with an audio amplifier for demonstrating data transmission using light. The unit is powered by a 9V DC supply (included) and has a built in speaker for audio reception. The amplified audio is also brought out to 4mm sockets on the front panel for observation or connection to a secondary driver such as the Lascells Rubens Tube. When using the receiver for speed of light calculations the audio amplifier is disabled with the signal brought to the front panel only for monitoring using an oscilloscope.



Supplied with:

- 9V Power Supply
- Full instructions

| | |
|-------------------------------|-------------------------------------|
| Frequency Range | 1MHz / Audio frequencies switchable |
| Input Voltage | External 9V DC +ve pin (Included) |
| Dimensions (L x W x H) | 190 x 65 x 110mm |
| Weight | 400g |

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|---------|
| XLL 040 020 | Laser Receiver | EACH | £116.13 |



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630nm Semiconductor Laser

This laser emits an intense monochromatic red beam of wavelength 630-640nm at 0.9mW (Class II operation). Typical beam divergence is approximately 1 millirad. The laser is ideal for the demonstration of the behaviour of light in a visually effective way, reinforcing the practical work carried out by pupils using white light.

It is an essential tool to develop basic understanding of the passage of light through different media, slits etc. The laser beam can be modulated by applying an external digital or analogue waveform to the 3.5mm jack socket on the rear panel. Alternatively the beam can be modulated by the internal generator which produces 0.1µ pulses at approximately 1MHz. This allows speed of light experiments to be easily performed.

The passage of light through light guides and optical fibres can be demonstrated by filling a glass or plastic tube or U-tube with very dilute milk. The growth of laser based communication systems and research into the use of lasers in computers of the future, makes this an essential piece of equipment to bring up-to-date relevance into teaching. The laser is powered by a 6LR61 (PP3) battery or external smoothed and regulated supply, has adjustable focus, no warm up time and has a key operated safety switch. Housed in a robust anodised aluminium case. Supplied with key. Dimensions: 55 x 150 x 65mm Mass: 0.4kg



| | |
|-------------------------------|-------------------------------------|
| Frequency Range | 1MHz / Audio frequencies switchable |
| Input Voltage | External 9V DC +ve pin (Included) |
| Dimensions (L x W x H) | 190 x 65 x 110mm |
| Weight | 400g |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XLL 010 010 | 630nm Semiconductor Laser | EACH | £234.33 |

Multi Function Laser Beam

Multifunction laser capable of emitting a spot beam with vertical adjustment for diffraction experiments, a horizontal beam for the study of wave propagation, or three parallel vertical beams for geometric optical experiments. Equipped with a magnetic base for use on a whiteboard and an input modulation of the laser beam to study information transmission by fibre optics.

NB: This product is meant for geometric optical practicals that are performed 50cm away from the point of source.

- 1 horizontal light beam
- 1 or 3 vertical parallel light beam

Features:

- Wavelength: 650nm
- Power: <1 mW (class II)
- Modulation: TTL signal (5V) with 4mm safety banana plug
- Connector: M6 male thread
- Power Supply: 2 x 1.5 V battery or sector adaptor provided



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| XLL 030 010 | Multi Function Laser Beam | EACH | £91.33 |



Young's Slits

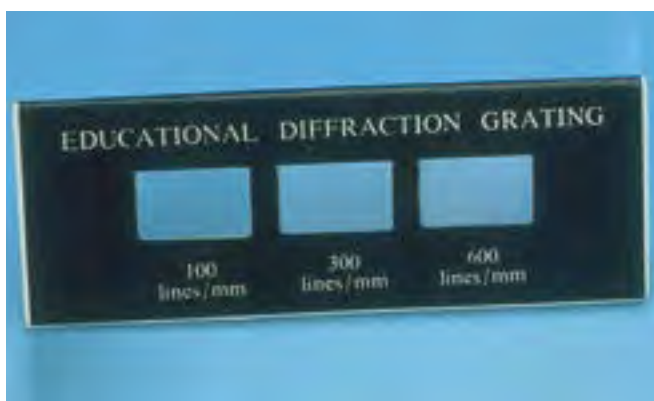
For students tackling the theory of Young's double-slit experiments.

Slide Carrier

A simple acrylic carrier to hold standard slides. 50 x 50 x 2mm such as Young's slits.

| Cat No. | Separation | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| XOP 670 010 | 1mm | EACH | £14.41 |
| XOP 670 020 | 0.1mm | EACH | £14.41 |
| Accessories | | Quantity | Price |
| XOP 670 500 | Slide Carrier for Young's Slits | EACH | £5.14 |





Diffraction Grating Slide Set

Measuring 90mm x 30mm with three different rulings: 100, 300 and 600 lines per millimetre. The ruling apertures are approximately 16mm x 9mm. Excellent for demonstrating the effect of differing line frequencies.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XOP 010 016 | Diffraction Grating Slide Set | EACH | £29.61 |



Diffraction Gratings

These Nuffield physics transmission gratings have the following features:

- Aperture size 35mm x 24mm
- Overall size 50mm x 50mm
- Mounted between two glass plates

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XOP 020 011 | 80 lines/mm | EACH | £24.00 |
| XOP 020 021 | v100 lines/mm | EACH | £18.98 |
| XOP 020 031 | 300 lines/mm | EACH | £24.00 |
| XOP 020 041 | 600 lines/mm | EACH | £24.00 |



Diffraction Kits

Diffraction Kit - 9 Slides

- Six slides of 1 to 6 slits
- Three gratings to match the slits

Diffraction Kit - 18 Slides

- Six slides of 1 to 6 slits
- Three gratings to match the slits
- Diffraction grating 80 lines/mm
- Diffraction grating 300 lines/mm
- Single slit - Tapered
- Double slit - Tapered
- Metal gauze - 300 mesh
- Circular apertures 1.0, 0.60, 1.40, 0.30mm nominal diameter
- Hologram
- 2 Polaroids

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| XOP 020 060 | Diffraction Kit - 9 slides | EACH | £87.54 |
| XOP 020 070 | Diffraction Kit - 18 slides | EACH | £195.69 |



Newton's Rings Apparatus

Newton's Rings are a series of circular bright and dark bands which appear about the point of contact between a glass plate and a convex lens which is pressed against it and illuminated with monochromatic light. This apparatus allows the study of these interference fringes. Consisting of a plano-convex lens, 60mm diameter and an optically polished (worked) flat glass plate mounted on a ring metal pressure frame with 3 compression adjusting screws for the proper centring of concentric circular Newton Rings.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| OPT 040 010 | Newton's Ring Apparatus | EACH | £11.99 |



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LED Stroboscope

The LED Stroboscope is a compact microcontroller timed strobe lamp suitable for prolonged operation. The lamp is a bright 1100lm 20W LED and is separate to the control unit on a 1.2m lead. The lamp can be held in a clamp or positioned on the bench in the most convenient position. Frequencies in the range 0.1 - 500Hz are selectable with 0.1Hz resolution and no decade switches. The flash duration (brightness) can be varied to best suit the application and the facility to 'capture' an external frequency is also provided via the 4mm sockets. Supplied with full instructions and mains plug-top adaptor.

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|-----------------|------|----------|----------------|
| XLM 210 010 | LED Stroboscope | UK | EACH | £163.57 |



Stroboscope Wheel

A simple hand driven model to show students stroboscope principles and effects.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XOP 640 010 | Stroboscope Wheel | EACH | £12.99 |



UV Photo Detector

A sensitive UV photodiode forms the sensor for this simple UV detector suitable for quantitative measurements at UV wavelengths as well as normal visible light. The detector is housed in a 'wand' so that it can be placed inside the UV Test Rig (XWV 630 010). In use the instrument is connected to a standard digital voltmeter which then enables a full range of intensities to be measured. Wavelengths in the range 190nm to 1100nm are covered. Power is from an enclosed 9V PP3 battery. Dimensions: 100 x 60 x 30mm (case) Wand on 500mm lead

- Safely investigate ultraviolet light
- Excellent for use with the UV Test Rig

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XOP 995 100 | UV Photo Detector | EACH | £89.60 |



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Energy Beads

Pearly white beads that will turn into all the colours of the rainbow when taken outside and exposed to ultraviolet light. Take them indoors again and they return to their original colour.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XWV 410 030 | Energy Beads | PK100 | £3.23 |

Ultraviolet Lamp

A robust, lightweight and compact UV lamp. Requires 4 x AA batteries (not included). For safety reasons, do not point UV light towards the face.

Safe Usage Recommendations

PLEASE NOTE: THESE ARE ONLY GENERAL SAFETY GUIDELINES

1. Place the unit at a height that will not allow anybody to look directly at the UV bulb. If this is not possible, then the lamp must be placed 30-40cm away from the eyes
2. It is recommended that the operator does not expose their hands to UV light for more than 90 minutes on a continuous basis

To Change the UV Bulb

PLEASE NOTE: THESE ARE ONLY GENERAL SAFETY GUIDELINES

1. Unplug the unit from the AC mains supply if AC powered
2. Remove covers
3. Replace bulb/tube
4. Put the covers back into place
5. If you have any doubts please use a qualified electrician only

Permanent UV Marker Pen

- Permanent UV ink
- Markings light up under UV light
- Works on most surfaces
- Extra fine tip for easy writing
- Non-toxic ink



UVL 270 010



UVL 270 521

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------------|-------------|--------------|-------|
| UVL 270 010 | Ultraviolet Lamp | EACH | £7.20 | |
| Accessories | | Description | Quantity | Price |
| UVL 270 521 | Permanent UV Marker Pen | EACH | £2.03 | |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 | |



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Fibre Optic System

This set provides a rugged, self-contained system for demonstrating and using a fibre optic communications link. The transmitter offers a choice of modulation - a variable frequency audio tone and a 250 kHz square wave for speed of light investigations. The receiver contains a user variable gain amplifier with integral loudspeaker as well as direct monitoring sockets for an oscilloscope. The system is completed with 5m and 20m sheathed polymer optical fibre coils terminated with clip housings, to mate with the transmitter and receiver units. The wavelength used is in the visible red part of the spectrum and with the modulation set at 1 Hz the pulsing beam can be easily seen so that the fibre optic principle can easily be demonstrated. Full experimental details included. KS4 to Post-16.

- Measure the speed of light
- Demonstrate fibre optic light transmission

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|-----------------|--------------|
| XOP 850 011 | Fibre Optic System | EACH | £247.20 |
| Accessories | Description | Quantity | Price |
| XOP 850 510 | Spare Cable, Length: 5m | EACH | £27.80 |
| XOP 850 500 | Spare Cable, Length: 20m | EACH | £65.96 |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |

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3cm Microwave Apparatus

All self-contained; no external apparatus required or complicated setting up. This complete system provides a rugged set of units to enable students to investigate the wave properties of 10GHz (3cm) microwaves.

Directional Horn Transmitter This utilises a Schottky diode oscillator module feeding a tuned waveguide and horn to give a directional microwave beam. The beam is modulated with a variable frequency audio signal which can be adjusted by the control on the top panel. Power is from a mains plugtop unit (supplied).

Wide Angle Receiver This uses a plate antenna which gives high sensitivity over a broad area. Output is to an internal loudspeaker and power is derived from a mains plug-top unit (supplied). A control allows the user to adjust the sensitivity to cater for different circumstances and distances.

Precision Probe Detector This gives a localised, precision receiver which finds particular application in identifying areas of peak and low amplitude in interference, reflection and refraction experiments. There are two controls, one for sensitivity and the other for volume of output to the internal loudspeaker. Power is from the same type of plug-top supply as used by the receiver unit (above). An additional power supply unit can be supplied if requested.

Accessory Set The set of accessories comprises: 2 metal reflection/diffraction plates with base; Acrylic reflection/transmission plate with base; 1 narrow metal plate to provide 'Young's Slits'.

Microwave Polariser A pair of polarising grills for demonstrating the effects of polarisation with 3cm microwaves (as provided by the Microwave System XWV 600 010/041). Each polariser is constructed from powder coated steel plate and has 6mm slots at 9mm spacings with support handle.

Overall size: (excl. handle) 130 x 120 x 10mm each

Dimensions 150 x 130 x 15 mm

Weight 0.1kg

A working system requires: The Directional Horn Transmitter unit plus the Wide Angle Receiver to do qualitative demonstrations of microwave communications and wave effects such as reflection, absorption, refraction, standing waves and interference. To carry out quantitative measurements the Probe Receiver gives more precise results over a shorter range.

Use all three units to cover all aspects of the topic.



XWV 660 010



XWV 660 020



XWV 660 030

| Cat No. | Description | Plug | Quantity | Price |
|-------------|------------------------------|------|----------|---------|
| XWV 660 010 | Directional Horn Transmitter | UK | EACH | £228.26 |
| XWV 660 020 | Wide Angle Receiver | UK | EACH | £226.59 |
| XWV 660 030 | Precision Probe Detector | UK | EACH | £195.69 |
| XWV 660 041 | Complete Set | UK | SET | £620.00 |
| Accessories | Description | | Quantity | Price |
| XWV 660 500 | Accessory Set | | SET | £59.73 |
| XWV 660 050 | Microwave Polariser | | EACH | £32.95 |



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Modulo 1 (Radio Communications)

This unique device provides a demonstration of Frequency and Amplitude Modulation in radio communications. The unit generates a 10kHz carrier wave and accepts a modulation input from any signal generator source which would be typically in the 500Hz region. A simple switch applies the input to the carrier wave as either FM or AM modulation and the signal may be viewed on any oscilloscope. A miniature microphone is included so that speech modulation of the carrier can be seen. A 12V plug-top power unit is supplied together with full instructions.

Dimensions: 170 x 90 x 50 overall

- Visual demonstration of frequency & amplitude modulation
- Useful for teaching communications



| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---------------------------------|------|----------|---------------|
| XWV 640 011 | Modulo 1 (Radio Communications) | UK | EACH | £92.69 |

The Colour Wheel Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| XPP 040 060 | The Colour Wheel Poster | EACH | £3.61 |

Light Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XPP 040 020 | Light Poster | EACH | £3.61 |

Light Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XPP 040 040 | Light Poster | EACH | £3.61 |

Optics and Light Poster

Size: 760mm x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| XPP 040 030 | Optics and Light Poster | EACH | £3.61 |

Doppler Effect

- Audible Doppler effect!
- Measure the change of frequency of the emitting moving motive
- Measure the speed of sound
- Measure the speed of the motive

All recordings and data processing are performed with the sound card of your computer and free Audacity software.

Contents:

- Bench with scale and release system for the mobile
- 2x microphones protected by a metal case and bound together in stereo with a 3.5mm dia Jack plug
- 2x microphone holders sliding on the bench
- Motive with a sound source of 4080 Hz



| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|---------|
| XWV 020 010 | Doppler Effect | EACH | £135.55 |



Doppler Ball

A 90mm diameter plastic ball with a PP3 battery powered tone generator and speaker contained within. The ball can be safely whirled round in a large horizontal arc to demonstrate the doppler effect. Good output volume and variable tone pitch provide all that is required for a dramatic study of the doppler shift associated with a moving source.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XWV 380 010 | Doppler Ball | EACH | £72.00 |



Loudspeaker Kit

Modern neodymium magnets make the construction of simple loudspeakers an easy and impressive project. This kit is all you need to construct 10 loudspeakers so that students can get real, hands-on experience of how the device works. The set comprises: 10 plastic base mouldings, ten high power magnets, a reel of enamelled copper wire, a crocodile clip to 3.5mm headphone jack connection cable and full instructions. Everything can be reused except the paper circles used by the students to make the 'cone'. Excellent output volume for a transistor radio or signal generator and a real hands on experience at KS3/4.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| XEM 220 010 | Loudspeaker Kit | EACH | £59.73 |



Loudspeaker

Impedance 8Ω power rating 0.5W, in plastic case, with 4mm sockets. Dimensions: 55 x 110 x 22mm
Mass: 0.1kg

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XWV 160 010 | Loudspeaker | EACH | £24.00 |



Loudspeaker

An 8Ω 0.5W, 50mm diameter loudspeaker suitable for a variety of applications at all levels. Connection is via 4mm sockets on a blue acrylic base.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XWV 540 015 | Loudspeaker | EACH | £28.83 |



XWV 540 020

Loudspeakers

Loudspeaker An 8Ω 2W, 60mm diameter loudspeaker suitable for a variety of applications at all levels. Connection is via 4mm sockets on an acrylic base.

Loudspeaker (Electronic Circuits) A 64Ω 0.5W, 60mm dia. loudspeaker particularly suited to electronic circuits. Mounted on an acrylic base with connection via 4mm sockets.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------------|----------|--------|
| XWV 540 020 | Loudspeaker | EACH | £30.89 |
| XWV 540 030 | Loudspeaker (Electronic Circuits) | EACH | £30.89 |



Laboratory Loudspeaker

A quality, high-power (20W RMS 40W peak) 5" loudspeaker on a robust metal base suitable for all laboratory applications. The unit has a stylish, protective metal grille which can be easily removed to give access to the cone when required. Coil impedance is 4Ω and connection is by 4mm sockets.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|--------|
| XWV 750 010 | Laboratory Loudspeaker | EACH | £56.64 |



Microphone

For use with an oscilloscope to demonstrate voice waveform. Crystal microphone mounted in a moulded plastic box with 4mm connection. Impedance: 1M ohm approx
Dimensions: 55 x 110 x 22mm
Mass: 0.1kg

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| XWV 170 010 | Microphone | EACH | £43.97 |



Dynamic Microphone

A dynamic coil microphone giving 20-50mV output with the human voice.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| XWV 540 010 | Dynamic Microphone | EACH | £14.41 |





Tuning Forks

Plain shank.

Tuning Fork Hammer

Wooden shaft with rubber head.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| XWV 070 011 | C 256Hz | EACH | £3.43 |
| XWV 070 021 | D 288Hz | EACH | £3.43 |
| XWV 070 031 | E 320Hz | EACH | £3.43 |
| XWV 070 041 | F 341.3Hz | EACH | £3.43 |
| XWV 070 051 | G 384Hz | EACH | £3.43 |
| XWV 070 061 | A 426.6Hz | EACH | £3.43 |
| XWV 070 071 | B 480Hz | EACH | £3.43 |
| XWV 070 081 | C 512Hz | EACH | £3.43 |
| Accessories | Description | Quantity | Price |
| XWV 070 501 | Tuning Fork Hammer | EACH | £3.43 |



Tuning Forks Set

A set of 13 tuning forks in a case giving a chromatic scale between C256Hz and C512Hz.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XWV 270 011 | Tuning Forks Set | EACH | £62.72 |



Tuning Forks Set

A set of four tuning forks C256Hz, E320Hz, G384Hz and C512Hz. Mounted on single resonance box for the demonstration of a major chord (C Major) when struck together. Supplied with hammer.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XWV 280 011 | Tuning Forks Set | EACH | £39.16 |



Giant Tuning Fork

Large model for demonstration of the movement of a tuning fork. Made of nickel-plated steel. Length: 75cm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XWV 310 011 | Giant Tuning Fork | EACH | £28.00 |



Waves

Sound

SECONDARY



Organ Pipe

A simple organ pipe with a mouthpiece whistle and a sliding piston to vary the length of the pipe. Demonstrates how the frequency of a note changes with pipe length.

Dimensions (with piston closed): 40 x 40 x 350mm

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XWV 240 010 | Organ Pipe | EACH | £12.99 |



Fair Test Tubes

This set comprises 18 tubes in three different lengths and three different diameter tubes, in plastic and copper as required by the C.A.S.E. notes.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XCA 030 010 | Fair Test Tubes | EACH | £22.66 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Pipe Band

A set of eight clear PVC tubes of graded length which when struck provide the musical notes of the middle octave starting at Middle C. Each tube is clearly printed with frequency, wavelength etc. The tubes can be used by a group of students to play well known tunes while learning about the factors controlling the pitch of a note from a resonating pipe. As featured in the Lascells Science Silly Bus Show. Dimensions: From 0.3 to 1.3m x 40mm diameter

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XWV 710 030 | Pipe Band | EACH | £50.46 |



Ultrasonic System

This consists of a self-contained transmitter and receiver operating in the 40 kHz region. The transmitted wave is modulated at a user-controlled variable frequency of about 2kHz and this is detected by the receiver which amplifies the signal and drives a miniature integral loudspeaker. Both transmitter and receiver are contained in separate plastic enclosures 60 x 100 x 25mm which contain all electronics and 9V batteries. The receiver has front panel 4mm sockets so the output can be monitored on an oscilloscope for quantitative measurements. It is ideal for demonstrating sound waves above the hearing threshold and reflection properties associated with sonar etc. A special feature is the second transducer on the transmitter which can be switched in when required to produce two coherent sources. By moving the receiver along a line parallel to the 2 sources interference patterns can be dramatically demonstrated, simplifying Young's slits experiment or enabling it to be demonstrated using waves other than light. Complete with batteries, instructions and suggestions for use.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| XWV 560 011 | Ultrasonic System | EACH | £175.00 |



Sound Level Meter

A multifunction digital meter with an electret condenser microphone giving virtually instant readings updated every 0.5 seconds on an extra large clear hi-contrast LCD display. All function buttons are soft touch non-slip rubber. A & C frequency weighting and 4 measuring ranges, 40-70dB, 60-90dB, 80-110dB, 100-130dB. Supplied with battery and instructions for use. ISO 9000 3 point calibration certificate available, please ask for details.



| | |
|-------------------|---|
| Range | 40-80dB (low range) $\pm 3\%$ to JISdB(A) |
| | 80-120dB (high range) |
| Resolution | 2dB on a clear graduated scale |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XWV 300 010 | Sound Level Meter | EACH | £75.00 |



Sound Poster

Size: 760mm x 520mm

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XPP 040 010 | Sound Poster | EACH | £3.61 |

Speed of Sound Apparatus

- Simple to use
- Direct measurement
- Reliable Data



This is an easy to use piece of apparatus for determining the speed of sound in air by simply measuring the time taken for sound to travel a known distance. The unit contains two sensitive microphones connected by a long cable to control circuitry that will start and stop a Lascells millisecond timer. In use a sharp sound is produced and the time taken to travel the distance between the two microphones is recorded on the timer (not included). A single reading can be used or the separation between the microphones can be varied giving a range of readings which may be plotted on a graph. An alternative approach is to omit the timer and monitor the outputs on a dual channel storage or PC oscilloscope. The apparatus is supplied with a 9V PP3 battery, a 6 metre connecting cable and full instructions. Dimensions (LxWxH): 115 x 70 x 110mm (main unit) 70 x 70 x 110mm (remote microphone)
Weight: 375g



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XWV 120 010 | Speed of Sound Apparatus | EACH | £73.73 |
| Accessories | | | |
| Cat No. | Description | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |



Velocity of Sound Apparatus

This dual purpose apparatus provides a compact facility for the measurement of the velocity of sound in air and also for the analysis of standing waves. It requires an audio signal generator and a dual beam oscilloscope with power being provided by a PP3 9V battery. To make a direct measurement of the speed of sound the sensitive microphone is moved against the scale while noting the two traces on the CRO which gives the time delay between successive waves. The value is found from the measurements of time and distance. With the reflector in place a standing wave can be generated. Nodes and antinodes can easily be seen from the amplitude variations on the CRO.

Dimensions: 500 x 150 x 100mm
Mass: 0.7kg

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| XWV 810 011 | Velocity of Sound Apparatus | EACH | £94.76 |



Waves

Sound

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Shock Rod (Speed of Sound)

This apparatus uses modern piezo sensors to monitor the speed of waves through various materials. The sensors plug into each end of 12mm dia. 50cm long bars and a shock wave is provided by a steel ball falling down an acrylic tube. Signals from the sensors are fed into a PC oscilloscope or suitable datalogging system so that the time delay between outputs can be measured. The wave speeds through aluminium, acrylic and wood can all be investigated and the apparatus comes with full instructions and data. An additional plate is provided so that one of the sensors can be plugged in to form a movement or vibration sensor for use in other applications. No power is required just a PC oscilloscope or datalogger.

Overall Length: 660mm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XWV 620 010 | Shock Rod (Speed of Sound) | EACH | £97.84 |



Space Tube

This unit is an updated version of the Bell in a Bell Jar experiment. It comprises a high amplitude, battery powered piezo sounder enclosed within a clear acrylic tube. The sounder is controlled by switch and has a red LED attached to show that it is on. By inserting the stopper in one end and evacuating the tube using a standard laboratory vacuum pump, the air can be removed and the effect of sound being unable to pass through a vacuum clearly demonstrated. Dimensions: 110 x 90mm (Height x Diameter)

| Cat No. | Description | Quantity | Price | |
|--------------------|-----------------------|-------------|---------------|-------|
| XWV 690 010 | Space Tube | EACH | £53.55 | |
| Accessories | | Description | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 | |



Plastic Bell Jar

A vacuum system, which includes a transparent polycarbonate jar and a polypropylene gasketed vacuum plate. Vacuum plate comes with a tubing adaptor that will fit 6.4mm (ID) tubing.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| BLJ 030 010 | Plastic Bell Jar with Plate | EACH | £133.95 |

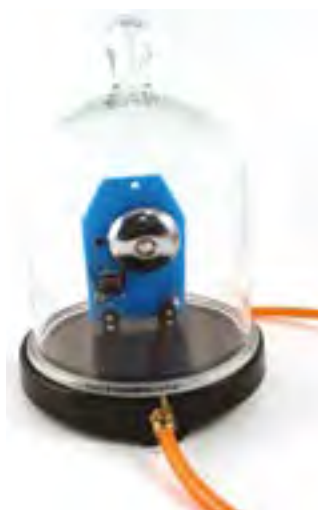




Glass Bell Jars

*Diameter does not include flange.

| Cat No. | Height x Dia. | Quantity | Price |
|-----------------------------------|---------------|----------|---------------|
| With B29 Joint and Stopper | | | |
| BLJ 010 010 | 200 x 150mm | EACH | £49.23 |
| BLJ 010 020 | 250 x 150mm | EACH | £57.64 |
| BLJ 010 030 | 300 x 200mm | EACH | £72.79 |
| With Moulded Knob | | | |
| BLJ 020 010 | 200 x 150mm | EACH | £39.18 |
| BLJ 020 020 | 250 x 150mm | EACH | £38.93 |
| BLJ 020 030 | 300 x 200mm | EACH | £68.00 |



Bell Jar Demo

Our quality bell jar demo is a great tool to discover how sound requires a medium to travel, and other experiments. Includes a glass bell jar, vacuum base plate, gasket, hose, and battery-operated electric bell.

Glass Bell Jar dimensions: 6.5" diameter, 9-3/4" tall (inside dia. 6"-1/4, inside height 8").

Base dimensions: 8" diameter, 1-1/2" height.

Requires 2 AA batteries and a vacuum pump, not included.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| BLJ 040 010 | Bell Jar Demo | EACH | £63.30 |
| Accessories | | | |
| | Description | Quantity | Price |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |

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Waves

General Wave Characteristics

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

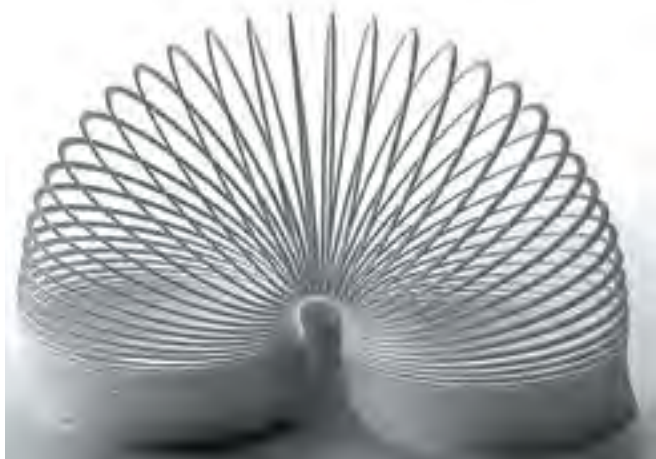
ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Steel Slinky

A steel slinky with helical coil. Closed length, 150 x 75mm diameter.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| XWV 060 010 | Steel Slinky | EACH | £6.17 |



Spiral Spring

Used for demonstrations of transverse oscillations and for producing standing waves.

Unloaded Length: 2 metres

Diameter: 10mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XWV 370 010 | Spiral Spring | EACH | £18.39 |



Plastic Spring Set

A pack of 10 plastic springs ideal for demonstrating wave propagation. Closed dimensions: 17mm diameter by 500mm long approx.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XLM 630 010 | Spring Set | PK10 | £63.00 |



Wave Apparatus

For demonstrating transverse and longitudinal motion.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XWV 390 010 | Wave Apparatus | EACH | £36.62 |



Wave Machine

Used for demonstrating longitudinal and transverse oscillations. It is supplied with a drive shaft with a crank, which acts upon a number of vertical rods as it rotates. Each rod has a white dot marking at the top. The last eight rods are supplied with an angular extension, which makes it possible to observe corresponding longitudinal and transverse waves. A 360° scale is mounted by the turning handle so that the phase angle can be read.
 Dimensions: 48 x 32 x 10cm (LxHxD)
 Mass: 1Kg



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|----------------|
| XWV 350 010 | Wave Machine | EACH | £180.24 |

Vibration Generator

A generator for producing mechanical vibrations when used with a signal generator. The input is fed to a coil, which is mounted within the field of a cylindrical permanent magnet. The unit is electrically secured by means of a fuse.
 Dimensions: 100 x 100 x 120mm



XWV 320 500

XWV 320 010

| | |
|------------------------|---------------|
| Frequency | 0.1 Hz - 5kHz |
| Amplitude | 7mm/1Hz |
| Input Impedance | 8Ω |
| Max. input | 6V / 1A |

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------|-------------|----------------|-------|
| XWV 320 010 | Vibration Generator | EACH | £118.44 | |
| Accessories | | Description | Quantity | Price |
| XWV 320 500 | Piano Wire Loop | EACH | £7.55 | |
| XWV 320 510 | Square Chladni Plate | EACH | £10.55 | |
| XWV 320 520 | Circular Chladni Plate | EACH | £15.80 | |



Digital Signal Generator

Decade free frequency changing is by press button UP and DOWN controls with time sensitive rate of change. Sweep from 0.1 Hz to 100kHz in seconds without the need to change ranges.

Key features:

- Ultra simplicity
- Continuous frequency control from 0.1Hz to 100kHz. This means a full sweep through the audio band with no decade switch to contend with
- Precision waveforms, Sine, Square and Triangle
- High power amplified output for speakers and transducers
- Precision frequency and amplitude display
- High resolution control with fast change selectors. Step resolution 0.1 to 1% of indicated frequency
- 4mm output connections



Input

Frequency Range

Freq. Control Resolution

Output 1

Output 2

Amplitude Control Resolution

Waveforms

Mains plug-top adaptor providing 24V DC

0.1Hz to 100kHz continuous sweep

Between 0.1 and 1% of the indicated value

24V Pk to Pk into 600 ohms for electronics

10V Pk to Pk into 8 ohms for transducers

0.1V

Sine, square and triangle

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|--------------------------|------|----------|----------------|
| XWV 680 010 | Digital Signal Generator | UK | EACH | £244.00 |



Audio Signal Generator

A compact, single range instrument covering 100Hz to 3kHz at 3W output. There is an integral speaker which can be muted when the external speaker sockets are used. CRO connections are provided and there is an amplitude control and waveform select switch (sine and triangular). Battery powered but with provision for an external low voltage supply.

Dimensions: 150 x 90 x 35mm

- Small student signal generator
- Switchable between sine and triangular waveforms

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|----------------|
| XWV 010 011 | Audio Signal Generator | EACH | £123.60 |
| Accessories | | Quantity | Price |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |





Signal Generator

Sine and square wave generator. Frequency range 5Hz to 50kHz in four switched ranges plus a fine control. Accuracy typically $\pm 10\%$. The output amplitude is continuously variable from zero to maximum 8V peak to peak with maximum output power 1W into 8 ohms. The output is taken from two 4mm sockets mounted on the front panel. An illuminated on/off switch is mounted on the rear panel adjacent to a fused IEC mains inlet. Enclosed in a robust metal case with a durable powder coated finish.

| | |
|-------------------|--------------------------|
| Electrical Supply | 220-240V AC 50-60Hz 40VA |
| Dimensions | 175 x 190 x 85mm |
| Mass | 1.4kg |

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|---------|
| XWV 090 010 | Signal Generator | EACH | £127.82 |



Signal Generator & Amplifier

Provides sine, square or triangular waveforms. Frequency selection is by a switched range and continuously variable fine adjustment control. The frequency is displayed on an LED display. Both the low and high impedance outputs are fully protected and will withstand a continuous short circuit without damage. All connections are via pairs of labelled 4mm sockets with one of each pair connected to earth. An illuminated on/off switch is mounted on the rear panel adjacent to a fused IEC mains inlet. Enclosed in a robust metal case with a durable powder coated finish.

| | |
|------------------------|---|
| Frequency Range | 0.1Hz to 100kHz in six decades |
| Accuracy | $\pm 5\%$ on all ranges |
| Waveforms | Sine, square or triangular Square wave rise time 1 μ s approx. Sinewave distortion 1% on all ranges |
| 600 Ω Output | Maximum 10V peak to peak |
| 4 Ω Output | Power output of 4W available over the entire frequency range for all waveforms. Will drive loudspeakers or other low impedance devices of 4 to 15 Ω |
| Amplitude | Continuously variable from zero to maximum output |
| Attenuator | x1, x0.1, x0.01, $\pm 5\%$ operating only on the 600 Ω output |
| Amplifier Voltage Gain | 100 |
| Input impedance | 1M Ω |
| Frequency Response | 1Hz to 100kHz, -3dB |
| Output Power | 4W into 4 Ω load |

| Cat No. | Description | Quantity | Price |
|-------------|------------------------------|----------|---------|
| XWV 080 010 | Signal Generator & Amplifier | EACH | £284.14 |



Compact Ripple Tank

- Self Contained
- Easy Set up
- Saves Time

This compact unit provides an elegant method of demonstrating the wave phenomena of reflection, diffraction, refraction and interference with none of the setting-up problems usually associated with ripple tanks. The concept has been further developed to offer new features and simplicity in this MkIII design. The unit is completely self-contained with the translucent viewing screen hinging away to reveal a 12cm water tank. The tank is removable for ease of use and has an integral multi-faceted beach which virtually eliminates unwanted reflections. Illumination is from a high intensity built-in LED which can be automatically strobed in sync with the waves to give perfectly stationary images, or switched to allow the user independent control of the wave and strobe frequencies giving the impression of wave motion across the viewing screen. The unit is supplied with three robust dippers which can be easily adjusted to suit the depth of water being used. A selection of barriers shapes and lenses are also provided to enable reflection, refraction, diffraction and interference along with the focusing properties of lenses to be demonstrated. All of the accessories can be stored neatly inside the unit when not in use.



Supplied With:

- Plane, single point and twin point dippers
- Two plane barriers and a curved reflector
- A concave, convex and angled refractor
- Low voltage plugtop power supply
- Full instructions

| | |
|--------------------------------|-----------------------|
| Dimensions (L x W x H): | 225 x 170 x 143mm |
| Weight: | 1.07kg |
| Input Voltage: | Regulated 12V DC +pin |
| Current Requirement: | 400mA |
| Strobe Frequency Range: | 30 – 500Hz nominal |

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---------------------|----------|----------|----------------|
| XWV 590 012 | Compact Ripple Tank | UK | EACH | £132.68 |
| Accessories | | Quantity | | |
| XWV 590 500 | Spare Tank | | EACH | £5.14 |
| XWV 590 510 | Dipper Set | | EACH | £5.14 |
| XWV 590 520 | Plates and Shapes | | EACH | £14.41 |

Strobe Frequency Counter

The Lascells Strobe Frequency Counter provides a compact, economic, reliable and simple way of detecting the frequency of a strobe light source. The sensor is calibrated to work with the Lascells ripple tank, allowing a quick measurement of strobe frequency. Simply turn the device on, and place it onto a closed ripple tank, and the frequency of the strobe will be displayed. The device is accurate from 1 Hz to 1 kHz, which exceeds the strobe range of the Lascells ripple tank. The Lascells Strobe Frequency Counter is also compatible with other strobe light sources.

Battery not included.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XEL 040 010 | Strobe Frequency Counter | EACH | £19.49 |



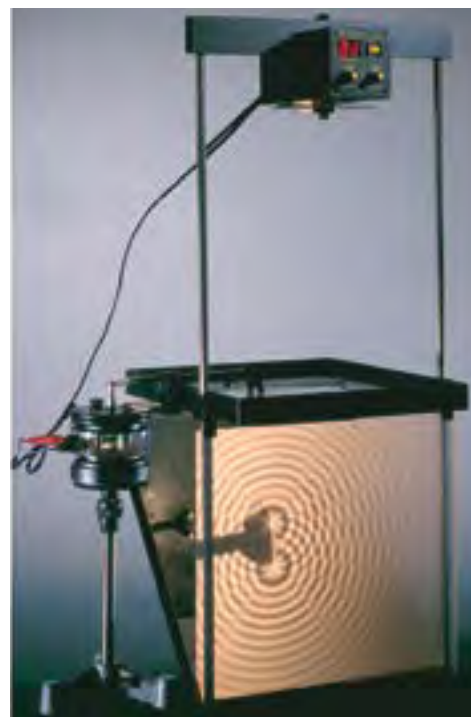
Ripple Tank

Whether it concerns the qualities of light, sound waves or waves in other contexts they all act and spread as waves in the surface of water. For educational purposes water waves have the advantage of being visible and move at a rate that enable you to see what is happening. Each ripple tank is delivered in a fibre box with insertions for every single part and a complete instruction manual.

Requires a tripod base for the adjustable support (not supplied).

Contents:

- Stroboscope
- Holder for stroboscope
- Lever arm for stroboscope
- Vibrator
- Lever arm
- Holder for lever arm
- Fixing pivot
- Height adjustment
- Accessories kit
- Connecting cables
- Remote control
- Bottle with surface active agent
- Mirror
- Screen
- Detachable legs (x3)
- Transverse - front legs
- Angles for screen (x2)
- Ripple tank
- Glass units



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| XWV 330 010 | Ripple Tank | EACH | £688.34 |
| XWV 330 500 | Tripod Base | EACH | £24.60 |

Ripple Tank

To demonstrate the properties of wave motion and effects of reflection, refraction and interference. The tank is plastic and has a clear acrylic base.



Contents:

- Ripple tank 400 x 400mm with legs and lamp support
- Ripple bar with two plastic dippers
- 2x Springs to support the ripple bar
- Hand stroboscope
- Halogen lamp 12V 25W
- Convex lens and 1 Concave lens
- Rectangular block
- Curved reflector
- Small barrier and 2 large barriers

NB: No power supply is supplied with this ripple tank.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|-----------------|
| XWV 790 010 | Ripple Tank | EACH | g£137.00 |



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Resonance System

This original apparatus gives students a modern approach to a fascinating topic with great scope for imaginative research. An acrylic base unit supports a steel strip which is loaded at the top with a detachable brass weight. An electromagnetic drive coil, connected to a standard laboratory signal generator can cause the strip to vibrate in various modes. A bimorph, piezo-electric transducer, bonded to the blade, detects the amplitude of the vibration when its output is monitored on a CRO. Students can study the amplitude of vibration and resonance as a function of drive frequency. In addition, there is a mechanical damping system provided by a thin aluminium vane moving in a small vessel containing water. The amount of damping is controlled by the depth of water used. The effect of damping on resonance can be studied. Post-16.

- Observe resonance as the frequency of vibration is altered
- Investigate the effects of damping on an oscillating system



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XWV 550 010 | Resonance System | EACH | £87.54 |



Resonance Tube

This apparatus is ideal for all resonance investigations in air columns particularly the Salters MUS Activity 9. The main tube is 1 metre long and 50mm diameter which takes a high power sound wave generator unit plugged in to one end. The generator is driven by a standard laboratory signal generator and as the frequency is adjusted the various resonance modes are detected by increased loudness of the note. The open pipe can be studied or a variable length closed pipe can be used by inserting the piston assembly provided. By using a higher amplitude on the generator, Kundt's tube investigations can be undertaken. Fine cork or polystyrene dust is distributed throughout the tube and at resonance the powder gathers at the nodes. Wavelengths can be easily measured. To get a good response a closed tube is preferable. The apparatus comes complete with two supports for the tube, sound wave generator, resonance tube, closing bung and full instructions.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|----------------|
| XWV 570 010 | Resonance Tube | EACH | £119.47 |





Acoustic Probe

This sensitive microphone mounted on a 1.1m long acrylic tube enables the characteristics of a standing wave in a pipe to be demonstrated. It is particularly suited to the Resonance Tube (XWV 570 010). The probe lead plugs into an interface box which provides the signal for display on a CRO or for monitoring on an AC voltmeter. As the probe is moved along the tube nodes and antinodes can be clearly shown thus enabling wave calculations to be made very easily. Requires 1x PP3 9V battery (supplied). Dimensions: 1100 x 60 x 50mm Mass: 0.25kg

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|--------|
| XWV 570 020 | Acoustic Probe | EACH | £67.97 |

Digital Signal Generator

Decade free frequency changing is by press button UP and DOWN controls with time sensitive rate of change. Sweep from 0.1 Hz to 100kHz in seconds without the need to change ranges.

Key features:

- Ultra simplicity
- Continuous frequency control from 0.1Hz to 100kHz. This means a full sweep through the audio band with no decade switch to contend with
- Precision waveforms, Sine, Square and Triangle
- High power amplified output for speakers and transducers
- Precision frequency and amplitude display
- High resolution control with fast change selectors. Step resolution 0.1 to 1% of indicated frequency
- 4mm output connections



| | |
|-------------------------------------|--|
| Input | Mains plug-top adaptor providing 24V DC |
| Frequency Range | 0.1Hz to 100kHz continuous sweep |
| Freq. Control Resolution | Between 0.1 and 1% of the indicated value |
| Output 1 | 24V Pk to Pk into 600 ohms for electronics |
| Output 2 | 10V Pk to Pk into 8 ohms for transducers |
| Amplitude Control Resolution | 0.1V |
| Waveforms | Sine, square and triangle |

| Cat No. | Description | Plug | Quantity | Price |
|-------------|--------------------------|------|----------|---------|
| XWV 680 010 | Digital Signal Generator | UK | EACH | £244.00 |



Barton's Pendulums

Barton's Pendulums is a well known resonance effect but usually difficult to set up and store. This apparatus stores flat and can be quickly unfolded to show the resonance between similar length pendulums. Once the demonstration is over it can be closed up again to safely store the pendulum arrangement until required again.

Dimensions: 350 x 300 x 60mm

Mass: 1.4kg

- Observe resonance in coupled pendulums
- Fold away or set up for use in seconds



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XWV 800 010 | Barton's Pendulums | EACH | £72.00 |



Mini Sonometer

The apparatus is constructed on an acrylic base with hardwood sides measuring 650 x 100mm overall. A standard steel guitar string is supplied complete with two movable bridges.

The Sonometer Pickup (XWV 360 011) can be used with this instrument.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|----------------|
| XWV 740 011 | Stationary Wave | EACH | £133.28 |



Stationary Wave

Completely self-contained and ready to use at a moment's notice with minimal setting-up required. Just connect a laboratory signal generator (not included) to the 4mm sockets of the integral vibration transducer, adjust the tension in the string to the required value by sliding the spring balance assembly and away you go. As the frequency of the generator is varied the first harmonic can be found and then all the others up to the 7th or 8th. The string length can be easily varied if required by moving the end peg and the main arm can be detached if required to facilitate storage.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XWV 710 020 | Mini Sonometer | EACH | £54.58 |



Waves

Standing Waves & Resonance

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Sonometer Pickup

This device revolutionises sonometer work by removing the tedium of tuning forks and replacing it with modern measurement through an oscilloscope. The assembly contains a single wire magnetic pickup with 4mm socket connections, which can be held beneath any sonometer wire. Oscillation period can be taken directly from the oscilloscope screen since the output of the device is in the region of 50mV. Frequency can be calculated and many investigations into standing waves can be carried out. The pickup works well with any steel wire system and can be incorporated into many student investigations.

Dimensions: 80 x 35 x 25mm

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XWV 360 011 | Sonometer Pickup | EACH | £35.00 |



Simple Pattern Sonometer

Comprising a wooden baseboard 98 x 9cm mounted on four feet. At one end of the base are two 50N spring balances with hooks, and at the other end are two corresponding wrest pins. Also provided are three bridges, one large to span both wires and two small for the individual wires.

Supplied with two 30 SWG steel wires, measuring 1m.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XWV 940 010 | Simple Pattern Sonometer | EACH | £33.43 |



Sonometer on Resonance Box

Comprising a wooden resonance box, with two 1m rules sub-divided into millimetres. One each brass and steel wire of different diameters are attached to a fixed bridge and are tensioned by fine adjustment pegs, with two moveable bridges. Pulley and fixed screw enable a third wire to be fixed for tensioning by masses. Also supplied with additional steel and brass wires, each 1.5m long and of 22 SWG.

Dimensions (LxWxH): 114 x 12.5 x 10cm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XWV 940 020 | Sonometer on Resonance Box | EACH | £67.98 |



Ruben's Tube

A truly exciting way to show the effect of sound waves in action, the Ruben's Tube really brings the topic to life in a way students will never forget. The robust stainless steel welded construction means trouble-free operation for many many years. The unit is shipped with full instructions and safety guidance and is the perfect companion to the Digital Signal Generator.

Dimensions: 1000 x 100 x 90mm

Mass: 2.4kg

Requires a supply of bench or bottled gas

Ruben's Tube Amplifier

This is a small amplifier that attaches directly to the Lascells Ruben's Tube. It comes complete with 9V power supply and 3.5mm connection cable. It allows music from MP3 players, iPods and computers to be played adding an extra twist to Ruben's Tube demonstrations.



XWV 830 010



XWV 830 500



RUBENS TUBE

Scan to watch a demonstration



XWV 680 010

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|---------|
| XWV 830 010 | Ruben's Tube | EACH | £200.85 |
| Accessories | Description | Quantity | Price |
| XWV 680 010 | Digital Signal Generator | EACH | £244.00 |



Van de Graaff Generator

The Van de Graaff generator can be operated manually or by motor, depending on the placement of the driving belt, to produce extremely high voltages with low current intensity. The sphere can be dismantled. The generator is operated by a 220V AC motor with a motor speed control unit.

Spark length: 80mm.

Dimensions: 560 x 220 x 220mm (HxWxD)

Weight: 7.2 kg

Conductors These conductors are made from brass and are interchangeable on the pillars. Each conductor has an ebonite stem, which is attached to a metal base.

Electric Whirl For demonstrating the effect of electrical discharge from points. The wheel rotates freely on a pivot point mounted on a short stand with a 4mm plug.

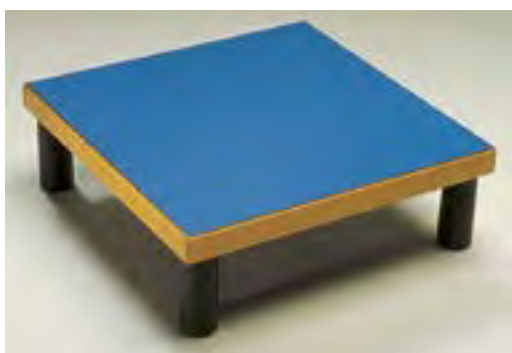
Conductor Sphere This conductor sphere is mounted on a 410mm long, 10mm diameter rod with 4mm safety terminal. Sphere diameter: 100mm.



XES 080 010



XES 120 010



XES 080 521



| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|---------|
| XES 080 010 | Van de Graaff Generator | EACH | £456.00 |
| Accessories | | | |
| | Description | Quantity | Price |
| XES 080 500 | Rubber Belt | EACH | £24.00 |
| XES 080 510 | Drive Belt | EACH | £3.93 |
| XES 080 521 | Insulated Stool | EACH | £61.10 |
| XES 080 530 | Conductor Sphere, 100mm dia with 4mm terminal | EACH | £52.00 |
| XES 120 010 | Conductor Sphere, 50mm dia | EACH | £10.22 |
| XES 120 020 | Conductor Cylinder, 12.5 x 5cm | EACH | £11.33 |
| XES 120 030 | Conductor Cone, 10 x 5cm | EACH | £11.33 |





Van de Graaff Accessories Kit

Contents:

- Perspex pillar with suspended metallised sphere
- Faraday's Pail (The Perspex pillar will also plug into this pail)
- Perspex cylinder with metal cap and with metallised spheres
- Head of hair with comb
- Electric whirl
- Neon bulb

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XES 095 010 | Van de Graaff Accessories Kit | EACH | £23.95 |



Aepinus Condenser

The condenser consists of two adjustable capacitive plates, 100mm diameter separated by a glass di-electric plate. The capacitor plates are supported on insulating pillars and provided with insulated handles on the ends of the adjustment slide rods. 4mm sockets are drilled in the ends of the adjustment rods. A rectangular glass plate is supplied, which is mounted in clips between the two discs and may be easily replaced by a plate of some other material to show the effect of different dielectrics. The whole thing is mounted on a polished wooden base.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XES 110 010 | Aepinus Condenser | EACH | £50.99 |

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Electricity

Static Genecon

An innovative hand cranked static generator capable of generating around 10,000V. The static genecon can be used for many static experiments in place of a traditional Van de Graaff generator.

- Output voltage: Up to about 10,000 V
- Size: 223 x 255, thickness 75 mm (power generation roller part)
- Weight: Approx 400g

Optional collecting spheres

Can be used singly to show electrostatic repulsion or in pairs to demonstrate static discharge.

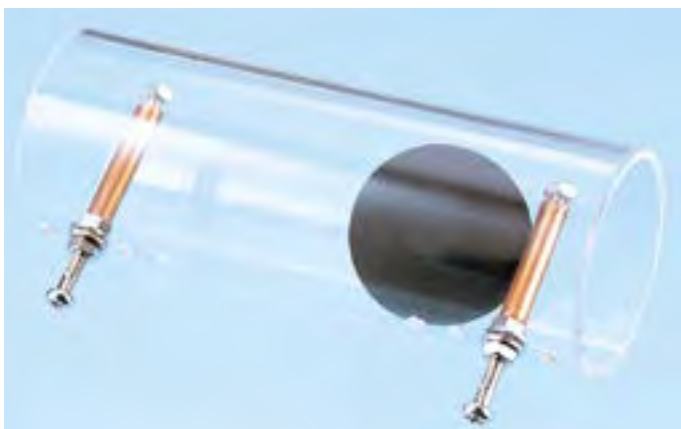
Neon Tube

Can be illuminated by bringing one end of the tube close to a charged rod or collecting sphere.

Electrostatic Pendulum This electrostatic pendulum or 'shuttle ball' clearly demonstrates the principle of attraction and repulsion of electric charge.



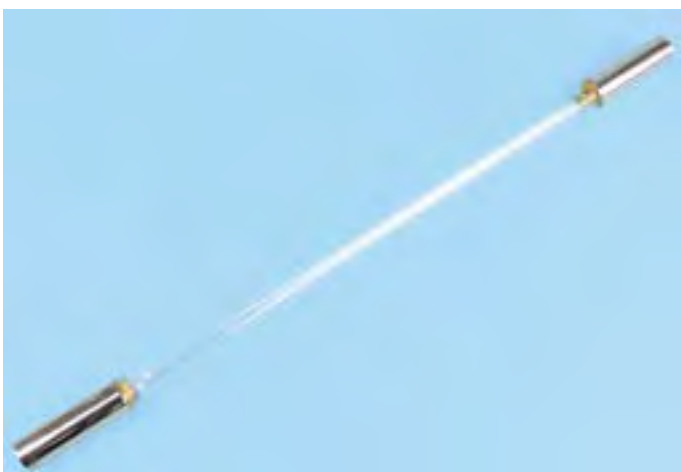
XLM 300 110



XLM 300 115



XLM 300 120



XLM 400 010

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------|----------|---------|
| XLM 300 115 | Electrostatic Pendulum | EACH | £40.00 |
| XLM 300 110 | Static Genecon | EACH | £139.50 |
| XLM 300 120 | Aluminium Collecting Sphere | EACH | £53.50 |
| XLM 400 010 | Neon Tube | EACH | £36.21 |

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Wimshurst Machine

This machine is used for generating static electric charges and causing electric discharges. Relative to Van de Graaff it produces higher current with lower voltage. It consists of two high resistance plastic discs with equally spaced metal sectors. The discs are supported in two rigid upright supports, rotating in opposite directions with a hand crank. Has a system of induced charge collecting brushes, adjustable ball ended electrodes and cylindrical Leyden jar capacitors for obtaining higher potential. This machine will produce substantial opposite charges which are deposited in the capacitors and on metal spheres. A rapid sequence of sparks can be generated by lowering the system's capacitance. It comes mounted on an insulated wooden base.

Dimensions: 290 x 290 x 180mm

Weight: 500gm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XES 100 011 | Wimshurst Machine | EACH | £88.57 |



Electric Field Apparatus

A simple model for demonstrating electric fields between various electrode configurations. Place liquid paraffin in the 90mm petri dish and sprinkle semolina or fine grass seed (not supplied) on the surface. Apply a high voltage via the 4mm terminals and the field pattern is generated. The clear acrylic base allows the pattern to be projected via an overhead projector. (150 x 150 x 60).

Note: This apparatus requires a safe, low-current limited 0-5kV EHT supply.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XLE 010 011 | Electric Field Apparatus | EACH | £60.76 |

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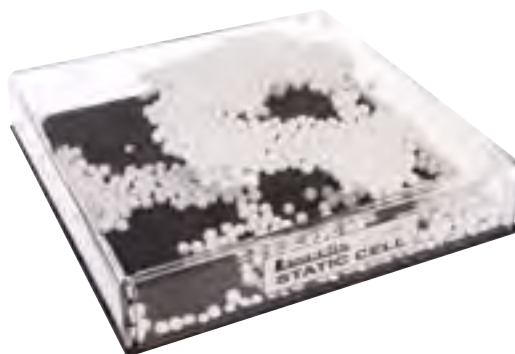


Proof Planes

For use with a Van de Graaff generator. A range of circular metal plates on insulating handles suitable for transferring charge or investigating charge distribution in electrostatics investigations.

Plate sizes 40mm diameter

| Cat No. | Plate Dia. | Quantity | Price |
|--------------------|------------|----------|---------------|
| XES 090 020 | 40mm | EACH | £16.47 |



Static Cell

A self contained, sealed, acrylic enclosure measuring 180 x 180 x 40mm containing polystyrene spheres. When lightly rubbed with a cloth, the static charge developed causes the spheres to jump around inside the unit. A convenient and dramatic demonstration of charged particle attraction. Demonstrates electrostatic attraction.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XES 170 010 | Static Cell | EACH | £13.49 |

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Electrostatic Plate

A 250 x 250mm sheet of clear acrylic 3mm thick for friction charging in electrostatics experiments.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XES 190 010 | Electrostatic Plate | EACH | £7.20 |



Electrostatic Plastic Strips

A pack of 20 strips each measuring 200 x 25 x 2mm. Ten are polycarbonate and ten are polystyrene. When the strips are rubbed with a cloth they acquire opposite electrostatic charge for investigations into attraction and repulsion. Use with stirrups.

Electrostatic Stirrups Brass wire holders for supporting plastics strips in electrostatics experiments. Ten per pack, supplied with a reel of monofilament nylon for hanging.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XES 010 050 | Electrostatic Plastic Strips | PK20 | £23.68 |
| Accessories | | | |
| Cat No. | Description | Quantity | Price |
| XES 010 550 | Stirrups | PK10 | £16.47 |

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Friction Strips

Dimensions: 250 x 25 x 2.5mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XES 010 030 | Polystyrene Strip | EACH | £1.53 |
| XES 010 060 | Polycarbonate Strip | EACH | £1.65 |



Friction Rods

Available in glass, ebonite and perspex.
Size: 300 x 12mm (L x Dia)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XES 010 010 | Glass | EACH | £1.05 |
| XES 010 020 | Ebonite | EACH | £1.75 |
| XES 010 040 | Perspex | EACH | £4.47 |

SAFETY





Rubbing Cloths

These rubbing cloths are 300mm square.

NB: CLM 010 010 are 50 x 40cm.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XES 010 500 | Wool Cloth | EACH | £1.73 |
| XES 010 520 | Silk Cloth | EACH | £1.99 |



Electrostatic Kit

Contents:

- Electroscope
- 4 Metallised polystyrene spheres
- Reel of nylon thread
- Cellulose acetate strip
- Polythene strip
- Wire stirrup
- Piece of rubber cloth
- Wire hook
- Electrophorus on handle
- Proof plane
- 2 Polythene tiles
- 2 Aluminium cans

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XES 140 010 | Electrostatic Kit | EACH | £39.29 |



Electroscope, Pith Ball

A plated brass pillar mounted on a plastic base, supporting two pith balls on an un-spun silk thread.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| XES 130 010 | Electroscope, Pith Ball | EACH | £2.83 |
| Accessories | Description | Quantity | Price |
| XES 130 500 | Pith Balls, Assorted Sizes | PK10 | £2.83 |

Gold Leaf Electroscope

Rectangular cast metal case and polythene insulated lid with finger flap to facilitate removal. Fitted with 4mm socket. Front glass window slides up to allow insertion of ionizing material in chamber. Gold leaf support plate and scale to show deflection.

Please note: Gold leaf is not included, please order separately.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XES 150 011 | Gold Leaf Electroscope | EACH | £12.38 |
| Accessories | Description | Quantity | Price |
| DUO 05 | Dutch Metal Leaf | PK25 | £24.30 |



Zinc Plate

A 40 x 40mm zinc plate on a 4mm connector which can replace the top plate of an electroscope. The plate can be used to show discharge under UV lighting and the photo-electric effect. A suitable wavelength UV lamp is required.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XES 040 010 | Zinc Plate | EACH | £19.56 |

Digital Coulombmeter

For charge detection and measurement. Useful for a wide range of experimental applications including charging by induction, Faraday's Ice Pails, Coulomb's Law and capacitance of an isolated sphere. Housed in a robust, ABS plastic case. 13mm, 3.5 inch digit LCD display with low battery indication. Supplied with charge plate and instructions.



| | |
|--------------------------|---------------------|
| Range | 0 to 1999nC |
| Resolution | 1nC |
| Accuracy | ±10% of full scale |
| Input resistance | 100GΩ |
| Leakage current | 1pA (10pA max) |
| Charge storage | 4.7µF |
| Overload | 10x full scale |
| Electrical supply | 9V Battery PP3 type |
| Dimensions | 130x60x90mm overall |
| Mass | 0.2kg |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XES 020 010 | Digital Coulombmeter | EACH | £60.00 |



Lascells Revolution Power Supplies

A precision full specification power supply for the school laboratory with unrivalled advantages in terms of design and electrical specification. Up to 8A DC, switched or variable but, most importantly, constant, regulated DC voltage regardless of load. Combine this with a simple to adjust maximum voltage limiter, automatic overload protection, digital voltage readout and a compact, lightweight case and you have the perfect power supply in a truly space saving package. These revolutionary instruments use the latest PSU technology which sets the latest standard against which all others are judged.

- Regulated DC output. Set the voltage to the value required as displayed on the built-in panel meter and the supply will maintain this no matter what you connect to the terminals.
- Maximum voltage limiter. Use an Allen key through the front panel to set the dial to the highest voltage you want your students to use. The main control will then work as normal up to this value but if a higher voltage is tried there will be no increase.
- Digital panel meter showing the DC output being used at all times
- Automatic over-current protection. If more than 8A is used the output voltage reduces to zero. Normal output is restored once the current is reduced. No resetting required.
- Additional AC 6V and 12V (unregulated) are provided at 1.5A max for AC work such as transformer investigations. This can be used in parallel with the DC output.
- Switched or Variable? The same quality and facilities are available as either continuously variable DC or switched output. Whichever you prefer.
- Compact design. Easy to store, easy to carry around, more space left on the bench. At only 2.2kg each and measuring only 125 x 175 x 230mm four supplies will fit in a single storage tray - a real spacesaving solution.
- Robust, powder-coated steel case with integral plastic handle and removable mains lead
- Clear simple controls with illuminated front-panel mains switch



| | Precision Variable | Precision Switched |
|---------------------------|--|---|
| Input | 230/240V AC 50Hz | 230/240V AC 50Hz |
| Output | 0 to 15V DC continuously variable Fully smoothed and regulated to give <2% voltage variation at any load with <300mV ripple. 6V and 12V AC unregulated. Available at same time as DC | Output 0 to 10V DC in 1V steps plus 12V and 15V Fully smoothed and regulated to give <2% voltage variation at any load with <300mV ripple 6V and 12V AC unregulated. Available at same time as DC |
| Output Current | 8A max (6A continuous) DC 1.5A AC | 8A max (6A continuous) DC 1.5A AC |
| Voltage Limiter | Front panel Allen key tamperproof adjustment | Front panel Allen key tamper-proof adjustment |
| Current Protection | Automatic DC. Thermal auto fuse AC | Automatic DC Thermal auto fuse AC |
| Display | Digital output DC voltage | Digital output DC voltage |
| Mass | 2.2kg | 2.2kg |

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---|------|----------|----------------|
| RVN 020 010 | Revolution Precision Variable | UK | EACH | £154.49 |
| RVN 020 020 | Revolution Precision Switched | UK | EACH | £159.64 |
| Accessories | Description | Plug | Quantity | Price |
| RVN 020 500 | Replacement Mains Lead for Revolution PSU | UK | EACH | £6.17 |



Lascells Revolution Switched Power Supply

A traditional switched power supply in the convenience of the Revolution Case. This instrument uses established PSU technology to provide a smoothed power supply suitable for all laboratory applications which require a rugged source of emf. at either AC or DC.

An internal mechanism disconnects the output when the voltage setting is changed ensuring that the switch contacts are protected from overload and the unit can be locked at any setting by means of an Allen screw located on the front panel. Over current protection is by means of a front panel thermal trip.

As with all Revolution Power Supplies the unit is housed in a robust powder coated case with integral carrying handle and is sized such that 4 can be carried in a single storage tray.



| | |
|---------------------------|--|
| Input | 230/240V AC 50Hz |
| Output | 0 to 12V DC in 2V increments, capacitor smoothed |
| Output | 0 to 12V AC in 2V increments |
| Output Current | 5A max (4A continuous) |
| Voltage Limiter | Front panel Allen key insert |
| Current Protection | Thermal circuit breaker. Manual reset |
| Mass | 3kg |

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---|------|----------|----------------|
| RVN 020 030 | Revolution Switched | UK | EACH | £119.99 |
| Accessories | | Plug | Quantity | Price |
| RVN 020 500 | Replacement Mains Lead for Revolution PSU | UK | EACH | £6.17 |



SciChem Electrical Circuit Kits

The SciChem Circuit Kits provide everything required for students to safely carry out basic electrical circuit investigations. Two styles are available:

The Panel Kit

Has all the components mounted on a fixed panel in a plastic storage tray with lid. Connections are made using standard 4mm leads (supplied) and a booklet with pictorial experiment layouts is included. The panel can be removed from the tray for servicing when required but ensures that nothing can go missing. Additional parts can be added alongside as required and stored in the vacant trays.

The Component Kit

Has each item as a separate unit with connections via 4mm plug leads (supplied). Students can arrange the circuit in a logical way and extra parts can be added to suit individual needs. The components are mounted on rugged, fully enclosed acrylic bases which nevertheless allow the components to be seen and replaced if required.

Additional Items

Battery Pack

To provide the 1.5, 3, 4.5 and 6V required in the experiments. The kit can, of course, be used with any 6V DC power source.

Materials Pack

Provides a set of insulating and conducting pieces. Connection can be made using the crocodile clip leads from the main kit.

Measurement Pack

Contains two multi-meters so that older students can take voltage, current and resistance measurements when required. Leads are included.

Resistor Unit

A resistor unit which has 5 resistors with labelled values plus 3 resistors labelled A, B and C. This unit can be used to carry out Ohm's Law and series/parallel resistor calculations.

Component Kit Contents:

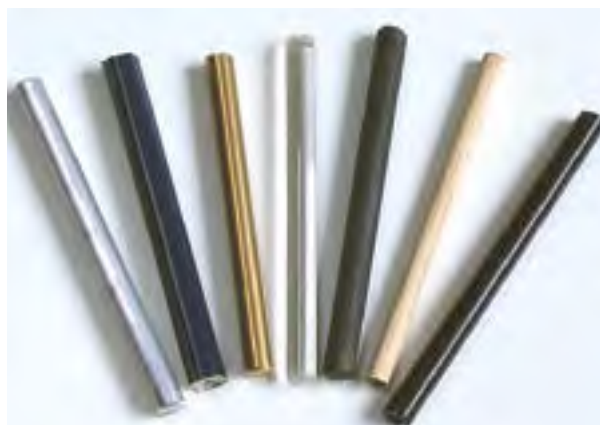
- 3x 6V MES lamps in holders
- Push to make switch
- Toggle changeover switch
- DC electric motor
- Buzzer
- 50Ω resistor
- 100Ω resistor
- 2x Crocodile clip/4mm leads
- 10x 4mm plug leads
- Storage tray with transparent lid
- 2x Inner divider trays
- Comprehensive Experiment Booklet



XEL 340 010



XEL 340 020



XEL 340 040



XEL 340 081



XEL 340 030



XEL 340 050

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| XEL 340 010 | Panel Kit | EACH | £87.54 |
| XEL 340 020 | Component Kit | EACH | £96.81 |
| Accessories | | Quantity | Price |
| XEL 340 030 | Battery Pack | EACH | £24.71 |
| XEL 340 040 | Materials Pack | EACH | £14.41 |
| XEL 340 050 | Measurement Pack | EACH | £38.99 |
| XEL 340 081 | Resistor Unit | EACH | £28.83 |



SciChem Electricity Kits

The SciChem Electricity Kits provide everything required for students to safely carry out KS3 and KS4 electrical circuit investigations. Two styles are available:

Panel Kit Has all the components mounted on a fixed panel in a plastic storage tray with lid. Connections are made using standard 4mm leads (supplied) and a booklet with pictorial experiment layouts is included. The panel can be removed from the tray for servicing when required but ensures that nothing can go missing. Additional parts can be added alongside as required and stored in the vacant trays.

The Component Kit Has each item as a separate unit with connections via 4mm plug leads (supplied). Students can arrange the circuit in a logical way and extra parts can be added to suit individual needs. The components are mounted on rugged, fully enclosed acrylic bases which nevertheless allow the components to be seen and replaced if required.

Additional Items:

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Contains two multi-meters so that older students can take voltage, current and resistance measurements when required. Leads are included.

Resistor Unit

A resistor unit which has 5 resistors with labelled values plus 3 resistors labelled A, B and C. This unit can be used to carry out Ohm's Law and series/parallel resistor calculations.

Component Kit Contents:

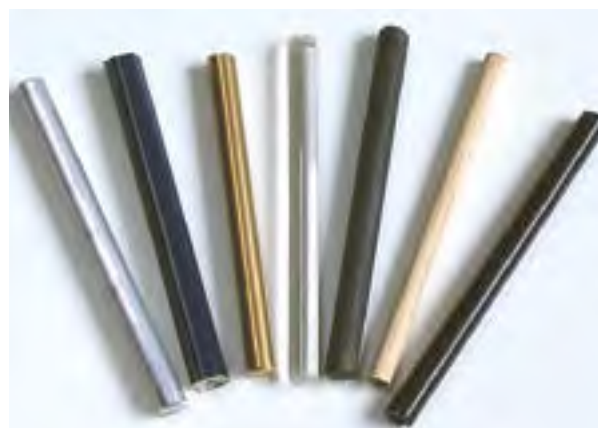
- 3x 6V MES lamps in holders
- Push to make switch
- Toggle changeover switch
- DC electric motor
- Buzzer
- 180Ω resistor
- Diode
- Thermistor
- LDR
- LED
- 470 potentiometer
- 2x Crocodile clip/4mm leads
- 10x 4mm plug leads
- Storage tray with transparent lid
- 2x Inner divider trays
- Comprehensive Experiment Booklet



XEL 340 060



XEL 340 070



XEL 340 040



XEL 340 081



XEL 340 030



XEL 340 050

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|---------|
| XEL 340 060 | Panel Kit | EACH | £108.14 |
| XEL 340 070 | Component Kit | EACH | £133.89 |
| Accessories | Description | Quantity | Price |
| XEL 340 030 | Battery Pack | EACH | £24.71 |
| XEL 340 040 | Materials Pack | EACH | £14.41 |
| XEL 340 050 | Measurement Pack | EACH | £38.99 |
| XEL 340 081 | Resistor Unit | EACH | £28.83 |



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Understanding Electricity Class Set

This kit makes it easy to understand about how electricity works, what electricity can do and how to build working electrical circuits with ease. It includes components mounted on transparent bases, so that children can see the path that the electrical current takes as it travels around the circuit - even the connection leads are see-through! Designed for 4 groups of children working on electricity all at the same time this set provides everything a school might want to carry out electrical exploration. All of the components come in a deep standard school tray with full teacher's guide and pupil notes included. The Kit includes 39 bases. Requires 15 'C' size batteries.

Features Include:

- Batteries mounted in a line to clearly show that when joined together the effect is to increase the voltage
- The kit contains a 'Festoon' type light bulb, which has the element in a line
- The base connectors accept bare wires and 4mm plugs. for ease of use
- Components are all voltage matched to give good performance and reliability
- Both Series and Parallel circuits can be made and their differences examined
- A range of carefully chosen input (switches) and outputs (devices - bulbs, a buzzer and a motor etc) make the experiments exciting and revealing
- A comprehensive set of 12 A3 laminated pupil work cards and teacher notes fully supports the use of the kit

Contents:

- 6x Single 'C' Battery Holders
 - 3x Triple 'C' Battery Holders
 - 2x Festoon Bulb & Holders
 - 4x Push Switch
 - 4x Bell Push Switch
 - 2x Toggle Switch
 - 8x MES Bulb Holder & Bulb
 - 4x Buzzer
 - 4x Motor/Pulley
 - 2x Variable Resistor
 - 30x Clear Wire 4mm Connectors
 - 20x Crocodile Clips
 - Spare festoon Bulb
 - 2x Spare MES Bulbs
 - Large Tray & Lid
 - Pupil and Teacher Support Material
- NB:** Spare components are available.



| Cat No. | Description | Quantity | Price | |
|--------------------|-------------------------------------|-------------|----------------|-------|
| XEL 240 010 | Understanding Electricity Class Set | EACH | £274.19 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 040 | C Size - 1.5V Batteries | PK2 | £3.29 | |

Electricity Kit

The kit comes in a superb carry box containing over 100 items including motors, bulbs, buzzers, LEDs, batteries, battery holders, a selection of six types of switch, ready made leads, automatic wire strippers/cutters and electricians' screwdrivers. Additionally, this pack is fully supported with a comprehensive teacher/pupil book, which is photocopy free.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| ELA 300 010 | Electricity Kit | EACH | £82.39 |



Worcester Circuit Board

Allows students to investigate the nature and the properties of electricity using simple circuits easily constructed on a base board. This proven method provides a motivational learning experience and enhances the understanding of the student when performing the wide array of experiments and follow-up investigations. The kit comes complete with full support material.

Contents:

- Base board
- Connectors, plain for circuit building
- Lamp holders, E10 MES mounted on a connector
- Connector with rheostat (Potentiometer)
- Push switches mounted
- Leads with crocodile connectors
- Crocodile clips
- Reel of bare copper wire
- Reel of bare Eureka wire
- Reel of plastic covered copper wire
- Leads, crocodile to 4mm plug connectors
- Copper foil
- Resistor
- Soft iron nails
- Steel wool
- Pencil leads
- Hardboard disc
- Bulbs, 1.25V



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XLE 020 011 | Worcester Circuit Board | EACH | £68.00 |



EMA 200 010



EMV 200 010

Digital Bench Meters

- Low power consumption
- Auto Off
- Fewer flat batteries

Spend less time changing batteries with the new Lascells bench meters. These digital bench meters are housed in robust ABS and PVC cases. Both feature ~50 minute 'auto off' circuitry to conserve battery life and an LED indicator prompting battery change when necessary. Supplied with 9V PP3 battery and full instructions.

| | EMA200010 | EMV200010 |
|---------------------------|------------------|------------------|
| Range | 0 to ± 10A DC | 0 to ± 20V DC |
| Resolution | 0.01A | 0.01V |
| Accuracy | ± 2% | ± 2% |
| Input Impedance | 0.01Ω Approx. | 10MΩ Approx. |
| Input Voltage | 9V PP3 Battery | 9V PP3 Battery |
| Dimensions (LxWxH) | 110 x 110 x 65mm | 110 x 110 x 65mm |
| Weight | 250g | 205g |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| EMA 200 010 | Digital Ammeter | EACH | £26.65 |
| EMV 200 010 | Digital Voltmeter | EACH | £26.65 |



Mounted Circuit Components

A comprehensive range of components for use in all aspects of electrical circuit work. The system is totally versatile using standard 4mm leads for interconnection. Add to your stock as the need arises from a full range of resistors, capacitors, switches, lamps, LEDs, sensors etc.

Easy to use, reliable and robust with all components on acrylic bases with circuit symbols and the resistors in decimal values to aid calculation. Lascells prides itself on the flexibility of the range so if you need something you don't see please contact us with your requirements. Suitable for KS3 and above.

Potentiometers 20%

Potentiometers 0.25W linear carbon track controls.
Base size: 60 x 50 x 30mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XLE 220 770 | 100Ω Trim pot 0.5W | EACH | £14.41 |
| XLE 220 170 | 470Ω | EACH | £12.35 |
| XLE 220 180 | 1kΩ | EACH | £12.35 |
| XLE 220 190 | 5kΩ | EACH | £12.35 |
| XLE 220 200 | 10kΩ | EACH | £12.35 |
| XLE 220 220 | 100kΩ | EACH | £12.35 |

Resistors

A full range of resistors for general circuit work and Ohm's Law studies etc.
Convenient metric values make for easier student calculations.
Power ratings vary.



| Cat No. | Description | Power | Quantity | Price |
|-------------------------------|-------------|-------|----------|---------------|
| Resistors 5% | | | | |
| XLE 220 010 | 10Ω | 2W | EACH | £7.20 |
| XLE 220 020 | 20Ω | 1W | EACH | £7.20 |
| XLE 220 030 | 50Ω | 1W | EACH | £7.20 |
| XLE 220 040 | 100Ω | 2W | EACH | £7.20 |
| XLE 220 750 | 100Ω | 11W | EACH | £13.38 |
| XLE 220 760 | 150Ω | 9W | EACH | £13.38 |
| XLE 220 050 | 200Ω | 0.5W | EACH | £7.20 |
| XLE 220 060 | 500Ω | 0.5W | EACH | £7.20 |
| XLE 220 070 | 1kΩ | 0.5W | EACH | £7.20 |
| XLE 220 100 | 10kΩ | 0.25W | EACH | £7.20 |
| XLE 220 130 | 100kΩ | 0.25W | EACH | £7.20 |
| XLE 220 140 | 200kΩ | 0.25W | EACH | £7.20 |
| XLE 220 150 | 500kΩ | 0.25W | EACH | £7.20 |
| XLE 220 160 | 1MΩ | 1W | EACH | £7.20 |
| Precision Resistors 1% | | | | |
| XLE 220 550 | 1Ω | 0.6W | EACH | £7.20 |
| XLE 220 560 | 5Ω | 0.75W | EACH | £7.20 |
| XLE 220 570 | 10Ω | 0.75W | EACH | £7.20 |
| XLE 220 580 | 20Ω | 0.75W | EACH | £7.20 |
| XLE 220 590 | 100Ω | 0.75W | EACH | £7.20 |
| XLE 220 610 | 1000Ω | 0.75W | EACH | £7.20 |



Capacitors

A full range of capacitors for general circuit work and electronics. Values 0.1 to 10 μ F are non-electrolytic with no polarity restrictions. 100 μ F to 4700 μ F types are electrolytic and require care in use to get the correct polarity. All values are quoted as 35V maximum for safety. (Individual components may be rated higher than this).

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| XLE 220 250 | 0.1 μ F - 200V | EACH | £7.20 |
| XLE 220 260 | 1 μ F - 100V | EACH | £8.23 |
| XLE 220 280 | 4.7 μ F - 100V | EACH | £10.29 |
| XLE 220 290 | 10 μ F - 100V | EACH | £16.49 |
| XLE 220 300 | 100 μ F - 35V | EACH | £8.23 |
| XLE 220 310 | 470 μ F - 35V | EACH | £8.23 |
| XLE 220 320 | 1000 μ F - 35V | EACH | £9.26 |
| XLE 220 330 | 2200 μ F - 35V | EACH | £9.26 |
| XLE 220 340 | 4700 μ F - 35V | EACH | £17.50 |



Mounted Circuit Component LEDs

Light emitting diodes with a 330 Ω resistor in series. Available in a selection of colours.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| XLE 220 360 | Red LED | EACH | £7.20 |
| XLE 220 370 | Green LED | EACH | £7.20 |
| XLE 220 380 | Yellow LED | EACH | £7.20 |



Mounted Circuit Component LDR

A light dependent resistor mounted on a robust base with 4mm sockets.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| XLE 220 350 | LDR | EACH | £7.20 |



Mounted Circuit Component Switches

A range of switches to suit almost any application.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|--------|
| XLE 220 410 | On/Off Switch | EACH | £10.29 |
| XLE 220 420 | Magnetic Reed Switch | EACH | £8.23 |
| XLE 220 440 | Push Switch, Single Pole | EACH | £8.23 |
| XLE 220 620 | 3 Way Switch | EACH | £10.29 |



Mounted Circuit Component Photodetectors

Mounted components for use in detector, measurement and control circuitry where sensing light is required.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| XLE 220 390 | Phototransistor | EACH | £10.29 |
| XLE 220 400 | Photodiode | EACH | £10.29 |





Mounted Circuit Component Buzzer

A compact low current piezo sounder complete with drive circuit.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XLE 220 450 | Buzzer | EACH | £8.23 |



Mounted Circuit Component Holder (Crocodile Clips)

A pair of chrome plated crocodile clips conveniently mounted on a robust base. Connect components of your choice to 4mm leads for adding to circuits.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------------|----------|--------------|
| XLE 220 460 | Component Holder (Crocodile Clips) | EACH | £8.23 |



Mounted Circuit Component Diode

A 1N4001 Diode on a robust base.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XLE 220 470 | Diode | EACH | £8.23 |



XLE 220 480

Mounted Circuit Component Lamp Holders

MES bulb holder with 4mm sockets, with or without 6V bulb.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| XLE 220 480 | MES Lamp Holder | EACH | £8.23 |
| XLE 220 485 | MES Lamp Holder with Bulb | EACH | £9.26 |



Mounted Circuit Component Thermistor

A 5kΩ NTC thermistor with 4mm sockets. Bead mounted approximately 10mm from the base allowing students to vary the temperature using their fingers.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XLE 220 490 | Thermistor, 5kΩ NTC | EACH | £9.26 |



XLE 220 510



XEL 340 030

Mounted Circuit Component Battery Holders

A choice of battery holders with 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XLE 220 500 | D-cell Holder | EACH | £10.29 |
| XLE 220 510 | C-cell Holder | EACH | £10.29 |
| XEL 340 030 | Battery Pack | EACH | £24.71 |



EXPERIMENTS EXPLAINED

Solutions to common problems

Measuring current in a parallel circuit Where should the ammeter go?

Students often find it difficult to set up a parallel circuit and measure current in different places. Often the circuits they construct look nothing like the circuit diagram on their worksheet!

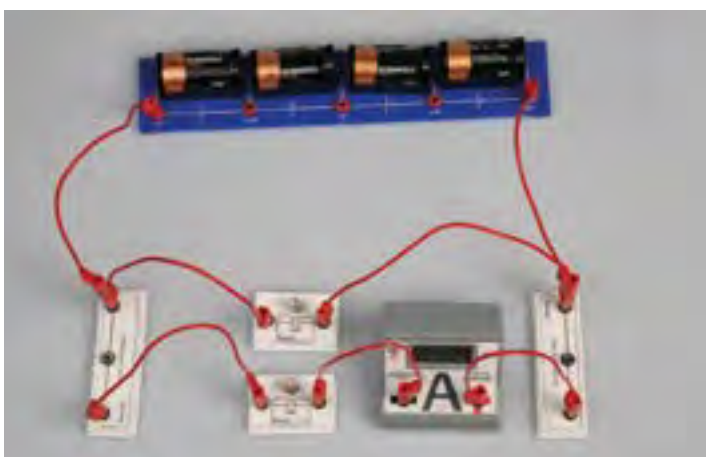
Tips from the Teacher:

Using shorter electrical leads e.g. 20cm, makes the setting up of the circuit far less confusing for the students.

Junction Block

A multi-way connector that allows all students to easily lay out parallel circuits as they appear in circuit diagrams.

Suitable for all age groups from simple KS3 parallel circuits to more complicated A-Level circuits containing both series and parallel sections.



Mounted Circuit Component Motor

A 1.5 - 4.5V motor mounted on a robust base.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| XLE 220 520 | Motor 1.5-4.5V | EACH | £9.26 |



Mounted Circuit Component Junction Block

Neatly connect multiple 4mm wires and simplify circuit layouts with this multi-way connector.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| XLE 220 670 | Junction Block | EACH | £7.20 |





Mounted Circuit Component Transistors

A choice of BJT transistors with 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XLE 220 690 | NPN Transistor | EACH | £10.24 |
| XLE 220 700 | PNP Transistor | EACH | £10.29 |



Mounted Circuit Component Bridge Rectifier

A 1.5A Bridge rectifier with 4mm sockets. Use to convert alternating current (AC) input into a direct current (DC) output.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| XLE 220 710 | Bridge Rectifier 1.5A | EACH | £9.26 |



Mounted Circuit Component Relay Coil

A 12V DC relay coil with 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XLE 220 721 | Relay Coil 12V DC | EACH | £23.67 |



Mounted Circuit Component Solenoid Coil

A solenoid coil rated at 3V 1A max. The copper coil is wound around a 6mm internal diameter tube and mounted on a robust base with 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XLE 220 730 | Solenoid Coil 3V 1A Max | EACH | £20.59 |



Mounted Circuit Component Reed Relay

A single pole single throw SIL reed relay.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XEL 620 140 | Reed Relay | EACH | £12.35 |



Dynamic Microphone

A dynamic coil microphone giving 20-50mV output with the human voice.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XWV 540 010 | Dynamic Microphone | EACH | £14.41 |





Piezo Transducer

Consisting of a 15mm diameter ceramic element with integral, protective press-stud, the device gives voltage pulses of up to 20V when given a sharp tap. Demonstrate mechanical to electrical energy conversion with a voltmeter, data-logger or oscilloscope. The reverse effect can also be shown by connection to a signal generator whereby the device converts the electrical signal to sound waves.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XLE 280 570 | Piezo Transducer | EACH | £17.50 |



Super - C

This is a 10F capacitor with protection circuitry which can be charged from a DC supply (up to 5V). Charging time is approximately 20s and the capacitor will then run a small electric motor for several minutes. The unit has a protection diode to prevent reverse polarity on charging and an LED indicator to give a visual monitor of the charge content. Fully charged the capacitor stores about 30J of electrical energy. This can then provide 100mA for about 5 minutes.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XLE 220 640 | 10F - 2.5V | EACH | £24.71 |



LED Indicator

An innovative replacement for torch bulbs in circuit studies. This unit uses two parallel LEDs to give ultra long life. Will work from 2V to 15V without damage and the low current (10mA) will greatly extend battery life. No bulbs to break in storage or by connection to the wrong supply.

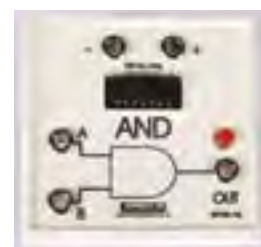
| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XLE 220 630 | LED Indicator | EACH | £8.89 |

Logic Gates

- Robust
- Wide operating voltage
- Easy to use

These common single logic gates are conveniently mounted on robust acrylic bases with 4mm sockets. The gates are CMOS 4000 series logic and will require a smooth DC supply voltage in the range 3-18V. The integrated circuits are easily replaceable and the output status of each gate is indicated via an integral LED.

- Supply Voltage: 3 - 18V
- Quiescent Current: 1µA MAX
- Output Current Capability: 8mA
- Typical Dimensions (L x W x H): 73 x 71 x 14mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XLE 220 800 | Inverter / NOT Gate | EACH | £17.50 |
| XLE 220 820 | 2 Input AND Gate | EACH | £17.50 |
| XLE 220 830 | 2 Input OR Gate | EACH | £17.50 |

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Electricity & Magnetism

Electricity

Mounted Circuit Components

A comprehensive range of components for use in all aspects of electrical circuit work. The system is totally versatile using standard 4mm leads for interconnection. Add to your stock as the need arises from a full range of resistors, capacitors, switches, lamps, LEDs, sensors etc. Easy to use, reliable and robust with all components on clear acrylic bases with circuit symbols and the resistors in decimal values to aid calculation. Suitable for KS3 and above.



XLE 280 480



XLE 280 360

| Cat No. | Description | Quantity | Price |
|-----------------------|-------------|----------|-------|
| Resistors | | | |
| XLE 280 010 | 10Ω | EACH | £3.99 |
| XLE 280 020 | 20Ω | EACH | £3.99 |
| XLE 280 030 | 50Ω | EACH | £3.99 |
| XLE 280 040 | 100Ω | EACH | £3.99 |
| XLE 280 050 | 200Ω | EACH | £3.99 |
| XLE 280 060 | 500Ω | EACH | £3.99 |
| XLE 280 070 | 1kΩ | EACH | £3.99 |
| XLE 280 090 | 5kΩ | EACH | £3.99 |
| XLE 280 100 | 10kΩ | EACH | £3.99 |
| Potentiometers | | | |
| XLE 280 170 | 470Ω | EACH | £4.03 |

| Cat No. | Description | Quantity | Price |
|-------------------|----------------------|----------|-------|
| Capacitors | | | |
| XLE 280 320 | 470μF | EACH | £5.32 |
| XLE 280 330 | 1000μF | EACH | £5.54 |
| XLE 280 350 | 4700μF | EACH | £5.54 |
| Components | | | |
| XLE 280 360 | LDR | EACH | £5.85 |
| XLE 280 370 | Red LED | EACH | £5.34 |
| XLE 280 380 | Green LED | EACH | £5.34 |
| XLE 280 390 | Yellow LED | EACH | £5.34 |
| XLE 280 420 | On/off Switch | EACH | £5.85 |
| XLE 280 430 | Magnetic Reed Switch | EACH | £4.66 |
| XLE 280 450 | SP Press Switch | EACH | £5.85 |
| XLE 280 460 | Buzzer | EACH | £4.58 |
| XLE 280 480 | Diode | EACH | £4.99 |
| XLE 280 490 | MES Lamp Holder | EACH | £4.99 |
| XLE 280 500 | Thermistor 500kΩ NTC | EACH | £5.85 |
| XLE 280 510 | D-cell Holder | EACH | £5.85 |
| XLE 280 530 | Motor 3-6V | EACH | £5.85 |

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Electricity, Magnetism & Materials Kit

This kit provides a comprehensive range of practical assignments in electricity and magnetism and is ideal for those who are studying science and electricity within a wide variety of academic or vocational courses. The kit is supplied with a comprehensive set of worksheets that cover the electrical properties of materials, and introduce students to electricity. Suitable for Science at Key Stages 3 and 4.

Learning objectives / experiments:

- Electrical properties of materials
- Simple circuits
- Heat and magnetism
- Basic circuit symbols
- Current flow
- Series and parallel circuits
- Patterns of voltage and current
- Electrical sensors
- Relays and electromagnets

Contents:

- Adjustable DC power supply
- Voltmeter, 0V to 15V
- 12Ω resistor
- 4mm to 4mm lead, black
- Open frame motor
- 10k potentiometer
- Press switch
- On/off slide switch
- 6V buzzer
- Fuse/universal component carrier
- Ammeter, 0A to 1A
- 400 turn coil carrier
- 9x Connecting links
- 3x Lampholders
- 4K7 NTC thermistor
- 4mm to 4mm lead, red
- Light dependent resistor
- 2x 1K resistor
- 10K resistor
- LED, red
- Curriculum CD ROM
- Power supply carrier
- 7 x 5 baseboard with 4mm pillars
- EMM V2 accessories pack
- Pair of 4mm to croc clip leads, red and black



| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|----------------|
| XEL 640 011 | Electricity, Magnetism & Materials Kit | EACH | £229.00 |

Fundamentals of Electricity Kit

This kit from Locktronics provides the ideal solution for teaching electricity from age 8+. It is a complete teaching and storage solution with classroom friendly trays and foam to keep carriers tidy and secure. The solution comes with a baseboard with battery retaining clips, a power supply and power supply carrier allowing you to choose the most appropriate power source for teaching simple circuits. Extensive curriculum is provided to guide the teaching and learning of electricity required at Key Stage 2.

Contents:

- Deep storage tray with lid, foam insert and daughter tray
- International power supply
- 3x 2.5V, 0.2A MES bulbs
- Locktronics baseboard with battery retaining clips
- 9x Connecting Links
- 3x Lampholder carriers
- 75mm black lead
- 75mm red lead
- Press switch
- On/off switch
- Buzzer
- Motor
- Curriculum pack CD ROM
- Power supply carrier with battery symbol



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|----------------|
| XEL 630 020 | Fundamentals of Electricity Kit | EACH | £134.62 |



Electricity & Magnetism

Electricity

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Electrical & Electronic Principles Kit

This kit provides a comprehensive range of practical assignments for electricity and magnetism and is ideal for those who are studying science and electricity for science students. The kit is supplied with a comprehensive set of worksheets that cover the electrical and electronic principles. Suitable for students of Physics aged 16 to 18.

Learning objectives / experiments:

- Batteries in series and parallel
- Internal resistance of batteries
- Power dissipation and efficiency
- Potential dividers
- Resistivity
- Kirchoff's Laws
- AC circuits
- Capacitors
- Fleming's Laws
- Inductors
- Faraday's and Lenz's Laws
- Transformers



Contents:

- Baseboard
- Power supply carrier
- 3x AA battery holder carrier
- 3x Lampholder
- 10K potentiometer
- 10Ω resistor
- 47Ω resistor
- 120Ω resistor
- 2K resistor
- 22K resistor
- Light dependent resistor
- 2x 1μF capacitor
- 47mH inductor
- Fleming's motor rule apparatus
- Energy meter
- 2x 400 turn induction coil
- 4 Resistivity carriers
- Adjustable DC power supply
- 12 Connecting links
- Press switch
- 3 Bulb 6V
- 3.9Ω resistor
- 15Ω resistor
- 68Ω resistor
- 1K resistor
- 10K resistor
- 4K7 resistor
- 0.1μF capacitor
- 22000μF capacitor
- Hand-cranked generator
- LED carrier
- Transformer, 2:1 turns ratio
- Constantan Wire Carrier, 0.075x500mm
- Nichrome Wire Carrier, 0.075x500mm
- Nichrome Wire Carrier, 0.075x250mm
- Nichrome Wire Carrier, 0.21x500mm
- 7x5 baseboard with 4mm pillars
- Resistor 2.2k
- Choke
- Switch on/off
- Capacitor, 1μF
- Capacitor, 2200μF
- Thermistor 4.7k, NTC
- Resistor, 5.6k
- Small bar magnet
- Resistor, 100 ohm
- Capacitor, 1000μF
- Resistor, 270 ohm
- Potentiometer, 250 ohm
- Curriculum CDRom
- LED, Red
- 2:1 Transformer, retractable
- Ferrite core

| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|----------------|
| XEL 650 011 | Electrical & Electronic Principles Kit | EACH | £329.00 |

Components

Locktronics products simplify the process of learning and teaching electricity and electronics. The core range consists of more than 200 electronic components (ANSI and DIN) mounted on rugged plastic carriers which are printed with the corresponding circuit symbol. Students use these carriers, in conjunction with a baseboard with interconnecting metal pillars, to build up a working circuit. They then use the curriculum provided to carry out experiments in electricity and electronics. A key benefit of Locktronics is that as students construct the working circuit they can also see the corresponding circuit diagram.

A full range of Locktronics Components is available, please contact Customer Service for details.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|--------------|
| XEL 650 590 | Connecting Link | EACH | £2.72 |
| XEL 650 600 | Lampholder MES | EACH | £4.53 |
| XEL 650 610 | Push to Make Switch, Metal Strip | EACH | £5.28 |
| XEL 650 620 | Toggle Switch, On/Off | EACH | £9.99 |



XEL 650 590



XEL 650 600



XEL 650 610



XEL 650 620

Ammeter/Voltmeter Add-ons

Our range of moving coil ammeters and voltmeters can be built directly into your circuits.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XEL 650 540 | Ammeter Add-on 0-1A | EACH | £24.62 |
| XEL 650 560 | Voltmeter Add-on 0-15V | EACH | £20.94 |





XEL 100 020

Baseboards

These are the bases on which students build circuits. They are made up of rows and columns of pillars for quick, trouble-free component location. Choice of two sizes.

| Cat No. | Pillars | Size | Quantity | Price |
|--------------------|---------|------------------|----------|---------------|
| XEL 100 020 | 4 x 4 | 224 x 246 x 40mm | EACH | £35.94 |



Immersion Heater

A simple Immersion Heater that is suitable for use with polystyrene cups. The plastic lid has a mounted 2.2Ω heating element which is connected to two standard 4mm jack receptacles. There is also a centre hole for a thermometer.

Diameter: 65mm

Height: 75mm

Mass: 30g

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XHE 240 010 | Immersion Heater | EACH | £14.62 |
| Accessories | | Quantity | Price |
| CMZ 010 010 | Polystyrene Cups | PK500 | £15.86 |



Power Supply

This switch mode power supply outputs a range of voltages, making it ideal for use with Locktronics projects. The battery symbol carrier allows users to plug the power supply directly into the carrier, maintaining the circuit diagram.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XEL 100 510 | Power Supply | EACH | £21.75 |



Conducting Putty

This is a useful product for teaching resistivity and the dependence of resistance on length and cross-sectional area of the conductor. Connect this putty into an electrical circuit and alter the length and diameter to establish the relationship. A cylinder of 60mm length and 20mm diameter has a resistance of approx 20Ω.

The putty is harmless, although a bit messy so plastic gloves are also provided.

Approx 100g.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XLE 270 010 | Conducting Putty | 100GM | £15.99 |



Electricity & Magnetism

Electricity

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Rheostats

These sliding contact, single tube rheostats are wound with heavily oxidised resistance wire on a vitreous enamelled steel tube. The tube is carried on robust enamelled die-cast end stands and the heavy duty sliding contact is of the multi leaf phosphor bronze type, nickel plated for corrosion resistance. The unit is fitted with 4mm socket terminals allowing for both rheostat or potentiometer connection.



CAUTION: All above rheostats are of open design and not protected, therefore they should not be used with voltages greater than 50 volts. While ordering rheostats, please specify the ohmage, and current capacity clearly. Current indicating is for vertical intermittent use. Current should not exceed 75% of the marked value when rheostats are used horizontally.

| Cat No. | Resistance | Max Current | Tube Size | Quantity | Price |
|-------------|------------|-------------|------------|----------|--------|
| XLE 190 010 | 1600Ω | 0.3A | 200 x 43mm | EACH | £33.11 |
| XLE 190 030 | 300Ω | 0.9A | 200 x 43mm | EACH | £37.54 |
| XLE 190 040 | 135Ω | 1.4A | 200 x 43mm | EACH | £37.54 |
| XLE 190 050 | 55Ω | 2.3A | 200 x 43mm | EACH | £32.90 |
| XLE 190 060 | 16Ω | 4A | 200 x 43mm | EACH | £44.91 |
| XLE 190 070 | 8.5Ω | 5A | 200 x 43mm | EACH | £44.91 |
| XLE 190 080 | 2.5Ω | 9A | 200 x 43mm | EACH | £51.99 |
| XLE 190 130 | 37Ω | 3.2A | 300 x 43mm | EACH | £72.23 |
| XLE 190 140 | 20Ω | 4.5A | 300 x 43mm | EACH | £90.71 |
| XLE 190 150 | 4.5Ω | 9A | 300 x 43mm | EACH | £51.13 |

Wheatstone Bridge

An improved version of the simple metre bridge for the precise measurement of an unknown electrical resistance and for comparing nearly equal resistances without determination of the end resistances. Comprising a hardwood base, 1.1 metre long with a laminated top and plastic feet. A metre long Constantan resistance wire, 24SWG is stretched along a metre scale graduated in mm, fitted on this base. Each end of this wire is firmly and precisely attached to plated copper strips. Three more copper strips are fixed parallel to the wire providing four gaps. Electric connections are made through 4mm socket binding post terminals. Supplied with a knife edge jockey to make contact with resistance wire and a galvanometer.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| XLE 070 011 | Wheatstone Bridge | EACH | £34.75 |

Resistance Wire Board

This apparatus provides the basis for student investigations into resistance. Four wires, 50cm long mounted on a hardwood and acrylic base and connected to via 4mm sockets. The wires are all Nichrome with diameters of 1.0, 0.8, 0.63 and 0.4mm giving resistances in the range 0.4 to 4 ohms. A graduated mm scale is included allowing resistance vs. length and resistance vs. diameter investigations to be easily covered.

- Explore resistance against diameter and length



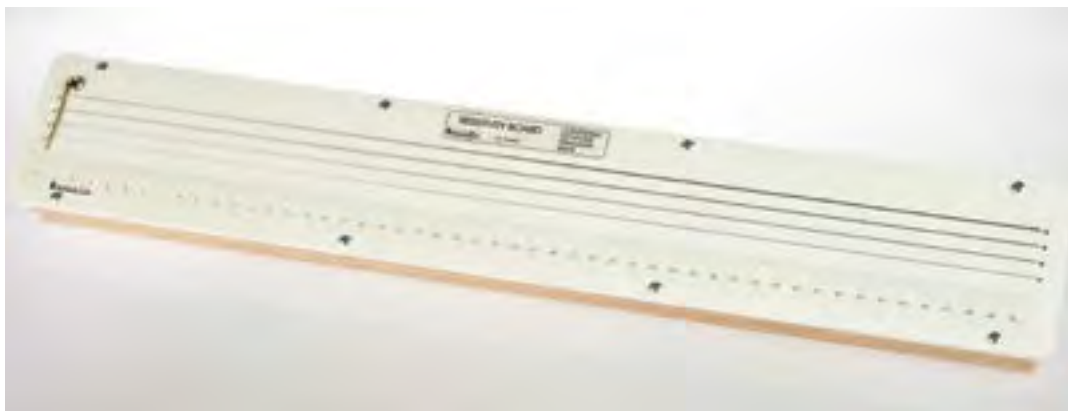
| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| XLE 245 010 | Resistance Wire Board | EACH | £47.50 |



Resistivity Board

Having the same construction as the Resistance Wire Board, this unit provides four wires of the same diameter but different material - constantan, manganin, nichrome and brass. Resistivity investigations can be conveniently carried out.

- Explore resistance in four different wire types against length



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XLE 245 010 | Resistance Wire Board | EACH | £47.50 |



Resistor Kits

Resistor Kit A

Packs of 10 resistors covering the range 120Ω to $2.2M\Omega$, 5% tolerance together with 100 resistors $22k\Omega$ on a bandolier. The kit contains 10 full sets.

- Use with component holder to investigate Ohm's Law
- Students can read resistance values using coloured bands and verify using a multimeter

Resistor Kit B

Also for Advancing Physics Sensing Unit 110E. Five colour-sleeved resistors of values $300k\Omega$, $100k\Omega$, $75k\Omega$, $150k\Omega$ and $100k\Omega$ all at 5% tolerance. The colour sleeves obscure the colour coding bands.

- Ten sets in each kit
- Students can deduce the unknown resistance using their knowledge of Ohm's Law

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XEL 620 100 | Resistor Kit A | KIT | £32.95 |
| XEL 620 110 | Resistor Kit B | KIT | £26.77 |



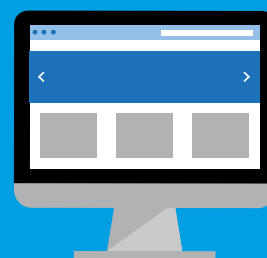
Jockey

An ergonomically designed sliding contact for use with the Resistance Wire Board (XLE 245 010) or Potentiometer (XEL 620 010). Constructed from black nylon with a brass spade contact at the lower end. Connection is by 4mm socket at the top. Dimensions: 80 x 10mm (L x Dia)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XLE 140 010 | Jockey | EACH | £18.53 |

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Resistance Selector

Mini substitution unit using a single rotary switch to select from twelve values all at 5% 0.5W. Values are 100Ω, 330Ω, 470Ω, 680Ω, 1kΩ, 3.3kΩ, 4.7kΩ, 6.8kΩ, 10kΩ, 33kΩ, 47kΩ and 100kΩ. Connections via 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| XLE 050 012 | Resistance Selector | EACH | £36.00 |



Decade Resistance Box

A four decade resistance box covering 1Ω to 9999Ω in 1Ω steps. Plastic enclosure measuring 190 x 110 x 65mm overall with resistance values 5% tolerance sockets. Connections via 4mm.

- Easily select resistance required
- Ideal for potential divider investigations

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| XLE 040 012 | Decade Resistance Box | EACH | £92.69 |



Lost Volts Apparatus

This 'Lost Volts' apparatus provides a convenient solution for experimentally determining the internal resistance and the EMF of a cell. The unit requires connection to a 6V DC source of EMF, a voltmeter and an ammeter (these are not supplied but there are a range of Lascells items that you could use - see the Accessories list for details). The unit houses seven appropriately rated resistors and a push switch and is designed to remove any complications from wiring separate resistors. The switch reduces the possibility of unnecessary drain of the battery and excessive heat being generated in the resistors.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XLE 110 010 | Lost Volts Apparatus | EACH | £40.16 |
| Accessories | | | |
| XEL 340 030 | Battery Pack | EACH | £24.71 |
| EMA 200 010 | Lascells Digital Ammeter | EACH | £26.65 |
| EMV 200 010 | Lascells Digital Voltmeter | EACH | £26.65 |

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Lost Volts Separates

- Good circuit construction exercise
- Full Instructions
- Reliable Data

A pack of 5 convenient and appropriately rated mounted components to enable students to carry out an experiment to determine the EMF and internal resistance of a cell. The pack is supplied with full instructions and the resistors can be combined to create up to nine different resistances allowing a good range of readings to be taken. The resistors will need connection to a 6V DC source of EMF, an ammeter and a voltmeter (these are not supplied but there are a range of Lascells items that you could use - see the Accessories list for details).

| | |
|--|--------------------|
| Max Input Voltage | 6V |
| Resistor Values (Ω) | 10, 2x 20, 50, 100 |
| Packaged Dimensions (L x W x H) | 145 x 145 x 13mm |
| Weight | 200g |
| NB: Kit contains 2x 20 Ω Resistors | |



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| EMA 200 010 | Lascells Digital Ammeter | EACH | £26.65 |
| EMV 200 010 | Lascells Digital Voltmeter | EACH | £26.65 |
| Accessories | | Quantity | Price |
| XEL 340 030 | Battery Pack | EACH | £24.71 |



Conductive Paper

Suitable for plotting electric fields by means of the equipotential points method. Also can be used for producing home made strip resistors.

Size: 300 x 430mm

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| CON 550 012 | Conductive Paper | PK10 | £7.71 |



Conductivity Set

Consists of 12 conducting/non-conducting material strips, attached to a plate with a brass screw. Used for demonstrating electrical conduction properties of various materials.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XLE 090 010 | Conductivity Set | EACH | £16.43 |

AC Waveform Demonstrator

A unique teaching aid for the concept of alternating current. When a 12V DC supply is connected to the input the output can be varied from +6V to -6V under manual control. If the wheel is rotated at steady speed a full AC cycle is covered which may be displayed on a centre-zero voltmeter, CRO or datalogger etc. It is also ideal for use with our special Bridge Rectifier System or any other low-current circuitry. If rotation is ceased the output remains at the level selected facilitating circuit analysis. The system used also allows for the demonstration of digital to analogue signal conversion. Perfect with Bridge Rectifier System - gives an AC output under manual control with a 12V DC input.

Dimensions: 160 x 100 x 50mm

Mass: 0.2kg



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XEC 180 010 | Bridge Rectifier System | EACH | £43.99 |



Bridge Rectifier System

A must for the effective demonstration of the bridge rectifier circuit. This unit contains a bridge rectifier circuit with LEDs showing which diodes are conducting during each half cycle of the AC supply. The clear front panel label shows the current path at each stage through the onboard load resistor. In addition there is a smoothing capacitor which may be switched in as required. The unit may be powered from a 6V DC supply (mains or battery) with the connections reversed for each half cycle.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XEC 180 010 | Bridge Rectifier System | EACH | £43.99 |



Capacitance Selector

Twelve non-electrolytic capacitors selected by a rotary switch mounted on an acrylic enclosure measuring 80 x 70 x 60mm. Values 220pF, 470pF, 1nF, 2.2nF, 4.7nF, 10nF, 22nF, 47nF, 0.1µF, 0.22µF, 0.47µF and 1.0µF. Connection by 4mm sockets.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XLE 030 012 | Capacitance Selector | EACH | £41.19 |



Capacitance Box

Ten capacitance values in a plastic enclosure measuring 190 x 110 x 65mm. Five non-electrolytic components of values 0.1, 1.0, 2.2, 4.7 and 10µF and five electrolytic components of values 100, 470, 1000, 2200 and 4700µF. Non electrolytic capacitors rated at 100V DC. Electrolytic capacitors rated at 35V DC.

| Cat No. | Description | Quantity | Price | Cat Price |
|--------------------|-----------------|----------|---------------|-----------|
| XEL 620 151 | Capacitance Box | EACH | £78.27 | |

Capacitor Investigation

This apparatus provides a self-contained unit to enable students to study the charge and discharge characteristics of a capacitor. The large value of C (0.01F) and the resistor chosen give a time constant of about 50 seconds so that students can easily take a manual set of readings for plotting a graph. Data-logging equipment can just as easily be used and if a faster response is required a parallel resistor could be plugged in. Connections are by standard 4mm plugs and analogue or digital meters are suitable. Dimensions: 190 x 110 x 65mm



| Cat No. | Description | Quantity | Price | Cat Price |
|--------------------|-------------------------|----------|---------------|-----------|
| XLE 240 012 | Capacitor Investigation | EACH | £51.49 | |



Plasma Ball

A large, 8" diameter plasma ball that looks fantastic in a darkened room. The unit may be used for illustrating $E=h\nu$, capacitance effects, voltage breakdown of gases, differing energy states etc. A valuable addition to any science department and a real wow for open days.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XLE 290 010 | Plasma Ball | EACH | £52.56 |

Earth Neutral and Live Demo

This apparatus is an effective demonstration of how the earth wire and fuse act together to protect both the user and the appliance. The apparatus can be set up to demonstrate and explain:

- The safe wiring of an appliance
- The danger of an unearthed appliance
- The action of a fuse

In use the appliance is connected correctly and the LEDs in the kettle will illuminate to show the appliance is working. A fault is then demonstrated by swapping the live wire from inside the kettle to the case to show either the fuse melting and protecting the user and appliance, or in the case of no earth wire, the LEDs illuminate to indicate the passage of current through the person to ground.

The apparatus is clearly labelled and easily allows the tracing of current from the 'power station' through the 13A socket, plug and appliance through the live wire and back through the neutral wire. In addition, the layout of the 3 pin plug is positionally correct to reinforce the wiring layout and the position of the fuse.

The fuse is easily visible and can be seen to 'blow' when a fault occurs. The unit is supplied with 10 metres of fuse wire and full instructions (replacement wire is available separately if required). A 12V DC power supply is required. Connections are made via 4mm shrouded sockets.

Dimensions: 355 x 265 x 540mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| XEL 800 010 | Earth Neutral and Live Demo | EACH | £82.39 |
| XEL 800 500 | Tinned Copper Wire, 40 SWG | EACH | £3.75 |



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Lemon Battery LED

Lemon Battery LED - XEL620201 A low powered LED comes securely contained within a robust tube for protection. Suitable for use with lemon batteries. Zinc and copper pieces for connections are not included but are available separately.

Dimensions: 50mm x 10mm, 3g

| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|-------|
| XEL 620 201 | Lemon Battery LED | EACH | £5.14 |



Zinc & Copper Pieces

10 each of Zinc and Copper pieces measuring 15 x 30 x 1mm. For use in 'lemon or potato batteries'.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|-------|
| XEL 620 180 | Zinc & Copper Pieces | EACH | £7.31 |

Demonstration Lead-Acid Battery

Two lead plates contained in a glass, screw-top jar with integral 4mm sockets. The jar can be filled with dilute Sulfuric acid and used in a charge/discharge arrangement to demonstrate the storage of energy in chemical changes. The apparatus includes an empty jar so that by changing over the lids the acid can be securely stored and the plates protected in between uses. Full instructions included together with suggestions for using the system as the basis of an investigation into storage of energy. Supplied without acid.

Dimensions (2 batteries, each with same dimensions):

90 x 100mm (Diameter x Height)



| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------|----------|--------|
| XEL 620 170 | Demonstration Lead-Acid Battery | EACH | £36.00 |



Pressure Sensor

Pressure Gauges and Strain Gauges are fitted with 4 pin telephone type data plugs which interface directly with the instrumentation amplifier.

- Easily monitor pressure in a variety of experiments
- Suitable for liquids and gasses
- Output in range 0 to 350mV

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| XLE 180 010 | Pressure Sensor | EACH | £77.24 |



Shock Game

Make your own circuit and try completing it without touching the wire! How it Works: When the hook touches the curvy wire, it completes a circuit.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| XEL 400 061 | Shock Game | EACH | £6.70 |





Plastic Cased Compasses

Tough plastic cased compass with lanyard. Marked with 4 compass points and full 360 degree scale around its edge.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XMG 580 010 | 45mm Diameter | EACH | £1.80 |
| XMG 580 020 | 55mm Diameter | EACH | £1.91 |



Plotting Compasses

14.5mm Diameter Carousel disc marked plastic plotting compasses.
16mm Diameter Small plotting compasses ideal for plotting magnetic fields, in a metal case.
19mm Diameter Clear glass on both sides.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XMG 180 040 | 14.5mm Diameter | PK50 | £11.79 |
| XMG 180 010 | 16mm Diameter | PK10 | £3.52 |
| XMG 180 030 | 19mm Diameter | PK10 | £6.13 |



Magnaprobe

Consisting of a small bar magnet suspended in a gimbal mounting, the supporting frame, handle and bearing pivots are constructed from non-magnetic materials to avoid possible effects on the probe. The Magnaprobe easily and conveniently demonstrates the 3 dimensional nature of a magnetic field. When held within a magnetic field, the direction of the field is indicated by the small magnet which has its North pole coloured red. Approximate dimensions are 135mm long x 400mm wide (at the head). Suitable for both individual work and small scale demonstrations. The Magnaprobe can also be used in the field by geology students investigating the magnetic susceptibility of ferrous rocks. Magnaprobes are individually packed in wallets complete with instructions and experimental suggestions.

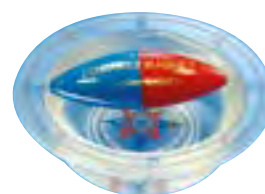
Magnaprobe Mark I (with jewelled bearings)

This is the more sensitive Magnaprobe and has been balanced to show approximately the dip of the Earth's magnetic field.

Magnaprobe Mark II

Although less sensitive than the Mark I, the Mark II is designed for laboratory use and shows the true shape of magnetic fields far better than iron filings or a plotting compass.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XMG 250 010 | Magnaprobe Mark I | EACH | £32.89 |
| XMG 250 020 | Magnaprobe Mark II | EACH | £9.69 |



Compass Magnet

Set the torpedo shaped magnet in the bowl with water and watch it hunt for magnetic north! Inside, a powerful neodymium magnet finds the Earth's magnetic field and aligns itself. Based upon one of the first principles of magnetism and emulating primitive compasses used by early explorers, it is both fascinating and educating.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| XMG 600 020 | Compass Magnet | EACH | £6.72 |



Iron Filings Bubble

A clear plastic flat sealed container containing iron filings. The bubble demonstrates the magnetic field around magnets without needing to sprinkle loose iron filings.

Size: 70 x 12mm (Dia x Depth)

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XMG 200 010 | Iron Filings Bubble | EACH | £1.23 |



Magnetic Globe Set

This 2 piece set comprises the Earth, represented by a rubberised ball with a strong magnet moulded within it to create an invisible exterior magnetic field, similar to that of the Earth, and a hand held magnet called a magnetic field finder, which is a 3 dimensional compass. By placing the Magnetic Field Finder near to the globe it tilts and orientates itself to clearly show the strength, direction and position of the magnetic flux anywhere around the Earth ball. This is a great way for pupils to see and understand the Earth's 3 dimensional magnetic field pattern. Complete with a full explanation for both the teacher and pupil.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XMG 840 010 | Magnetic Globe Set | EACH | £22.66 |



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Magnetic Chips

A cleaner and more colourful alternative to iron filings. These magnetic field chips clearly show the magnetic field around a magnet and are easier to remove than the traditional iron filings. 100g bag of assorted colours.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XLM 730 010 | Magnetic Chips | EACH | £19.00 |



Magnet Field Demonstrator

To clearly see magnetic field lines in 1, 2 or 3 dimensions. Supplied with Alnico magnet.
Size: 150 x 75mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| XMG 470 011 | Magnet Field Demonstrator | EACH | £20.96 |

Magnetic Field Pattern Kit

The Magnetic Field Pattern Kit consists of a soft white silicone edged frame containing magnetic powder in a water based solution. This window allows observation of the invisible magnetic fields surrounding a magnet and how other magnets influence them. The kit also includes a selection of bar magnets and full instructions. Two versions of the Magnetic Field Pattern Kit are available. Supplied with full supporting teacher's notes.
Dimensions: (L x W x D) 220 x 120 x 10mm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XMG 260 011 | Desk Version | EACH | £33.99 |
| XMG 260 021 | Overhead Projector Version | KIT | £77.24 |

3D Magnetic Tube

Consists of iron filings and a magnet in a clear tube. The tube has a central hole through its length and the strong magnet can be moved through the hole. The iron filings cluster to show the shape of the magnetic field.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XMG 460 010 | 3D Magnetic Tube | EACH | £16.48 |



Magnetic Field Observation Tank

The Magnetic Field Observation Box is the perfect way for students to observe magnetic force fields. Watch the creation of a magnetic field in 3 dimensions in your hand or via an overhead projector.

Inside Material: Silicon Oil and Iron Powder
Hole: 75 x 8mm dia
Magnet: Alnico Magnet (50 x 7mm dia)
Overall Size: 100 x 56 x 56mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| XMG 590 010 | Magnetic Field Observation Tank | EACH | £58.51 |

Iron Filings

A 225 gram pack of iron filings supplied in plastic drum with sprinkler top.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XMG 220 010 | Iron Filings | PK5 | £10.29 |





Magnetic Marbles

Plastic coated coloured round magnets.
10 different colours.
15mm diameter.
(Not suitable for children under 3).

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XMG 360 010 | Magnetic Marbles | PK20 | £3.59 |
| XMG 360 020 | Magnetic Marbles | PK100 | £15.45 |



Transparent Magnetic Discs

Each disc has a metal rim such that it can be picked up using a magnet. For use in counting exercises and games. Can be used in conjunction with magnet wands.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| XMG 450 011 | Transparent Magnetic Discs | PK100 | £7.21 |

Magnet Kits

Small Magnet Kit

A selection of different types of magnets and compasses. Supplied in a tray and box.

Large Magnet Kit

A large set of magnets and accessories supplied in a plastic storage box with moulded tray.

Contents:

Small Magnet Kit

- 1 pair bar magnets 100mm long
- 1 horseshoe magnet 100mm
- 1 pair plastic coated magnets 80mm long
- 3 button magnets (different sizes)
- 1 magnet sheet
- 5 ring magnets 23mm diameter
- 5 square magnets 19x19x5mm
- 1 powerful ALNICO horseshoe magnet 25mm
- 1 pack of Lodestone (magnetic iron ore)
- 2 compasses 19mm diameter clear both sides
- 2 compasses 16mm diameter marked with compass points

Large Magnet Kit

- 1 horseshoe magnet 10cm
- 1 pair plastic cased bar magnets 8cm
- 2 ferrite blocks 50 x 19 x 5mm
- 1 pair ALCOMAX bars 38 x 6 x 6mm
- 1 iron filing bubble
- 4 pieces magnetic rubber sheet 50 x 50mm (4 colours)
- 5 ferrite rings 24mm diameter
- 5 ferrite rings 12mm diameter
- 1 each ALNICO button magnets 12, 19 & 24mm diameter
- 4 plotting compasses 16mm diameter
- 1 ALNICO cast horseshoe magnet 24mm
- 2 ALCOMAX rods 24 x 8mm diameter
- 8 types metal discs stamped
- 1 pair ALNICO bars 50 x 15 x 10mm
- 1 pair chrome steel bars 100mm

*Contents may vary due to availability



XMG 140 010



XMG 140 020

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| XMG 140 010 | Small Magnet Kit | EACH | £36.00 |
| XMG 140 020 | Large Magnet Kit | EACH | £44.28 |



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Block Magnets

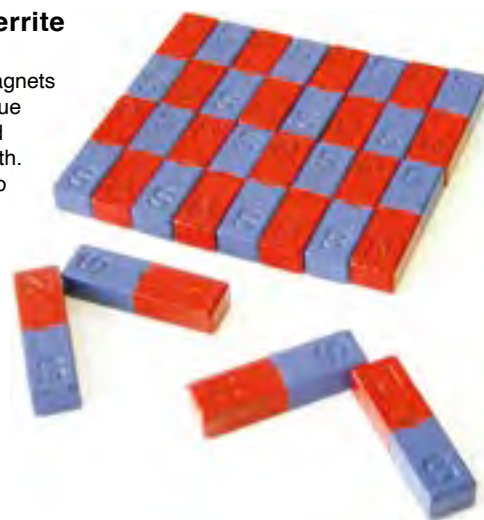
A set of 20 solid, painted (red/blue) ceramic magnets supplied in a snap-top storage case for easy counting in and out.
Magnet size: 14 x 10 x 50mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XMG 780 010 | Block Magnets | SET20 | £17.51 |

Painted Ferrite Magnets

Painted bar magnets with red and blue poles, stamped with North/South. Available in two sizes.



| Cat No. | Size | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XMG 490 010 | 9 x 9 x 40mm | PK | £8.24 |
| XMG 490 020 | 14 x 10 x 50mm | PK20 | £11.33 |



Rectangular Chrome Steel Magnets

Use for plotting lines of force. Should not be used for repulsion experiments as these magnets are not as strong as Alnico magnets.

| Cat No. | Size | Quantity | Price |
|--------------------|----------------|----------|--------------|
| XMG 060 010 | 75 x 12 x 6mm | PAIR | £4.11 |
| XMG 060 020 | 100 x 15 x 6mm | PAIR | £6.17 |



Alnico Rectangular Magnets

Strong permanent magnets supplied boxed in pairs with keepers.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| XMG 040 020 | 40 x 12.5 x 5mm | PAIR | £4.74 |
| XMG 040 030 | 50 x 15 x 10mm | PAIR | £9.89 |
| XMG 040 040 | 60 x 15 x 5mm | PAIR | £7.73 |



Alnico Bar Magnets

Ideal for extended classroom use, these magnets are painted red and north pole is marked. Supplied in pairs between plated keepers and with a plastic separator.

| Cat No. | Size (LxWxH) | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| XMG 970 040 | 75 x 15 x 10mm | PAIR | £6.99 |
| XMG 970 060 | 100 x 15 x 10mm | PAIR | £7.49 |



Alnico Magnets

This range of Alnico magnets are very strong.

| Cat No. | Size | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| Horseshoe | | | |
| XMG 100 010 | 25mm High, 8 x 8mm Section | EACH | £3.59 |
| C Shape | | | |
| XMG 100 020 | 30 x 20 x 20 | EACH | £7.71 |



Plastic Coated Magnets

A pair of plastic cased ceramic magnets coloured half red and half blue.

Dimensions: 80 x 23 x 10mm



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| XMG 010 020 | Plastic Coated Magnets | PAIR | £5.14 |

Ferrite Ring Magnet

A powerful ferrite ring magnet magnetised axially with a central hole. Used commercially to hold portable aerials to car roofs.

Dimensions: 65 x 18 x 12mm (OD x ID x Thickness)



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XMG 380 012 | Ferrite Ring Magnet | EACH | £6.49 |

Neodymium Cylindrical Magnet

Can be used in conjunction with induction coils for the demonstration of alternating current. Mounted in a holder on a 10mm diameter stainless steel rod. Size: 30 x 6mm (Diameter x Thickness)



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XMG 930 010 | Neodymium Cylindrical Magnet | EACH | £21.99 |

Plastic Horseshoe Magnet

A plastic cased magnet which will lift 5kg. The easy to grip red handle is ideal for holding onto, to show the strength of magnetic force. Overall dimensions: 120 x 110 x 32mm (HxWxThickness)



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| XMG 290 010 | Plastic Horseshoe Magnet | EACH | £2.88 |



Horseshoe Magnets

Chrome steel horseshoe magnets finished in red and silver. These magnets are not as strong as Alnico magnets.

| Cat No. | Size | Quantity | Price |
|--------------------|------|----------|--------------|
| XMG 110 010 | 75mm | EACH | £4.12 |

Giant Horseshoe Magnet

A red plastic coated horseshoe magnet 225mm tall x 138mm wide at poles. North and South poles are clearly marked.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| XMG 300 010 | Giant Horseshoe Magnet | EACH | £4.66 |

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Horseshoe Magnet Set

A set of chrome steel horseshoe magnets finished in red and silver. Overall length of each magnet 75, 100 and 125mm supplied with keepers in a plastic wallet. Set of 3.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XMG 130 010 | Horseshoe Magnet Set | EACH | £15.45 |

DATA LOGGING

Ferrite Magnets

An assortment of 300 ferrite disc, ring and square magnets. Typical contents will include approximately 50 of each type of magnet.



Contents:

- Disc, 20 x 4mm (Dia x Thickness)
- Disc, 14 x 4mm (Dia x Thickness)
- Disc, 9 x 3mm (Dia x Thickness)
- Ring, 12 x 3mm (Dia x Thickness) with 3mm diameter hole
- Square, 19 x 19 x 5mm thick
- Square, 14 x 14 x 5mm thick

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| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XMG 330 010 | Ferrite Magnets | PK300 | £20.60 |

PHYSICS



Neodymium Wands Pack

A set of 5 acrylic wands each fitted with a powerful 12mm diameter Neodymium button magnet. The wands make the magnets safe for pupil use. Dimensions: 125 x 20 x 10mm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| XMG 870 010 | Neodymium Wands | PK5 | £17.50 |

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Metal Discs

A set of eight discs 25mm diameter approximately 1mm thick. Each disc is stamped with the name of the metal. Contains one of each metal.



Contents:

- Aluminium
- Brass
- Bronze
- Copper
- Mild steel
- Nickel Silver
- Stainless Steel
- Zinc

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XMG 210 010 | Metal Discs | SET8 | £5.14 |

GENERAL LABWARE

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Anisotropic Ferrite Magnadur Magnets

Ferrite magnets 50 x 19 x 5mm, magnetised through the thickness.

* Suitable for Westminster Motor Kit (XEM 010 011/021).



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|--------------|
| XMG 150 010 | Anisotropic Ferrite Magnets | PK10 | £2.99 |



Neodymium Magnets

A range of Neodymium disc magnets with the poles on the flat faces. Neodymium magnets are extremely powerful for their size. These magnets are brittle and can break when subjected to a severe shock load.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| XMG 325 020 | 12 x 4mm (Dia x Thickness) | PK10 | £9.15 |

Super Magnets

Feel the ultimate pulling power of magnetism with this pair of incredible super magnets. Housed in tough colour coded outer mouldings (red - north, blue - south) the design allows children to safely experience first hand the force of Neodymium - currently the world's strongest permanent magnet!



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XMG 615 010 | Super Magnets | PK2 | £13.93 |

CHEMICALS





Soft Iron Rod

Size: 200 x 6mm (Length x Dia)

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XMG 430 011 | Soft Iron Rod | EACH | £1.22 |

Floating Magnet Set

To show that like magnetic poles repel each other by placing three or more ring magnets on a non-magnetic stand. Comprises three coloured ring magnets, magnetised parallel to the axis, equipped with an acrylic rod mounted on a plastic base. The magnets float in the air, one over the other and spring back up when pushed down.

Magnet Dimensions: 32 x 18 x 6mm (OD x ID x H).



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XMG 030 021 | Floating Magnet Set | EACH | £3.97 |

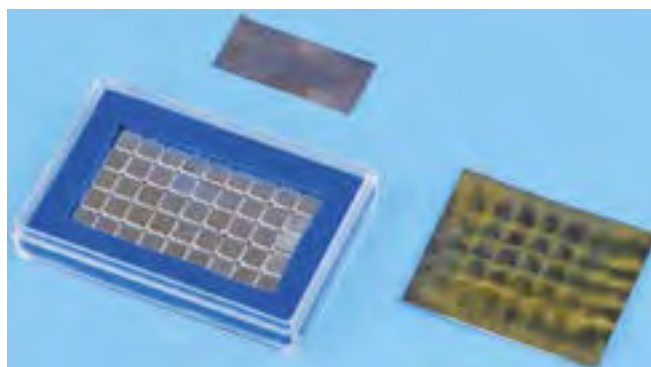


Magnetic Tape

A self-adhesive rubber tape which can easily be cut with scissors and the paper backing removed to expose the adhesive. Ideal to hold cards or light objects to glass or walls for display.

Size: 8mm x 10m x 0.8mm (Width x Length x Thickness)

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XMG 390 010 | Magnetic Tape | 10MTR | £5.15 |



Diamagnetic Experimental Plate

As a result of the strong magnetic field of neodymium magnets, diamagnetic material (graphite) will be repulsed by the diamagnetic force and we can observe the levitation of the graphite. Diamagnetism is the property of a substance to be repelled by a magnetic field. This plate has an enclosed magnetic viewer sheet and we can observe the magnetic field (where the sheet becomes black). Between the fields the diamagnetic material (graphite) will float as it is repelled by neighbouring neodymium magnets.

Contents:

- Neodymium Magnets (approx 30x48mm)
- Graphite sheet
- Magnetic viewer sheet

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| XMG 670 010 | Diamagnetic Experimental Plate | EACH | £78.70 |



Metal Strips

A set of 12 metal strips 50 x 25mm. Each strip is coded by a letter to identify the metal from a key sheet supplied. The set contains magnetic and non-magnetic metals.

(M = Magnetic, all others are non-magnetic)

Contents:

- Soft Aluminium
- Hard Aluminium
- Brass
- Copper
- Galvanised Steel (M)
- Mild Steel (M)
- Magnetic Stainless Steel (M)
- Non Magnetic Stainless Steel
- Phosphor Bronze
- Nickel Silver
- Zinc
- Zinc Plated Mild Steel (M)

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XMG 210 020 | Metal Strips | SET12 | £12.82 |



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Magnetic Thinking Putty

Made with micron-sized iron-based particles distributed throughout, the astonishing mouldable magnetic putty takes on the properties of a magnet itself when placed in close contact with the included magnet. Use the magnet to do the “snake charmer” trick. Or leave the magnet on your ball of putty and watch it completely engulf the magnet in minutes! What can you do with it? The possibilities are endless! Putty (91g) comes with a neodymium cube magnet in storage tin and a Teacher’s Guide.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XMG 980 010 | Magnetic Thinking Putty | EACH | £13.25 |



Hall Effect Probe

- Integral Display
- No Calculations
- Effective Demonstration

The unit is ideal for measuring magnetic fields ranging from strong, permanent magnets down to weak fields such as that of the Earth. The range is -70mT to $+70\text{mT}$ and the readout is displayed in Tesla on the integral display. Three range settings allow field strengths from $1 \times 10^{-5}\text{T}$ to 70mT to be displayed. The sensor output is also taken to 4mm sockets to allow a digital multi-meter (not supplied) to be connected. Output from the sensor is in the range -2.5 to $+2.5\text{V}$. The control circuitry and display are contained in a robust case with the sensor mounted in a 90° probe.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| XEM 035 011 | Hall Effect Probe | EACH | £108.14 |

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B.I.L. Coil (Current Balance)

A printed circuit board coil on support handle with 5 and 10 turns rated at 2A. The lower arm of the coil is 75mm long (minimum) and 20mm wide. In use the coil is supported between the poles of 2 ferrite slab magnets on a yoke (Westminster kit style) on the top pan of an electronic balance. When a current is passed through the coil the force can be easily measured by the change in reading on the balance and investigations into $F=BIL$ can be carried out.

- Use with Adjustable Magnet (XMG 910 010) for extra versatility

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XMG 480 011 | B.I.L. Coil (Current Balance) | EACH | £45.31 |



Lenz's Law Apparatus

Kit used to demonstrate Lenz's Law containing a copper tube with a narrow transparent slot along its length, two identically sized plugs, one of non-magnetic steel and one of magnetised neodymium. Complete with instructions. Supplied with full supporting teacher's notes.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XMG 240 010 | Lenz's Law Apparatus | EACH | £12.35 |

Splat the Rat (Eddy Currents & Lenz's Law)

Lenz's Law can be demonstrated using the standard Eddy Current Tubes whereby a magnet falls through a copper tube at a slower rate than an un-magnetised weight. The demonstration lends itself to a fun classroom activity based on the village fete challenge of Splat the Rat. Two 'rats' are supplied, one containing strong neodymium magnets and the other just a metal weight. 1m of copper tube and a foam-covered rounders bat completes the kit. In use, the challenge for the pupil is to hit the rat as it emerges from the tube. It gives a dramatic demonstration of Lenz's Law since the magnetised rat takes about 5 seconds to exit the tube.

Dimensions: 1000 x 30 x 30mm Weight 0.3kg.

- Fun and dramatic demonstration of Lenz's Law
- Interactive and entertaining demonstration of induced currents and magnetic fields



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XMG 830 010 | Splat the Rat | KIT | £48.40 |





Aluminium Foil Support Bar

A neat and effective way of supporting foil strips when demonstrating the attraction and repulsion of current carrying conductors. Made from clear acrylic with crocodile clips.

- Simple method of supporting foil strips
- Demonstrates forces on current carrying conductors

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XEL 620 130 | Aluminium Foil Support Bar | EACH | £20.59 |



Faraday's Law Apparatus

This system provides a simple and effective method of studying Faraday's Law. An acrylic tube supports an easily moved coil so that a small cylindrical magnet (supplied) can be dropped down the tube to generate a pulse of electricity as it passes through. An oscilloscope is used to monitor the pulse and measure its amplitude. At different speeds the amplitude varies and can be used by senior students to investigate Faraday's Law while revising equations of motion to determine the speed. PC based oscilloscopes are particularly suited to this equipment and full instructions are included. Twin coils, 150 and 300 turns, allows for extra versatility. KS4/Post-16.

- Faraday's Law
- Demonstrate electromagnetic induction
- Two coils for added versatility
- Demonstrate direction of induced currents

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XEM 200 011 | Faraday's Law Apparatus | EACH | £49.43 |



Force on a Conductor Apparatus

This is a new version of a traditional piece of equipment for demonstrating the effect of a current flowing in a conductor in the presence of a magnetic field. Connection is made via the 4mm sockets attached to the side rails. When a current of up to 8A flows the crossbar rolls one way or the other under the action of the electro-magnetic force. With clearly labelled poles to the magnet. Low voltage bench PSU required.

- Demonstrate Flemming's left hand rule
- Demonstrates presence of magnetic field around a current carrying wire

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| XMG 850 010 | Force on a Conductor Apparatus | EACH | £61.79 |



Joule Gun

This highly original apparatus offers an exciting application of topics such as energy storage, capacitor charging, mechanical energy, efficiency and electromagnetism. The control box provides five high value capacitors which can be switched into the charge circuit as required. When the FIRE button is pressed the energy stored is released as a pulse into a low resistance coil to safely fire a small steel projectile down a clear tube provided. Variables include, voltage, time, capacity, distance, kinetic and potential energy. Applicable to many topics at GCSE and Post-16.

- Many variables making the Joule Gun applicable to a wide range of topics
- 15 page experiment booklet
- Shows Energy Storage, Capacitor Charging, Mechanical Energy, Efficiency and Electromagnetism

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| XLE 330 010 | Joule Gun | EACH | £175.00 |





Trans-Ratio

Trans-Ratio is a fully self-contained transformer system which enables students to investigate turns ratios and efficiency with the minimum of complication. The Primary coil has tapings at 200, 400 and 600 turns while the Secondary has 100, 200, 300, 400, 500 and 600 turns all brought out to 4mm sockets. An AC supply of up to 6V is required with AC voltmeters for monitoring purposes. Full instructions supplied with experiment details etc.

Size: 180 x 100 x 75mm

- For teaching transformer operation
- Demonstrate changing number of turns
- Can be used to demonstrate induction

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XEM 230 010 | Trans-Ratio | EACH | £72.00 |



National Grid Simulator

A new safe form of the classic experiment for demonstrating the need for high voltage transmission. Comes complete with two transformers (transmit and receive), insulated resistance wires, two mounted SBC lamps and full instructions.

Features:

- Touchproof, locking high voltage connectors used throughout - it is virtually impossible to get an electric shock
- Clear lid to the casing so pupils can see how it works and trace the circuit
- Indicators for low/high voltage
- The resistance wires can be connected to either the high or low voltage system for direct comparison of lamp brightness/energy losses. By gripping the insulated cables, students can feel when and where the energy is being lost, mainly as heat
- Voltmeter sockets for measuring the high voltage

Please Note: If 12V is used as the input voltage, voltage should not be measured at the red socket unless a high impedance meter with only 2 sockets, equipped with GS38 compliant probes is used. Teachers wishing to show how the voltage is stepped up and who do not have access to such equipment should reduce the supply voltage to 3V and use 3.5V MES bulbs.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|----------------|
| XLE 255 010 | National Grid Simulator | EACH | £128.74 |

Electro-Magnet Investigation

A self-contained unit allowing students to study the effect of current and number of coils on the strength of an electromagnet.

- Tappings at 100, 200, 300, 400, 500 and 600 turns
- Use paper clips as weights (50pk supplied)
- Requires a DC low voltage power supply
- Ideal for use with the Lascells Revolution Power Supplies (RVN 020 series)



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XEM 240 011 | Electro-Magnet Investigation | EACH | £51.49 |



Magnetising & Demagnetising Coil

Suitable for magnetising and demagnetising iron bars, strips etc. Comprising a solenoid wound with insulated copper wire and mounted on a wooden board complete with switch and fuse. Solenoid dimensions: 230 x 30mm (L x D) Provided with Soft Iron Bar, dimensions: 300 x 12mm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|---------------|
| XMG 960 010 | Magnetising & Demagnetising Coil | EACH | £30.75 |

Hanging Induction Coil

This is used along with a round magnet for demonstrating induced voltages. Because the coil windings can be pulled apart the rotating magnet can be mounted within the coil and caused to rotate using a small motor. Wire thickness: 2mm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| XMG 920 010 | Induction Coil | EACH | £24.40 |



Electricity & Magnetism

Electromagnetism



Magnetic Field Demonstrations

Clear acrylic base assemblies which are suitable for bench or overhead projector use. Can be used to demonstrate magnetic field patterns around conductors using plotting compasses or iron filings. Three types are available requiring a DC power supply capable of providing 5-8A. The twin coil model has a single turn coil rated at 8A max and 5 turn coil rated at 5A max.

Base dimensions: 150 x 150 x 45mm with connection via 4mm sockets.

- Vertical wire field
- 15 turn long solenoid
- Twin vertical coils

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|---------------|
| XEM 170 011 | Pattern 1 - Vertical Wire Field | EACH | £28.83 |
| XEM 170 021 | Pattern 2 - 15 Turn Long Solenoid | EACH | £28.83 |
| XEM 170 031 | Pattern 3 - Twin Vertical Coils | EACH | £28.83 |



Transformer System

Student investigations into the relationship between coil turns and voltage are well catered for by this inexpensive range of coils designed to be used with 'Westminster Kit' type laminated 'C' cores and clips. The system also permits students to investigate for themselves the basics of Faraday's Laws of Electromagnetic Induction. The coils are made from strong plastic with 4mm socket connections. Each coil is centre-tapped giving three turns values per coil. The full set of five covers 50 - 650 turns in 50 turn steps plus 900 and 1150. The coil set (of 5) comprises one of each coil.

- 50 + 100 coil
- 200 + 250 coil
- 550 + 600 coil

NB: Individual coils and Coil Set all require the C-core and Clip Set (XEL 620 020).

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| XEL 620 020 | C-Core & Clip Set | SET | £41.70 |
| XEL 620 030 | 50 + 100 Coil | EACH | £20.28 |
| XEL 620 040 | 200 + 250 Coil | EACH | £21.02 |
| XEL 620 070 | 550 + 600 Coil | EACH | £23.02 |
| XEL 620 080 | Coil Set | SET | £108.13 |



Electromagnet

Experiment with the relationship between electricity and magnetism with this lightweight mechanism, which demonstrates the industrial electromagnets used in lifting and moving heavy iron objects. Consisting of two coils of insulated wire wrapped around an iron core, it operates on 1.5V - 3V DC and is capable of lifting up to 4.5kg. Includes four connectors for wire leads and an armature with hook for lifting.

Dimensions: 50 x 50 x 63mm (LxWxH)
Weight: 116g

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| XMG 440 010 | Electromagnet | EACH | £17.00 |

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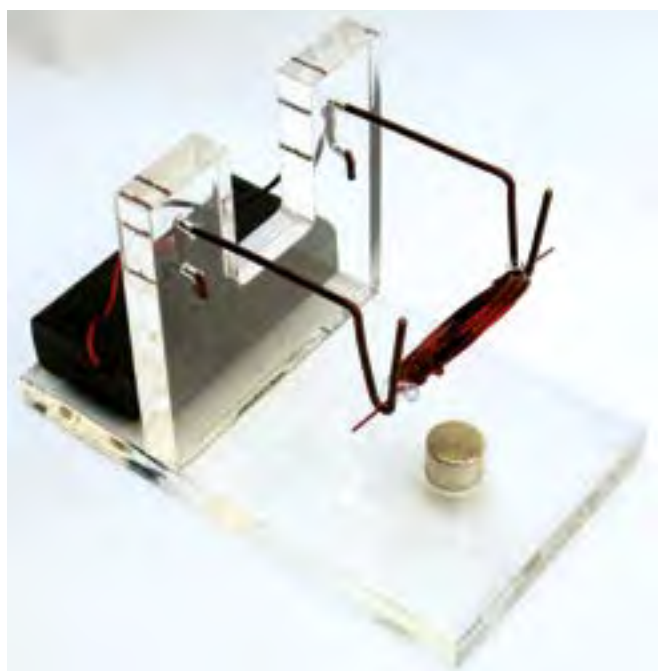
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Demonstration Electric Motor

To demonstrate the principle of a DC motor.
Uses 2 AA batteries (not included).

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------------|-------------|--------------|-------|
| XEM 060 010 | Demonstration Electric Motor | EACH | £8.22 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 | |



Demonstration Electric Motor

A model of the simplest form of DC electric motor, having 2-pole armature wound with enamelled copper wire, and a permanent magnetic field provided by a removable bar magnet. The construction of the model is completely open and all components are readily observable. A disc-type commutator is incorporated and external connection to the phosphorus bronze bushes is by means of a pair of 4mm sockets. The motor will operate on 6-8 volts DC.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XEM 190 020 | Demonstration Electric Motor | EACH | £27.48 |



Demonstration Electric Motor

The Demonstration Electric Motor is a ready built fully functional unit showing all the essential features of a simple motor as taught in the KS4 syllabus. A single rectangular coil rotates in a linear magnetic field with a simple commutator and brush arrangement. Field directions can be reversed by reversing the ferrite slab magnets and current direction can be reversed by reversing the leads. Voltages 1.5V - 6V.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XEM 250 011 | Demonstration Electric Motor | EACH | £46.34 |



Westminster Motor Kit

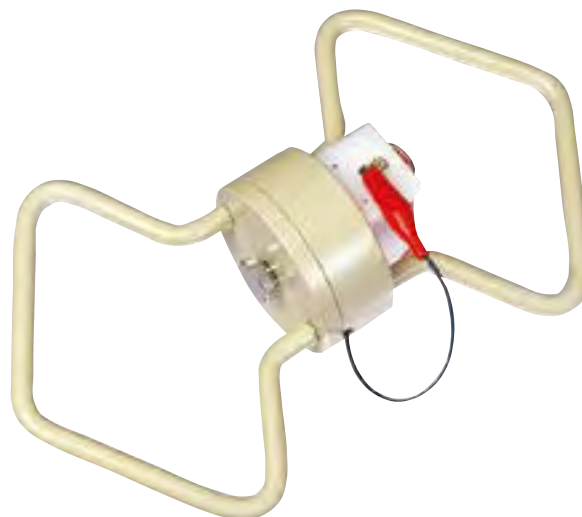
This kit provides a clear and motivational method of understanding the principles of electric motors. The students construct motors from the component parts by winding wire around a purpose designed armature and inserting it between two round ceramic magnets held in place on the U former. Essentially based on parts from the Westminster Electromagnetic Kit, each kit contains sufficient components to make six electric motors (a single kit is also available). Supplied with full instructions.

| Cat No. | Description | Quantity | Price | |
|--------------------------------------|---------------------------|-------------|---------------|-------|
| XEM 010 011 | Westminster Motor Kit | PK6 | £78.83 | |
| XEM 010 021 | Single Kit | EACH | £14.16 | |
| Accessories | | Description | Quantity | Price |
| PVC Coated Tinned Copper Wire | | | | |
| XEM 020 500 | 0.6mm Diameter, 100m Reel | EACH | £8.65 | |



Strong Electromagnet

This is a powerful electromagnet which can lift up to 60kg weight with the safety mechanism for students. One D size battery (not included) 1.5V is required.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XEM 040 010 | Strong Electromagnet | EACH | £225.61 |

Genecon V3

The Genecon V3 is a simple low voltage generator for use in schools, by turning the handle a D.C. voltage of around 3V is generated. The unit can be used to power LEDs or filament lamps in increasing number and the increased effort required to turn the handle demonstrates clearly the differing power requirements of the connected components. Connect two Genecon units together to demonstrate both generator and motor.

- Easy polarity switching with adoption of universal design cable.
- Output: DC about 3V
- Material: Polycarbonate
- Size mass: 115 x 140 x 43 mm, approx 120 g

Accessories: Light bulb module: A filament lamp for direct connection to the generator. LED Module: A yellow led for direct connection to the generator. Capacitor adaptor: Connects directly to the Genecon for charging and can then be removed and connected to the LED or filament lamp module to demonstrate both charge storage and the differing energy requirements of the two components.



XLM 300 010



XLM 300 010 + XLM 300 030



XLM 300 050



XLM 300 050 + XLM 300 040

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XLM 300 010 | Genecon V3 | EACH | £13.99 |
| XLM 300 030 | Light Bulb Module | EACH | £4.23 |
| Accessories | | | |
| | Description | Quantity | Price |
| XLM 300 020 | Genecon V3 (pack of 10) | SET | £129.99 |
| XLM 300 040 | Light LED Module (Yellow) | EACH | £3.87 |
| XLM 300 050 | Capacitor Adaptor | EACH | £8.99 |





Parallel Bulb Base

Ideal for connection to the NARIKA genecon, the handle becomes increasingly difficult to turn as more bulbs are added to the circuit allowing concepts around energy to be felt first hand. Replacing the bulbs with a set of LEDs (available separately) further highlights concepts around efficiency and energy transfer.
Size: 180 x 80 x 25. complete with 4 3.8V 300mA Bulbs.

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------|-------------|---------------|-------|
| XLM 700 010 | Parallel Bulb Base | EACH | £24.99 | |
| Accessories | | Description | Quantity | Price |
| XLM 700 020 | Replacement Bulbs | PK10 | £3.90 | |
| XLM 700 030 | MES LED | EACH | £4.50 | |



Heat Comparison Thermometers

Ideal for use with the Genecon V3. Two different diameters of resistance wire mounted to a base and bonded to a liquid crystal thermometer. Demonstrate the conversion of electrical energy to heat.
0.2mm and 0.4mm diameter wires 3.0V 1A max

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| XLM 330 010 | Heat Comparison Thermometers | PK2 | £32.50 |

Electromagnet set

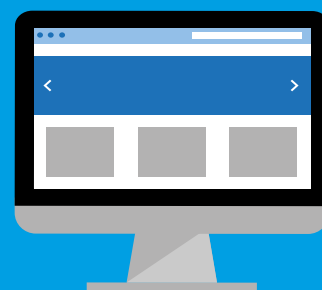
A kit of parts suitable for making 10 electromagnets which are ideal for use with the NARIKA Genecon or a single AA battery. Contains 10 cores, 0.35mm enamelled wire and 10 bobbins.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XLM 430 010 | Electromagnet Set | PK10 | £22.99 |



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Lascells Dynamo

A cycle dynamo mounted on a strong acrylic base with rubber rimmed drive wheel. The dynamo can power torch bulbs and a bulb and holder is fitted to the base to provide a compact and self-contained unit for demonstrating mechanical to electrical to light energy transfers.

Dimensions: 200 x 120 x 120mm (W x D x H)

Lamp: 6V MES with holder

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|--------|
| XEC 145 010 | Lascells Dynamo | EACH | £80.33 |



Hand Generator

- How does a spinning object create electricity?
- What tasks can be made easier if one uses that spinning object and the electricity it creates?

Students can generate electricity for themselves with this hand held generator made for DC power, up to 5 volts. They can convert their own mechanical energy into electrical energy, and apply these concepts to answer the questions above and more. The closed motor and set of four wheels can be seen inside a clear, easy to hold plastic body. Additional lead wire attachment with crocodile clips included. Spare leads and gears available separately.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|--------|
| XEC 150 011 | Hand Generator | EACH | £14.41 |



AC Generator

- Simple operation
- Visible workings
- Easy to explain

This apparatus is designed to enable students to investigate the properties of an AC Generator as used in a bicycle dynamo. A permanent magnet rotates inside a coil of wire. As the field through the coil changes a current is induced in the coil and this is brought out to two 4mm sockets. The unit is transparent to show all the inner workings and is a convenient hand held device with a direct drive (no gearing) to the rotating magnet. The output can be displayed on a centre-zero moving coil voltmeter or oscilloscope. The output swings from + to - each revolution and is about 0.5V peak to peak, with the magnitude varying with speed. Because of the geometry of the mechanism the output is not a simple sine wave and if a PC oscilloscope is used to store the trace, the waveform can be studied in more detail.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| XEC 520 011 | AC Generator | EACH | £33.98 |



Circuit Breaker Demonstration

This unit will prove invaluable for showing applications of electromagnetic devices (the solenoid) and bi-metal strips as well as bringing them all together to demonstrate the key principles of the modern domestic circuit breaker. The apparatus runs on safe, low-voltage DC and shows slow overload through an on-board load which operates the thermal trip together with a current surge overload operating the solenoid trip. The unit is contained in a robust tray with acrylic protective cover and requires a 12V DC supply through 4mm sockets.

Dimensions: 285 x 200 x 80mm

Mass: 0.9kg

- Investigate electromagnets
- See Bi-metal Strip in a working environment
- Show the workings of household circuit protection

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|--------|
| XMG 900 011 | Circuit Breaker Demonstration | EACH | £99.90 |



RCCB Demonstration

This apparatus is a companion to the Circuit Breaker Demonstration (XMG 900 010). It shows all the working parts of a modern RCCB type fuse as used in domestic consumer units. The apparatus is contained within a robust plastic tray with protective acrylic cover and includes a clear circuit layout on the main panel. Applications of electromagnetism (movement from a solenoid) are clearly demonstrated as well as the performance of the RCCB itself. The apparatus requires a 12V AC supply either through the 4mm sockets or as an external accessory (E1635 if required) and an oscilloscope if signal monitoring is required.

A switch on the main panel is used to create a leakage path to 'Earth' and this produces an immediate response from the solenoid to disconnect the supply. The solenoid can be disabled to allow for a more detailed analysis of the action. This unit should prove invaluable to those wishing to show how this type of device operates as well as for teachers requiring an additional aid to show applications of electromagnetic devices.

Dimensions: 285 x 200 x 80mm

Mass: 0.9kg

- Working RCCB type fuse
- Look at leakage to Earth
- Teach electromagnetic devices
- Can also be powered using a bench top power supply



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| XMG 900 021 | RCCB Demonstration | EACH | £108.14 |



Demonstration Dynamo

- Electrical output via 4mm terminals
- Hand powered
- May also be a motor powered by 6 to 8V power supply

This model is mounted on a base plate 200 x 125mm approx. which also carries a hand-drive pulley 125mm diameter coupled to the smaller dynamo pulley by a rubber belt to give a step-up ratio. Electrical output is via a pair of 4mm sockets and a light emitting diode is provided as simple output indicator. The model may also be used as a motor on 6 - 8V DC supply.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| XEM 190 011 | Demonstration Dynamo | EACH | £33.94 |



Search Coil

A 3300 turn, 25mm diameter coil on a plastic handle for investigating changing magnetic fields. In use the device is connected to an AC millivoltmeter or oscilloscope by means of the 4mm flying leads.

- Investigate changing magnetic fields
- Connects to oscilloscope or AC milli-voltmeter

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XEM 050 010 | Search Coil | EACH | £51.49 |



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Electromagnetism Poster

Size: 760mm x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|-------|
| XPP 040 141 | Electromagnetism Poster | EACH | £3.50 |



Static Electricity Poster

Size: 760 x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|-------|
| XPP 040 170 | Static Electricity Poster | EACH | £3.43 |



Current Electricity Poster

Size: 760 x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|-------|
| XPP 040 161 | Current Electricity Poster | EACH | £3.10 |

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5kV EHT Power Supply

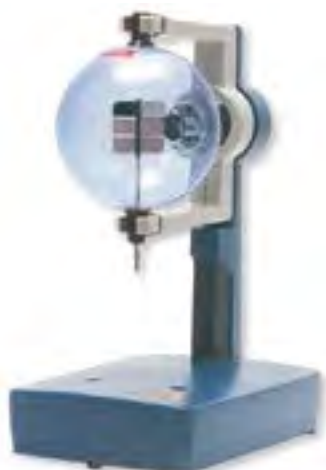
- For use with Teltron tubes, electrostatics apparatus, electric field experiments and spark detector
- 100 - 5000V DC output at currents up to 3mA
- Separate 6.3V AC output for filament heaters
- Output overload protected
- Separate earthing terminal

Continuously variable output from 100V to 5kV. Output voltage is indicated on a 14mm 2 digit LED display. The EHT circuits are fully floating so that for certain applications the positive or negative terminal may be safely connected to earth. The EHT outputs are taken from 4mm shrouded sockets and provide 100V to 5kV DC at up to a maximum of 3mA or current limited to 60 μ A. A centre tapped socket is provided to give ± 2.5 kV output. An additional pair of 4mm shrouded sockets at 19mm spacing are provided giving 6.3V AC at 2A for filament supplies. There is also a separate earthing terminal. An illuminated on/off switch is mounted on the rear panel adjacent to a fused IEC mains inlet. Enclosed in a robust metal case with a durable powder coated finish. Supplied with instructions and detachable mains lead.



| | |
|--------------------------|---|
| Output | 100 - 5000V DC up to 3mA |
| | 100 - 5000V DC up to 60 μ A (current limited) |
| | ± 2.5 kV centre tap |
| | 6.3V AC (up to 2A) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 255 x 220 x 110mm overall |
| Mass | 3.6kg |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XPU 080 010 | 5kV EHT Power Supply | EACH | £363.93 |
| Accessories | | Quantity | Price |
| 5kV Lead | | | |
| XPU 080 500 | 5kV Lead, Black | EACH | £5.99 |
| XPU 080 510 | 5kV Lead, Red | EACH | £5.99 |



Universal Stand for Teltron Tubes

Designed to accommodate the whole range of Teltron tubes and accessories, the universal stand provides unimpeded access to all plug and socket connections and gives a clear view of the experimental zone. The vertical stanchion is die-cast, integral with the plinth, in aluminium and stove-enamelled in Teltron Blue; the jaws, clamped in the stanchion cavity are made of heat-resistant plastic and provide good electrical insulation.

Any tube can be mounted in the stand by placing the neck within the stanchion cavity and springing the side caps of the experimental zone sphere into the jaw clamps; any tube thus mounted can be rotated through 360° about an axis which is 25cm above the table top. The stand is mounted on 3 rubber feet.

Overall dimensions: 34 x 18 x 30cm (HxWxL)

Weight: 2kg

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|----------------|
| XAR 060 010 | Universal Stand | EACH | £221.45 |



Helmholtz Coils

These magnetising coils, supplied in pairs, when mounted on the universal stand, automatically provide a Helmholtz configuration, where the coil radius is equal to the coil separation. Each coil has 320 turns of 22 swg enamelled copper wire wound on a plastic former of 136mm mean diameter. The terminations are 4mm sockets and 'Start' and 'Finish' is indicated.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|----------------|
| XAR 060 020 | Helmholtz Coils | EACH | £319.30 |



Photon Wheel

Pen-grip photon wheels designed for the Advancing Physics Course. They enable ray tracing in the many paths mechanism for photon probabilities to be carried out. Two different ratios as per the course requirements giving 12 (red) and 15 (blue) revolutions for a 50cm wave path length.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XAR 170 010 | Red Photon Wheel | EACH | £37.00 |
| XAR 170 020 | Blue Photon Wheel | EACH | £37.00 |



Maltese Cross Tube

- Linear propagation of cathode rays
- Deflection by a magnetic field, a particle-nature effect
- Electrostatic charging, image distortion, a particle-nature effect
- Introduction to electron optics, inversion, magnification, reduction, aberration, a wave-nature effect (use one coil of XAR 060 020)
- Comparison of cathodic stream and electro-magnetic radiation
- Postulation of the de Broglie theory of duality

The diode gun, a tungsten wire 'hair-pin' filament and a cylindrical anode, projects a wide beam of cathode rays into the evacuated experimental zone; a beam of light from the hot filament is also projected into the experimental zone; comparisons can therefore be made of the respective shadows cast on the luminescent screen by the interception of both beams by the Maltese Cross. The filament is connected to two 4mm sockets in the end-cap; the cylindrical anode and the Maltese Cross are each connected to 4mm plugs mounted on plastic side-caps.

Anode Voltage 2000-5000V DC
Maximum Filament Voltage 7.5V
Anode Current at 4000V 1.8mA

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| XAR 060 520 | Maltese Cross Tube | EACH | £489.25 |



Perrin Tube

- Establishment of negative sign of charge
- Introduction of the 'electron' as an atomic particle
- Electron deflection sensitivity studies
- The concept of a time-base
- Operation of a cathode ray oscilloscope
- Simple Lissajous' figures

The diode gun, a tungsten wire 'hair-pin' filament and a cylindrical collimating anode, projects a narrow beam of cathode rays into the evacuated experimental zone; this beam traverses the sphere to impinge on the luminescent screen in a spot about 4mm in diameter. The narrow beam may be deflected in a vertical plane to enter the Faraday cage by using Helmholtz Coils (XAR 060 020); a further and horizontal deflection can be obtained using Secondary Coil (XAR 060 030) thereby constructing a simple cathode Ray Oscilloscope. The filament is connected to two 4mm sockets in the end-cap and the cylindrical anode and the Faraday cage are each connected to 4mm plugs mounted on the plastic side-caps.

Anode Voltage 2000-5000V DC
Maximum Filament Voltage 7.5V
Anode Current at 4000V 1.8mA Beam Current at 4000V

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| XAR 060 530 | Perrin Tube | EACH | £535.00 |

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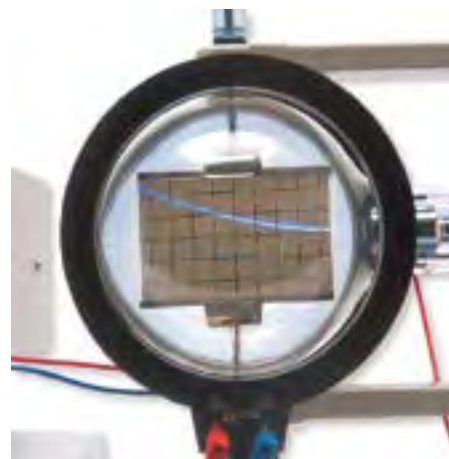


Deflection e/m Tube

The electron-beam deflection tube is intended for investigating the deflection of electron beams in electrical and magnetic fields. It can be used to estimate the specific charge of an electron e/m and to determine the electron velocity v . The electron-beam deflection tube comprises an electron gun which emits a narrow, focussed ribbon of cathode rays within an evacuated, clear glass bulb. A tungsten 'hairpin' filament hot cathode is heated directly and the anode takes the form of a cylinder.

The deflection of rays can be achieved electrostatically by means of a built-in plate capacitor formed by the pair of deflection plates, or magnetically with the help of Helmholtz Coils (XAR 060 020). The cathode rays are intercepted by a flat mica sheet, one side of which is coated with a fluorescent screen and the other side of which is printed with a centimetre graticule so that the path of the electrons can be easily traced. The mica sheet is held at 15° to the axis of the tube by the two deflecting plates.

- Filament Voltage: 7.5V AC/DC
- Anode Voltage: 1000V to 5000V DC
- Anode Current: typ. 1 mA
- Deflector Voltage: 5000V max



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| XAR 060 540 | Deflection e/m Tube | EACH | £695.00 |

Electron Diffraction Tube

- Study of the de Broglie hypothesis
- Detection by ring patterns, Planck's constant
- Variation of 'Wavelength' with anode voltage
- Establishment of the dual nature of the electron
- Calculation of spacing of diffracting planes
- Re-assessment of supposed carbon atom crystal arrangement

The electron gun uses an indirectly heated oxide-coated cathode and projects a converging narrow beam of electrons through a thin layer of graphitised carbon, which is supported on a fine mesh grid over the exit aperture of the gun assembly. Electrons diffracted during transmission through the carbon traverse the evacuated experimental zone to impinge on the luminescent screen in ring patterns, the centre of the rings being the spot caused by the undiffracted electrons. The brightest rings are caused by diffraction at the planes in the carbon atoms separated by 1.23 and 2.13 angstroms, d_{11} and d_{10} respectively. The filament heater assembly is terminated at two 4mm sockets in the end-cap and the anode assembly is connected to a 4mm plug mounted on a side-cap. Leads are available.

Anode Voltage 1.500-5.000 volts DC

Filament Voltage 5.0 to 9.0V AC/DC as indicated on each tube

Anode Current 0.2-0.4 mA



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XAR 060 550 | Electron Diffraction Tube | EACH | £802.99 |

Double Beam Tube, Gas-Filled

- Narrow visible electron beams
- Mean free path studies and unstable beams
- Velocity focusing and gas multiplication
- Primary and higher orders of ionisation
- Loss of energy in a spiral path
- Measurement of 'assumed circular path' e/m
- Secondary emission and phosphor screen 'blinking'
- Introduction to plasma technology

The electrons emitted by the indirectly heated oxide-coated cathodes are projected from the two identical guns in the form of a narrow pencil beam, and these beams can be accurately traced within the helium gas as green glow due to the emission of energy during the collision processes experienced by the electrons. The angle of projection from the guns can be modified by applying a potential across miniature deflecting plates, located just beyond the emission apertures. The filament heaters are terminated at a two-way switch and two 4mm sockets in the grey plastic end-cap; the anodes and deflecting plates are connected to two 4mm plugs mounted on grey plastics side-caps.

Anode Voltage 0-300V DC

Anode Current 10-20mA

Heater Voltage 6.3V, 0.3A

Deflector Voltage 0-25V DC



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| XAR 060 560 | Double Beam Tube, Gas-Filled | EACH | £863.26 |



Planck's Constant

Modern LEDs (light emitting diodes) cover the range from deep blue (430nm) to infrared (950nm). By monitoring the voltage at which each LED just begins to emit light a graph of energy input as a function of light emitted frequency can be plotted and an approximate value of Planck's constant deduced. The system is an excellent illustration of modern electronics and gives a good investigation into a difficult topic in Post-16 physics. The LEDs are mounted in a box with voltage control and monitoring points for current and voltage. A protection resistor is included to prevent damage to the LEDs. Complete with viewing tube but without power supply which should be approximately 5V DC from any laboratory source.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| XAR 090 011 | Planck's Constant | EACH | £89.60 |

Cloud Chamber

- Thermoelectrically Cooled
- No Dry Ice
- Fast Set-up

The Lascells Cloud Chamber is the perfect alternative to existing unreliable and time consuming dry ice variants. The chamber is self-contained and thermoelectrically cooled. The chamber requires no dry ice; the only setup necessary is the addition of isopropyl alcohol and connection to a mains socket. The chamber contains an integrated power supply and illumination of the chamber is provided by a high intensity LED. Using the provided source, tracks should be visible within 10 minutes. Once running the cloud chamber can be made to run for extended periods by adding more alcohol through the access provided in the lid. Supplied with Thorium-based source and full instructions.



Electrically Cooled Cloud Chamber - Reliable results without the fuss of dry ice - Source included!

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---------------|------|----------|----------------|
| XAR 040 010 | Cloud Chamber | UK | EACH | £463.49 |

Cloud Chamber

An innovative take on the traditional cloud chamber requiring no power and no dry ice. Cooling is via a cold plate which is frozen in a standard domestic freezer. When used the plate remains cold enough to observe radiation tracks for approximately 30 minutes and gives an effective viewing area of approximately 95mm x 95mm. The plate may be reused repeatedly by simply re freezing. Supplied complete with high brightness LED light and thoriated tungsten radiation source, the only additional requirement is 99.5% ethanol.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|----------------|
| XLM 530 010 | Cloud Chamber | EACH | £215.00 |






Multi Wire Spark Detector

This apparatus gives a memorable and dramatic demonstration of the ionising properties of alpha particles. Alpha particles have short range but are very effective at ionising air. In this apparatus a number of fine wires are supported above a metal plate to form two electrodes separated by a small air gap. 4mm terminals allow an EHT supply to be connected and when the potential across the gap reaches about 4500V occasional ionised particles cause a visible and audible spark to occur. If an alpha source is brought near, the sparking dramatically increases showing the presence of ionised particles. The short range and poor penetrating properties of alpha radiation can be easily demonstrated. An EHT power supply capable of providing a negative potential is required, (XPU 080 010) is recommended.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XAR 260 010 | Multi Wire Spark Detector | EACH | £113.29 |

5kV EHT Power Supply

- For use with Teltron tubes, electrostatics apparatus, electric field experiments and spark detector
- 100 - 5000V DC output at currents up to 3mA
- Separate 6.3V AC output for filament heaters
- Output overload protected
- Separate earthing terminal

Continuously variable output from 100V to 5kV. Output voltage is indicated on a 14mm 2 digit LED display. The EHT circuits are fully floating so that for certain applications the positive or negative terminal may be safely connected to earth. The EHT outputs are taken from 4mm shrouded sockets and provide 100V to 5kV DC at up to a maximum of 3mA or current limited to 60 μ A. A centre tapped socket is provided to give ± 2.5 kV output. An additional pair of 4mm shrouded sockets at 19mm spacing are provided giving 6.3V AC at 2A for filament supplies. There is also a separate earthing terminal. An illuminated on/off switch is mounted on the rear panel adjacent to a fused IEC mains inlet. Enclosed in a robust metal case with a durable powder coated finish. Supplied with instructions and detachable mains lead.



| | |
|--------------------------|--|
| Output | 100 - 5000V DC up to 3mA 100 - 5000V DC up to 60 μ A (current limited) ± 2.5 kV centre tap 6.3V AC (up to 2A) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 255 x 220 x 110mm overall |
| Mass | 3.6kg |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XPU 080 010 | 5kV EHT Power Supply | EACH | £363.93 |
| Accessories | | Quantity | Price |
| 5kV Lead | 5kV EHT Power Supply | EACH | £363.93 |
| XPU 080 500 | Black | EACH | £5.99 |
| XPU 080 510 | Red | EACH | £5.99 |



Geiger-Muller Counter

This GM counter is extremely versatile and very easy to use. The counting time can be set to 1, 10, 60 or 100 seconds or set to manual start/stop. Counting may be set to run repeatedly, and you will see the last, complete result in the main display while new counts accumulate in the auxiliary display. The counter accepts both BNC and Jack type GM tubes. For demonstration purposes the authentic clicking Geiger-counter sound may be turned on. The counter can run on AA batteries or be powered from a mains adaptor.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|----------------|
| XAR 110 011 | Geiger-Muller Counter | EACH | £378.39 |



XAR 100 011

GM Detector

Self-contained GM tube, halogen gas filled with mica window. The GM tube is protected in a plastic housing and is supplied with a 10mm diameter support rod and a protective cover. This unit has a BNC connector and can detect alpha, beta and gamma radiation.

GM Detector Extra Sensitive

This extra sensitive GM detector has an extra large window with an effective diameter of 27.8mm. This makes the detector well suited for measuring low activity sources. The large window provides more counts and thus improves counting statistics for more accurate determinations of half lives etc. The housing is supplied with a protective cover as well as a protective grid in front of the window. This unit has a BNC connector and can detect Alpha, Beta and Gamma radiation.



XAR 100 020

| | |
|--|-------------------------|
| Recommended Bias Voltage | 500V |
| Minimum Dead Time at Recommended Supply Voltage | 90 microseconds |
| Window Area | 78mm ² |
| Window Diameter | 10mm |
| Window Density | 15-20mg/cm ² |
| Window Material | Mica |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| XAR 100 011 | GM Detector | EACH | £132.37 |
| XAR 100 020 | GM Detector Extra Sensitive | EACH | £328.57 |





Timer Scaler & Frequency Meter

A multipurpose instrument which is invaluable in the physics laboratory, combining the functions of a multipurpose timer, a ratemeter and a frequency meter in one compact and economical unit. Its uses are many and varied covering a wide area of the physics syllabus. Uses in the timer mode range from a simple stopwatch to more sophisticated applications such as dynamics experiments with air tracks etc. The scaler and ratemeter modes allow numerous radioactivity experiments to be undertaken, for example, variations in background radiation, half-life determination and investigation of absorption coefficients. When used as a frequency meter the instrument will accept diversified waveforms and may be used, for example, to determine the rotational frequency of a stroboscope disc and for displaying the frequency of a waveform from a signal generator. It has four, 7-segment LED digits, 14mm high. The high brightness and large size display make it ideal for classroom demonstrations.

The microprocessor based design minimises the number of controls required and these are clearly labelled so that the instrument is very straightforward to use. All sockets are 4mm and arranged in pairs at 19mm spacings. A single biased-off double throw switch enables RESET or HOLD to be momentarily selected. The HOLD position halts the display whilst the internal timing or counting continues.

The instrument, when used as a timer can be switched mechanically or electrically by connecting to one or both pairs of sockets, labelled 'A' and 'B'. The 'A' sockets operate on a rising edge and the 'B' sockets operate on a falling edge enabling start/stop operations to be performed from a variety of switch combinations.

Besides use as a standard electronic timer, the instrument can be pulse operated to enable moving bodies to be timed using phototiming gates. When used as a scaler or ratemeter the input signal can be via either a GM tube or a solid-state detector. The GM tube is connected via a TNC coaxial socket and with the switch set to 'GM' the EHT supply is continuously variable over the range 300 to 500V (XAR 100 011 is not suitable due to the connection). With the switch set to 'SS' the preamplifier is switched in. The solid-state detector is connected using a BNC coaxial socket. When used as a ratemeter an audio output can be obtained.

For frequency measurements the input is via the pair of sockets labelled 'A'. An illuminated on/off switch is mounted on the rear panel adjacent to a fused appliance inlet. The unit is built into a robust metal case with a durable powder coated finish.

| | Timer | Ratemeter | Frequency meter | Scaler |
|--------------------------|---|---|---|---|
| Auto ranges | 0 to 9.999s 10 to 99.99s 100 to 999.9s 1000 to 9999s | 0 to 9.999x1000/s 10 to 99.99x1000/s 100 to 999.9x1000/s - | 0 to 9.999kHz 10 to 99.99kHz 100 to 999.9kHz - | 10 to 9.999x1000 counts 10 to 99.99x1000 counts 100 to 999.9x1000 counts - |
| Accuracy | - | - | - | ±0.01% |
| Sensitivity | - | - | - | 160mV peak |
| Max input signal | - | 20V rms | - | - |
| Max sensitivity | - | 250mV rms | - | - |
| Range | - | 10Hz to 1MHz | - | - |
| Electrical Supply | 220-240V AC 50-60Hz 13VA | | | |
| Dimensions | 255 x 220 x 110mm | | | |
| Mass | 2.6kg | | | |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|----------------|
| XAR 020 010 | Timer Scaler & Frequency Meter | EACH | £355.35 |

GM Tube and holder

The GM Tube contained within this stand-alone holder is the industry standard type: ZP1481, as recommended in the Cleapss document GL:138 (Choosing a Geiger Muller Tube). The ZP1481 has a large area detection window making it suitable for all practical demonstrations and investigations as well as having an efficiency level suitable for detecting alpha, beta and gamma radiation, it is also robust and has a long life. The holder containing the GM Tube not only provides both protection and a choice of connections to the Tube but also the option to attach the holder to a retort stand using the supplied fixing rod. Also contained within the Holder is a high ohmic value (4M7) series resistor required by most Counter and Ratemeter (Scaler) units. If required the protection grill covering the detection window can be removed should you want to detect low levels of contamination. The standard connection provided by the GM Tube & Holder is via a flying lead fitted with a TNC plug connector suitable for connection to our Timer Scaler & Frequency Meter.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| XWV 111 020 | GM Tube and Holder | EACH | £330.00 |





TNC Coaxial to BNC Adaptor

A coaxial cable terminated at one end with a TNC jack plug and a BNC female socket at the other end. It is designed for use with the Timer Scaler & Frequency Meter, where the operator is using a Geiger Muller Tube with a BNC plug and needs to connect to the meter's TNC socket.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XAR 020 501 | TNC Coaxial to BNC Adaptor | EACH | £24.00 |



Half Life Analogue

Few topics in atomic physics can be actively studied by students themselves. This equipment makes it possible to involve students in a practical investigation of the concept of 'half life' and radioactive decay without any hazard. A tub of 500 plastic cubes is provided, the cubes being used to represent atomic nuclei. Each cube has one face identified and the class is actively involved in 'throwing' the cubes, to see how many 'decay' during each throw, i.e. land with their decay face upwards. Decayed nuclei are removed prior to the next throw. Very good results for an exponential decay curve are obtained without the hazards of using radioactive materials. Supplied with full instructions, worksheets, specimen results and spares.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XAR 080 010 | Half Life Analogue | EACH | £64.88 |

Half Life Demonstration Kit

- Demonstrates half life, parent and daughter isotopes and equilibrium
- Replicates medical applications of short half life isotopes
- Repeatable after 30 minutes
- No disposal problems
- Long working life

The Cs-137/Ba-137m Isotope Generator provides a convincing and clear demonstration of the 2.6 minute half life of Ba-137m. The Caesium-137 parent in the form of a gauze disc is housed in a robust cylindrical container. A liquid elutant (included) 'washes out' the Ba-137m daughter product into a 10ml vial. After 30 minutes the activity of the eluate in the vial is so low that it can be disposed of in the sink. The eluate is a gamma emitter. Full instructions and risk assessment are included.

NB: Activity level: 33 kBq

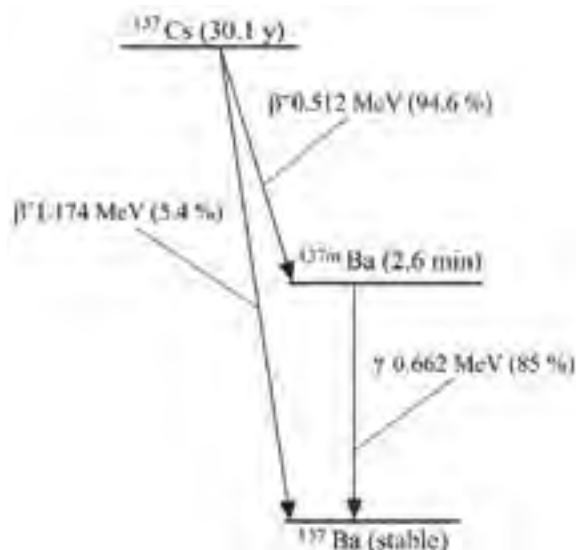
NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

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Please note: We require the following information to complete your order:

- Two contact names
- Two email addresses

For delivery to schools in Wales or Scotland, we require a Letter of Authorisation. Please contact Customer Services for further assistance.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| XAR 140 010 | Half Life Demo Kit (UK Only) | EACH | £959.00 |





Sealed Radioactive Sources

A range of sealed sources that are a step forwards in design for safe handling, experimentation, storage and security. These sources will last for many decades. A new Cs-137 source at 370kBq replaces Co-60 as the recommended gamma source. Cs-137 has a half life of 30 years as opposed to the 5 years for Co-60. It is therefore a better long term investment.

Features:

- Rugged alloy one piece source and holder
- Alloy storage cylinder for quick shielding
- Large bright markings for student and teacher visibility

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

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| Radionuclide | Am-241 | Sr-90 | Cs-137 |
|----------------|--------|-------|--------|
| Activity (kBq) | 70 | 70 | 370 |
| Main Emission | α | β | γ |

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|---------|
| XAR 130 010 | Americium-241 | EACH | £649.00 |
| XAR 130 020 | Strontium-90 | EACH | £649.00 |
| XAR 130 030 | Caesium-137 | EACH | £649.00 |



Protactinium Generator

The Protactinium Generator brings the phenomenon of radioactive decay into the classroom. With a half life of the order of a minute, students have the opportunity to record a complete decay curve in a single lesson. An ideal opportunity to use a datalogger with a radioactive count rate sensor to record the activity, and compare it to a predicted decay curve. Protactinium234 has a half life of about 70 seconds, and is ideal for the observation of radioactive decay. The decay is monitored by a Geiger tube placed close to the top of the container, supported by a stand and clamp. Over a period of 5 to 10 minutes a clear half-life curve can be captured, manually or using a datalogger. Several factors combine to ensure that Pa234 clearly exhibits its own half life. The generator is supplied in a sealed translucent container, which is virtually chemically inert with a leak-proof closure. This is packed in an outer container which is suitable for long term storage. The generator can be stored for a period of eight years, after which time disposal should be made through a commercial disposal agency or via the local authority.

NB: This item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at the time of ordering.

Please note: We require the following information to complete your order:

- Two contact names
- Two email addresses

For delivery to schools in Wales or Scotland, we require a Letter of Authorisation. Please contact Customer Services for further assistance.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|---------|
| XAR 230 010 | Protactinium Generator | EACH | £259.15 |



Storage Cabinet for Radioactive Materials

This cabinet is designed to store low level radioactive materials. It has a secure, concealed locking system and louvred door. Inside are one fixed half-depth shelf and a plastic contents tray.
Size: 380 x 380 x 380mm (HxWxD)

| Cat No. | Description | Quantity | Price |
|-------------|---|----------|---------|
| SST 150 010 | Storage Cabinet for Radioactive Materials | EACH | £164.79 |





Alpha Scattering Analogue Apparatus

This gravitational analogue is used to demonstrate Rutherford scattering of alpha particles (by inverse square rule repulsion). The apparatus comprises a spun wooden hill measuring 280 x 55mm (diameter x height), a specially shaped wooden launching ramp with a guide groove and index marks for known launching heights at 40, 60, 80, and 100mm, and a 12.5mm steel ball.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XAR 070 010 | Alpha Scattering Apparatus | EACH | £48.15 |



Storage Box for Radioactive Sources

Unlabelled wooden box; lead container and lid.
NB: Wood type/colour may alter from that depicted in the image.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|---------------|
| XAR 280 010 | Storage Box for Radioactive Sources | EACH | £82.36 |



Radiation Dosimetry Badges

Sample film badges as worn by staff exposed to ionising radiation such as in nuclear power stations, hospital radiology departments, dentists' X-rays etc. The badge contains miniature metal plates which act as absorbers and the film would normally be processed at regular intervals to check on exposure. The working parts can all be clearly seen and comprehensive details are included with the pack. Badge dimensions: 50 x 40 x 8mm

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| XAR 120 011 | Radiation Dosimetry Badges | PK5 | £38.10 |



Radiation Cone (Inverse Square Law)

A high-intensity red LED provides a point source to show the linear propagation of light rays. A plate provides an object screen and an image is produced which is twice the area at twice the distance from the source. An excellent teaching aid in the understanding of the inverse square law for radiation intensity. Requires a low voltage DC bench power supply. Dimensions: 200 x 80 x 80mm overall

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|---------------|
| XOP 905 010 | Radiation Cone (Inverse Square Law) | EACH | £41.19 |

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— Congleton High School



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Effective and fun way to teach about alternative forms of clean energy. Encourages critical thinking and research about clean and eco-friendly forms of energy. This small race car is fuelled completely by salt water, making it environmentally friendly and great for curious students. Fuel cell can be activated by salt water mixture and operates through magnesium metal sheets (3 included) for up to 7 hours continuously.

Dimensions: 7.5 x 4 x 2cm

Fuel Cell Voltage Output: 1.5V

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XEC 190 010 | Salt Water Fuel Cell Car | EACH | £33.98 |

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Stationary Steam Engine Model D6

Mirror polished brass boiler 45 x 100mm (diameter x length) and boiler capacity 135cm³ with water gauge glass. Boiler house, true to life coloured and copper plated, with embossed brick type walls. With oscillating brass cylinder and piston, spring loaded safety valve, dome whistle, flywheel of 70mm diameter, with grooved pulley. Finely varnished metal base plate, 140 x 200mm. Height including smoke stack 220mm. Heated by dry fuel tablets. Due to its limited energy production this model should not be used to drive external devices.

Service Pack Service pack contains whistle, safety valve, burner tray and washers

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|-------------|----------------|
| XEC 260 010 | Model D6 | EACH | £139.90 |
| Accessories | | Description | Quantity |
| XEC 090 500 | Solid Fuel Tablets | PK20 | £5.14 |



Stationary Steam Engine Model D10

Mirror polished brass boiler 45 x 115mm (diameter x length) and boiler capacity 155cm³ with water gauge glass. Boiler house, true to life coloured and copper plated, with embossed brick type walls and two foot bridges. Double acting reversible brass cylinder with fly wheel, spring loaded safety valve, dome whistle, flywheel of 70mm diameter, with grooved pulley, centrifugal governor, steam jet oiler. Finely varnished metal base plate, 200 x 260mm. Height including smoke stack 240mm. Heated by dry fuel tablets.

Service Pack Service pack contains whistle, safety valve, burner tray and washers.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|-------------|----------------|
| XEC 270 010 | Model D10 | EACH | £229.20 |
| Accessories | | Description | Quantity |
| XEC 090 500 | Solid Fuel Tablets | PK20 | £5.14 |

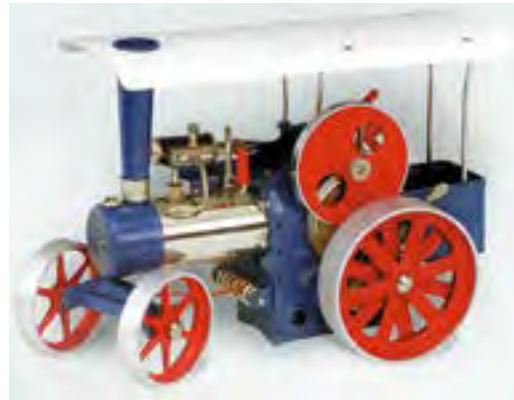


Stationary Steam Engine Model D16

Mirror polished brass boiler 55 x 140mm (diameter x length) and boiler capacity 250cm³ with water gauge glass. Boiler house, true to life coloured and copper plated, with embossed brick type walls and two foot bridges with ladder. Double acting reversible brass cylinder with fly wheel, spring loaded safety valve, additional steam whistle with chain, steam regulator, flywheel of 80mm diameter, with grooved pulley, sturdy attractive die cast piston rods, centrifugal governor, steam jet oiler and railing. Finely varnished metal base plate, 250 x 310mm. Height including smoke stack 280mm. Heated by dry fuel tablets.

Service Pack Service pack contains whistle, safety valve, burner tray and washers.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|-------------|----------------|
| XEC 280 010 | Model D16 | EACH | £339.00 |
| Accessories | | Description | Quantity |
| XEC 090 500 | Solid Fuel Tablets | PK20 | £5.14 |



Steam Traction Engine Model D405

Mirror polished brass boiler 45 x 185mm (diameter x length) boiler capacity 230cm³ with water gauge glass. Double acting reversible brass cylinder with fly wheel, spring loaded safety valve, steam regulator, steam whistle, steam jet oiler and foot bridge. Smoke stack, traditional steering wheel chain drive. Fly wheel of 80mm diameter with grooved pulley. Clutch engaged gear wheel, permitting the use of the machine as a stationary steam engine. Operating time about 15 minutes per fuel charge. Anodised aluminium rollers. Finely varnished matching colours.

Length approximately 280 x 150mm and height 200mm.

Mass: 1.7kg

Service Pack Service pack contains whistle, safety valve, burner tray and washers.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|-------------|----------------|
| XEC 320 010 | Model D405 | EACH | £369.00 |
| Accessories | | Description | Quantity |
| XEC 090 500 | Solid Fuel Tablets | PK20 | £5.14 |





Demonstration Petrol Engines

Representing the internal structures and operating principle of air cooled engines. Constructed from a cast alloy, the engines offer excellent performance, high functionality and corrosion-resistance. The 4 stroke model also has a chain drive from crank shaft for cam operated inlet and exhaust valve.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XWV 900 010 | Petrol Engine 4 Stroke | EACH | £44.99 |



Demonstration Diesel Engine

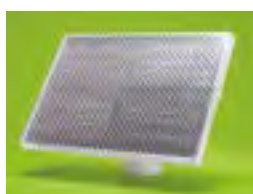
Representing the internal structures and operating principle of a four stroke diesel engine. Constructed from a cast alloy, the engine offers excellent performance, high functionality and corrosion-resistance. It also has a chain drive from crank shaft for cam operated jerk pump and inlet exhaust valve.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XWV 900 020 | Diesel Engine 4 Stroke | EACH | £49.88 |

Renewable Energy Demonstrator

- Shows the production of electricity using wind, water and solar power sources.
- Teaching resource to make understanding renewable and sustainable energy generation an exciting and highly tactile experience for students
- Supplied with four different interchangeable monitors to indicate electricity being generated: current indicator, flashing lights, a siren and moving cogs
- Can be used in the classroom and/or outdoors
- Battery back up operation for when conditions are unfavourable
- Designed to meet the attainment targets of the UK National Curriculum - Key Stages 1, 2, and 3, and educational systems of many other countries
- Ideal resource to discuss and debate environmental power issues (to include hydroelectric power)

The Renewable Energy Demonstrator comes in a modular format, with a common base and pillar, and four interchangeable monitors. The solar, water and wind power demonstrators fit independently on the top of the base and pillar unit. The interchangeable monitors are a buzzer, flashing indicator lights, voltage indicator and moving cogs to clearly indicate that power is being generated. Base unit dimensions: 17 x 13cm Height to the top of the pillar: 30cm The Wind Demonstrator height: 35cm, high when fully assembled Moving radius of the blades: 20cm The Solar Demonstrator dimensions: 20 x 14cm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| XEC 440 010 | Renewable Energy Demonstrator | EACH | £76.38 |



Energy Production

Energy Sources

Wind Turbine Kit

Developed with the National Energy Foundation, EcoStyle's Wind Turbine Kit is a working model of a real wind turbine. Hands-on and fully interactive, the kit shows how wind power can be harnessed to generate electricity. The kit is assembled in minutes and is easy to use, and can be used at all stages of Education from Primary to University level. The cardboard storage case helps keep all components organised and protected with individual component compartments and a hinged lid. The Wind Turbine Kit is designed to be durable and provide many years of reliable service. The kit is supplied with a twelve-month warranty against manufacturing defects, and a range of spare parts are available on request.

Understand Wind Power

Experience the power of the wind - both indoors and out. Use indoors with a fan, or outdoors in the wind. The tailplane automatically turns the wind turbine towards the wind, even if the wind changes direction.

See the Power

Harness the wind's power to generate electricity. Watch the wind turbine power the electric motor, buzzer or LED, or connect it to the voltmeter to measure the amount of electricity generated.

Learn Through Experimentation

Try different turbine blade configurations: the hub offers combinations of two, three or six blades, and the blade angles can be easily adjusted too. Three gearing options: the kit includes a set of four cogs which can be easily interchanged to test three different gear combinations, offering ratios of 3:1, 1:1 and 1:3.

Contents:

- Two-part wind turbine (600mm high) consisting of a nacelle (top), and tower (base)
- Integral clamp to secure the wind turbine to a table top or bench
- Six turbine blades
- Motor module
- LED module
- Buzzer module
- Dual-scale analogue voltmeter
- Brass-hub gears: 60-tooth, two 40-tooth, and 20-tooth with a 1.5mm hex key
- Operating and assembly instructions
- Cardboard storage case



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| XEC 470 010 | Wind Turbine Kit | EACH | £133.89 |

Wind Turbine

This low-cost wind turbine comes as a complete easy-to-assemble unit capable of powering a buzzer, LED or solar motor. The unit will generate enough power to light an LED when placed in front of a domestic fan. The turbine unit comprises six 3mm corriflute blades each of which can be separately angled by twisting on their aluminium spokes. This facilitates several performance investigations. If the blades are angled too steeply, for example, the turbine slows because of drag. Other variables can be introduced by cutting different sized blades from the 3mm corriflute.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| XEC 450 010 | Wind Turbine | EACH | £14.55 |

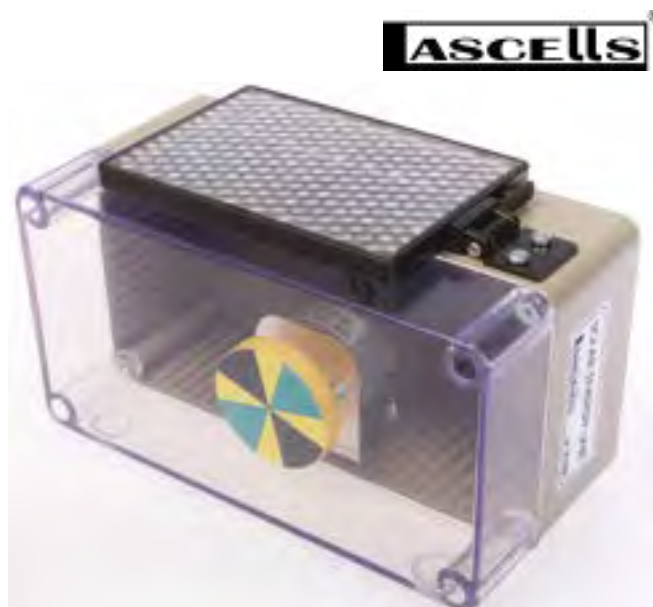




Wind Generator

A low inertia electric motor with plastic impeller. The impeller can be rotated using a hair drier or blower and a DC voltage can be monitored at the output. The output can be used to illuminate an LED, to demonstrate energy transfer or the system can be used as the basis of an investigation linked to renewable energy sources.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|--------|
| XEC 460 010 | Wind Generator | EACH | £30.89 |



Solar Cell & Motor

A fully enclosed system incorporating a solar cell and motor in a transparent lidded box. When a bench lamp is directed on to the cell the motor spins a brightly coloured rotor.

Overall Size: 150 x 85 x 75mm

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| XEC 540 020 | Solar Cell & Motor | EACH | £60.76 |



Mounted Solar Cell

Use with Mounted Motor to produce electrical energy directly from solar energy. Consists of a selenium photovoltaic cell housed in a plastic case with a diffusing lens.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|--------|
| XEC 360 011 | Mounted Solar Cell | EACH | £11.33 |



Mounted Motor for Solar Cell

This is a small low consumption electric motor on a base especially designed to run directly from the output of the Solar Cell (XEC 360 011) and to illustrate the direct conversion of light energy into electrical energy and thence on to mechanical energy to drive other items.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------------|----------|--------|
| XEC 360 021 | Mounted Motor for Solar Cell | EACH | £11.33 |



Energy Production

Energy Sources

SECONDARY

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

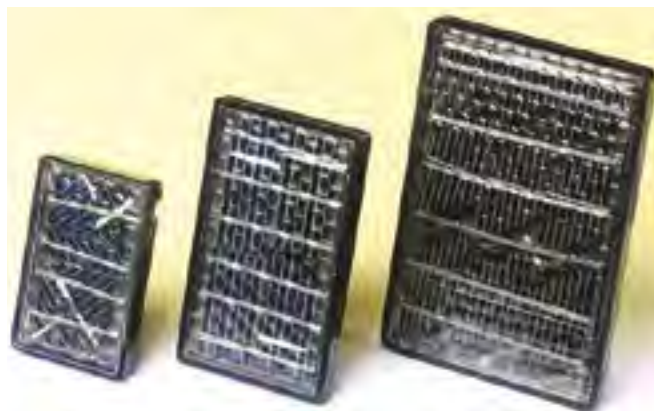
SAFETY



3V Solar Cell

This fully encapsulated assembly comprises 8 individual cells, which together produce an output of 3V at 100mA max. The surface of the cell is covered with lenses to accentuate the power of the light rays hitting the surface of the cells themselves. Fitted to the back is a 1.8 metre long connection lead, terminated with crocodile clips and a Walkman style DC power plug. At the bottom edge there is a hinged stand so that the device can be arranged to point towards the light source. It can be used to provide the power for low current circuits or the trickle charge for A and AAA Ni-Cad batteries. This cell performs very well under a 100W bulb, driving all the solar motors.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XEC 380 010 | 3V Solar Cell | EACH | £8.76 |



Solar Cells

Fully encapsulated solar cell modules mounted in black polycarbonate cases giving an output of 0.45V fitted with threaded stud terminals and a copper busbar enabling simple series or parallel connection for increased output.

| Cat No. | Output Current | Dimensions | Quantity | Price |
|--------------------|----------------|------------|----------|--------------|
| XEC 380 020 | 200mA | 53 x 36mm | EACH | £2.37 |
| XEC 380 030 | 400mA | 75 x 45mm | EACH | £3.91 |
| XEC 380 040 | 800mA | 95 x 65mm | EACH | £7.21 |



Solar Motor

Low inertia motor suitable for use with solar cells. Starting current 10mA. Voltage range 1.5 - 4.5V.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XEC 380 500 | Solar Motor | EACH | £1.52 |



Super Solar Racing Car

This small toy is idea for teaching about the power of the sun. This high speed mini racer is solely powered by the sun and does not require any batteries. It goes fast in bright sunlight, and stops when there is no sunlight to convert into energy. The kit has less than a dozen parts, making it easy to assemble. No need for any tools. Sturdy, fun and fast, this race car is perfect for indoor and outdoor mini car races.
 Dimensions: 5.5 x 2.5 x 1.5cm
 Solar Panel Output: 1.1V x 50mA
 Motor: DC
 Power Consumption: 1.2V x 10mA

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XEC 200 010 | Super Solar Racing Car | EACH | £24.71 |





School Solar Set

Contents:

- Solar cell and stand with outputs at 1.5, 3 or 4.5 volts
- Motor with fan and disc attachments
- Motor stand
- Music module (will work at low sunlight levels)
- Lamp
- Jumper wires for altering cells output
- Spanner
- Sticker set
- Instruction and information booklet

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| XEC 230 010 | School Solar Set | EACH | £14.21 |

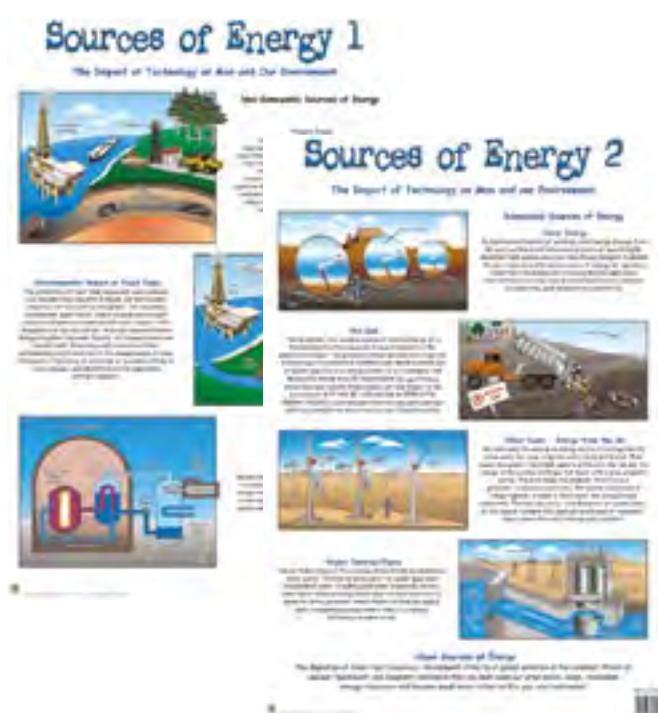


6 in 1 Solar Kit

Self-assembly kit providing an ideal introduction to how solar energy works. Enables 6 different solar powered models to be built: windmill, revolving plane, air boat, desktop plane, robotic dog and car. The models require bright sunlight or a halogen or incandescent light source. Will not operate in cloudy or shaded locations, or under fluorescent light. A comprehensive instruction manual provides clear step by step instructions for building each model.

- Kit includes full set of 26 snap-together parts, plus solar panel, micromotor and gears
- A diagonal cutter is recommended but no glueing, screwing or other tools required Suitable for ages 10+
- Can be easily reassembled into any of the 6 different models

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| GRN 040 010 | 6 in 1 Solar Kit | EACH | £13.91 |



Sources of Energy Posters

Size: 760mm x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| XPP 040 120 | Sources of Energy 1 | EACH | £3.61 |
| XPP 040 130 | Sources of Energy 2 | EACH | £3.61 |

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Orbit Tellurium 2

Easily demonstrate night and day, the seasons, phases of the Moon and eclipses.

With this robust and flexible model you can:

- Instantly engage pupils and illustrate complex relationships more easily
- Switch between the large and small Earth and Moon set-up to explain different topics
- Use the geared operation to show the Earth orbiting the Sun, the Moon orbiting the Earth and the Earth spinning on its axis at the same time
- Teach with manual control of the Earth and Moon orbits to demonstrate specific events
- Benefit from superior design and gearing to achieve more accurate demonstrations
- Shine the powerful light from the Sun onto the large Earth to model night and day, the seasons, eclipses and create visible shadows
- Demonstrate the phases of the Moon and frequency of solar and lunar eclipses
- Explain complex topics easily with the teacher guide, date/season indicator and phase of the Moon dial

Subjects to study:

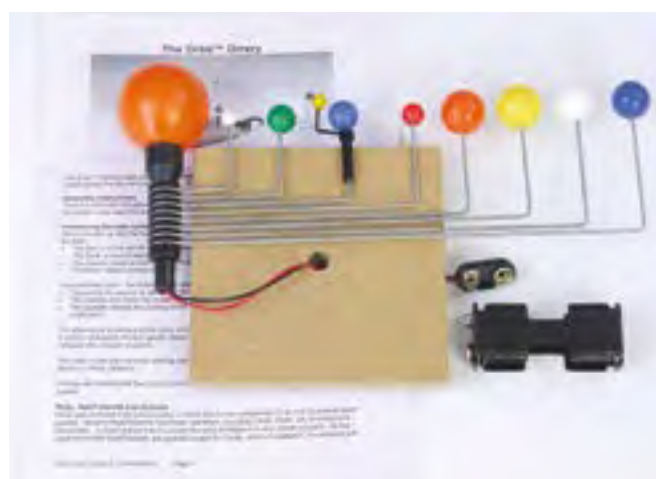
- Day and night
- The Sun's movement across the sky
- Changing length of daylight
- Shadows
- The phases of the Moon
- The crescent moon from different latitudes
- Eclipses of the Moon and Sun
- Use of sundials and shadow sticks
- Lunar months and festivals linked to the Moon Size: 65 x 25cm (Length x Height)

Contents:

- Tellurium model with accessory tidy
- Illuminated Sun (14cm) with Sunbeam reflector, with two sizes of Earth and Moon
- Stick-on model person
- Sundial
- Date, eclipse and phase of the Moon indicator cards
- Teacher guide
- Power transformer and UK, EU, US plugs



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| YAS 020 010 | Orbit Tellurium 2 | EACH | £243.13 |



Orbit Orrery

This hands-on model with teaching guide helps pupils understand the solar system including its shape, the sun as the source of its light, planetary orbits, the planets' names and which planets may be seen on given days.

Height: 10cm

Diameter of largest Orbit: 38cm

Requires 2xAA batteries to light the sun.

| Cat No. | Description | Quantity | Price | |
|--------------------|--------------------------|-------------|---------------|-------|
| YAS 050 011 | Orbit Orrery | EACH | £24.70 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 | |



GeoSafari® Motorised Solar System

Children view the workings of the solar system or create a planetarium with this appealing set.

- Explore the solar system with this motorised model
- Observe the planets' orbit around the sun
- Sun's ultra-bright 1,000-hour light and black base creates spectacular results in a darkened room
- Unique star dome converts the sun into a planetarium
- Includes sun, earth, and 8 planets
- Base indicates correct placement of planets
- Requires 4x C batteries (not included), or AC adapter (sold separately - please contact Customer Services for details)

| Cat No. | Description | Quantity | Price | |
|--------------------|-----------------------------------|-------------|---------------|-------|
| YAS 060 010 | GeoSafari® Motorised Solar System | EACH | £33.99 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 040 | C Size - 1.5V | PK2 | £3.29 | |

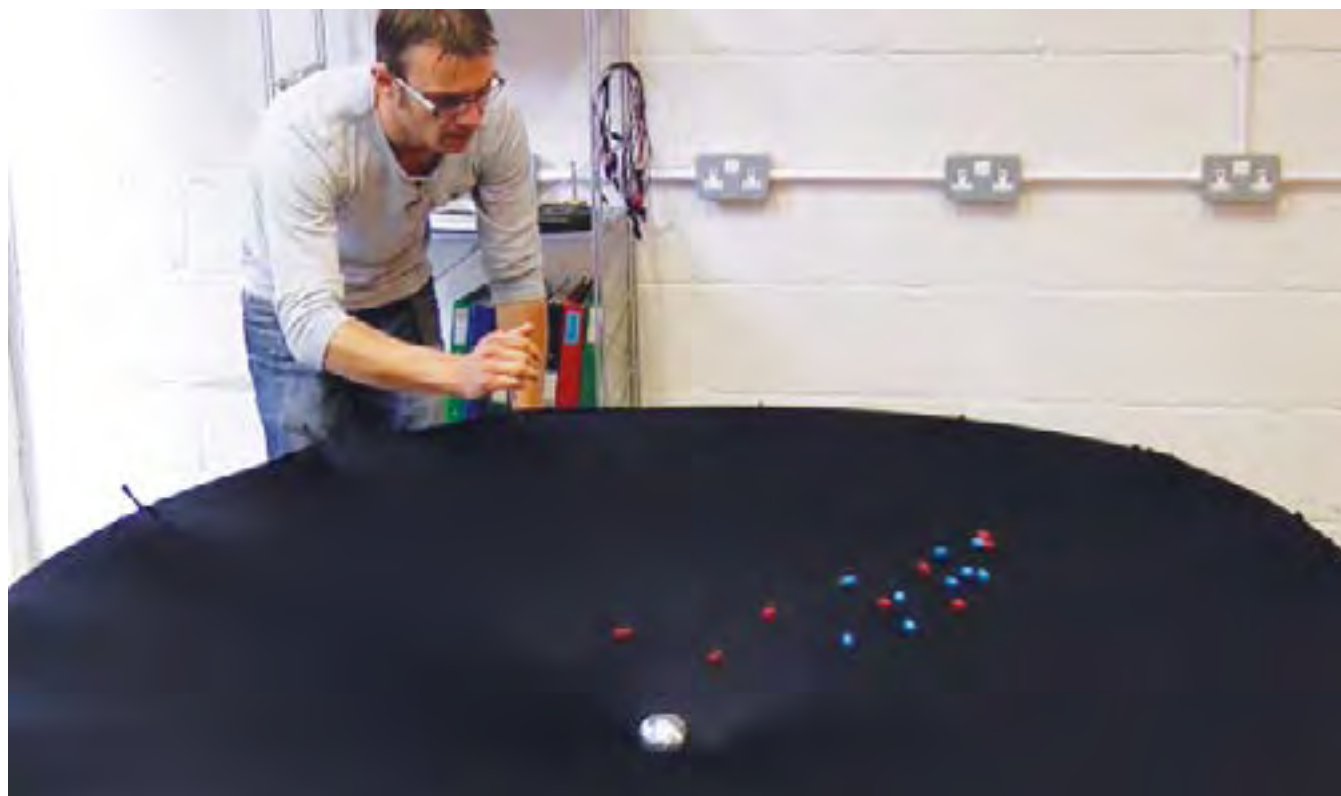


Solar System Model

Two sets of 'planets' are provided. Both are to scale in terms of diameter with a wooden base board for set 1. Orbital radii are in proportion which emphasises the differences between the inner and outer planets. For set 1 the Sun would be 1m diameter while the second, smaller set has a 20cm dia. Sun with other planets to scale. Students would take the planets out to the field to examine the orbital radii on the same scale as the diameters. Mercury is 9m from the Sun, Venus is 17m, the Earth 23m etc. This type of activity really brings home the scale of the Solar System and the Universe.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| YAS 260 010 | Solar System Model | EACH | £60.76 |



Gravity Well

The gravity well is an exciting piece of apparatus which allows students to visualise the attraction of massive objects due to gravity. Consisting of a flexible sheet and collapsible frame, the gravity well is supplied with all you need to bring the study of gravity to life.

- Coalescence of stars
- Orbiting
- Variation of orbital period with distance from star
- Formation of orbital systems

Measuring 180cm diameter by 80cm high when assembled, the unit gives an impressive demonstration and packs away for easier storage. Supplied with full instructions and suggested experiments. Dimensions: 1500 x 155 x 155mm boxed



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|----------------|
| YAS 490 010 | Gravity Well | EACH | £108.14 |



Powerseeker Telescope

Celestron PowerSeeker telescopes are a great way to open up the wonders of the Universe to the aspiring astronomer. The PowerSeeker series is designed to give the first-time telescope user the perfect combination of quality, value, features and power. Celestron's PowerSeeker telescopes are the ideal choice for an affordable and high quality telescope. PowerSeekers are quick and easy to set up, and no tools are required for assembly! Their sturdy equatorial mounts are perfect for tracking objects in the night sky, and the collapsible alt-azimuth mounts are perfectly suited for terrestrial (land) viewing as well as astronomical use. Includes a full range of eyepieces plus a 3x Barlow lens that provides an increase in viewing power hundreds of times greater than that of the unaided eye!



Features:

- Slow motion controls for smooth tracking
- Red Dot LED StarFinder
- Erect image optics - ideal for terrestrial and astronomical use
- Fully coated glass optical components with high transmission coatings for enhanced image brightness and clarity
- 3x Barlow lens triples the magnifying power of each eyepiece
- Accessory tray for convenient storage of accessories

| | |
|--|-----------------------------------|
| Aperture (mm) | 70mm |
| Focal Length | 700mm |
| Focal Ratio | 10 |
| Focal Length of Eyepiece 1 (mm) | 20mm |
| Magnification of Eyepiece 1 | 35 x |
| Focal Length of Eyepiece 2 (mm) | 4mm |
| Magnification of Eyepiece 2 | 175 x |
| Focal Length of Eyepiece 3 (mm) | 10mm |
| Magnification of Eyepiece 3 | 70 x |
| Barlow Lens | 3 x |
| Finderscope | 5x24 |
| Star Diagonal | 1.25" Erect Image Diagonal |
| Mount Type | Altazimuth |
| Accessory Tray | No-Tool Tray with Eyepiece holder |
| Tripod | Aluminium |
| Highest Useful Magnification | 165 x |
| Lowest Useful Magnification | 10 x |
| Limiting Stellar Magnitude | 11.7 |
| Resolution (Rayleigh) | 1.99 arc seconds |
| Resolution (Dawes) | 1.66 arc seconds |
| Light Gathering Power (Compared to human eye) | 100 x |
| Apparent Field of View | 1.4 ° |
| Linear Field of View (@ 915m) | 23m |
| Optical Coatings | Fully-Coated |
| Optical Tube Length | 762mm |
| Warranty | 2-year Telescope Warranty |

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| TEL 020 010 | Powerseeker 70AZ Telescope | EACH | £82.51 |





Parallax Range-Finder

This is an invaluable teaching aid for astronomy studies. It allows students to carry out a laboratory scale estimation of the distance of a star based on the parallax method used by astronomers.

The 180 x 180 base plate supports a precision circular scale fitted with sighting pins. Full instructions supplied with all the geometry and practical details. The range finder can be used with any light source or object but see also Starbox (YAS 280 010).

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| YAS 270 010 | Parallax Range-Finder | EACH | £35.00 |



Starbox

The 'star' is a 3mm diameter white LED whose brightness can be controlled from extinction to very bright. When used as a pair the system allows students to gain a full understanding of relative and absolute brightness for stars leading to an appreciation of distance and magnitude estimates in astronomy. Starboxes are also an invaluable companion to the Parallax Range-Finder (YAS 270 010). Each box measures 90 x 60 x 20mm and is self-contained with a 9V PP3 battery. Full data and instructions supplied. Supplied in pairs.

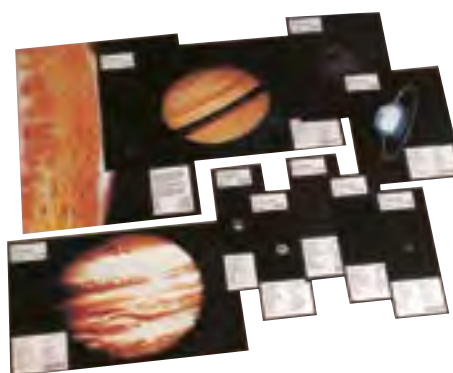
| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| YAS 280 010 | Starbox | EACH | £40.17 |

Day and Night Poster

Size: 760 x 520mm



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| XPP 040 050 | Day and Night Poster | EACH | £3.61 |



Solar System Poster Set

A complete set of 10 laminated posters showing the Sun and the planets. Each planet is depicted at its correct relative scale so that size and distance comparisons can be made. In addition each poster includes details covering characteristics of the planet shown.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| YAS 030 010 | Solar System Poster Set | EACH | £26.38 |

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Memory Spring

A 5mm diameter x 12mm (when closed) spring made from shape memory alloy (Nickel/Titanium). At room temperature this spring is soft enough to pull out to approximately 50mm by applying a small force. When heated to 70°C by passing an electric current through it, the spring contracts to its original length with a useful pulling force, equivalent to lifting a 0.5kg weight.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XSM 030 020 | Memory Spring | EACH | £6.55 |



Memory Wire

Memory wire is a nickel/titanium alloy (NiTi) and 'remembers' its original shape when dropped into hot water (90°C). The wire also 'remembers' different shapes by holding in the desired shape and heating to 500°C for a few minutes. Supplied in a 1 metre length.

| Cat No. | Description | Length | Quantity | Price |
|--------------------|-------------|--------|----------|--------------|
| XSM 030 010 | Memory Wire | 1m | EACH | £9.64 |



Magic Snow

This material is a form of polyacrylamide. It is capable of absorbing many times its own weight in water and it expands rapidly when it gets wet to form a snow like mass. Injected into a stream of high pressure water, it emerges as the high pressure snow seen on film and TV sets. Ideal for science investigations and as the raw material for snow machines that pupils design. It is non-toxic and reusable.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XSM 020 030 | Magic Snow | 50ML | £7.47 |

Memory Spring

Based on a brass alloy, these springs 'remember' their shape and open up (with considerable force and speed) at around 90°C and close again when cooled. Applications include sprinklers and fire damping systems. Supplied individually.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| XSM 030 030 | Memory Spring | EACH | £3.35 |



Metals and Smart Alloys Pack

Many of the GCSE specifications refer to the use of smart alloys and shape memory alloys. This pack contains a variety of smart alloys including a two-way memory spring, smart spring, smart wire, memory wire, super elastic wire, and wire holders for securing the materials. There are many practical activities that can be done with the alloys and are described in the accompanying booklet 'Metals and Smart Alloys'.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XSM 050 010 | Metals and Smart Alloys | EACH | £33.71 |



Smart Metals Sample Pack

Contains labelled samples of all the smart metals for evaluation, supplied in a rigid plastic case.

Contents:

- Smart spring
- 2-way memory spring
- Smart Wire 0.006" diameter (125mm length)
- Memory metal
- Super-elastic wire (125mm)

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XSM 050 100 | Smart Metals Sample Pack | EACH | £13.48 |



Smart Putty

Silly putty or bouncy putty has long been available as an amusement. This type of material is properly known as visco-elastic polymer or dilatent compound. This class of material has the remarkable property that it usually behaves as a soft mouldable plastic (like chewing gum), but instantly becomes a rubber if impacted i.e. it bounces like a ball. One of its uses in engineering is to assist in the machining of turbine blades! It is loaded with grit and injected under high pressure into the small bore cooling channels that are cast into the turbine blades for cooling. The unique rheological properties of the putty are ideally suited for the purpose of polishing the channel walls.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XSM 020 010 | Smart Putty | EACH | £3.37 |



Magnetic Thinking Putty

Made with micron-sized iron-based particles distributed throughout, the astonishing mouldable magnetic putty takes on the properties of a magnet itself when placed in close contact with the included magnet. Use the magnet to do the "snake charmer" trick. Or leave the magnet on your ball of putty and watch it completely engulf the magnet in minutes! What can you do with it? The possibilities are endless! Putty (91g) comes with a neodymium cube magnet in storage tin and a Teacher's Guide.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| XMG 980 010 | Magnetic Thinking Putty | EACH | £13.25 |

Polyox

Polyox (polyethylene oxide) is a non-toxic, long chain polymer with a high molar mass. Because of extensive hydrogen bonding, it is soluble in water. A solution of Polyox (approx. 1% w/v) behaves as an elastic liquid i.e. self-siphons. If you quickly drag some of the solution from a beaker with a spatula, it will continue to move out of the beaker. You can even draw it up into a syringe even though the tip of the syringe is above the liquid level. 5g makes 500ml fluid.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XSM 050 110 | Polyox | 50GM | £7.25 |

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Polymorph

Polymorph is one of a new generation of commercial polymers set to have a major impact on model making and prototyping. This polymer has all the characteristics of a tough 'engineering' material yet it fuses and becomes easily mouldable at just 62°C. It can be heated with just hot water or a hairdryer and moulded by hand to create prototypes and solve manufacturing problems currently outside the capacity of other materials.

Uses for Polymorph include:

- Moulding of handles and orthopaedic aids
- Vacuum forming moulds
- Moulds for batch producing other mouldings
- Prototype mechanical parts
- Armatures / frames for models
- Inserts for compliant products
- Specialised components - eg motor mountings
- Moulding of complete products - eg torches
- Joining components together

Warning: Under no circumstances should Polymorph be moulded around parts of the body, risking the danger of it hardening in position.



| Cat No. | Pk Qty | Quantity | Price |
|--------------------|--------|----------|--------------|
| XSM 050 020 | 100g | 100G | £3.22 |
| XSM 050 030 | 250g | 250G | £5.99 |



Ferrofluid

Design and technology as well as science teachers are buying the amazing Ferrofluid - a truly magnetic liquid. Ferrofluid is used commercially in dynamic seals and loudspeakers, but has recently become available for educational investigation. Supplied in a plastic jar. A rare earth magnet is also supplied.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| XSM 050 040 | Ferrofluid | 10G | £9.18 |



Hydrogel

This completely non-toxic powder absorbs up to 500 times its own weight in water and is the 'secret' ingredient used in applications ranging from babies' nappies to perpetual growing plants. When exposed to water, the powder transforms into a gel which holds the water for an extended period.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XSM 050 060 | Hydrogel | 500G | £10.60 |

Sheet Materials

Kevlar

Kevlar has many applications, ranging from bicycle tyres and racing sails to body armour because of its high strength-to-weight ratio; famously 5 times stronger than steel on an equal weight basis. Sheet size: 250 x 250mm approx



XSM 050 070

Carbon Fibre Sheet

This ultra-smooth sheet material is an aerospace quality carbon-fibre reinforced composite. Because of its combination of low mass and extraordinary strength, its uses range from spacecraft fabrication to Formula 1 racing cars. It is also a highly attractive material and suitable for small-scale prestige work. This is one of the few modern engineering materials, along with titanium, favoured by 'new wave' jewellers. The sheet can be cut on a suitable guillotine and shaped with conventional tools.

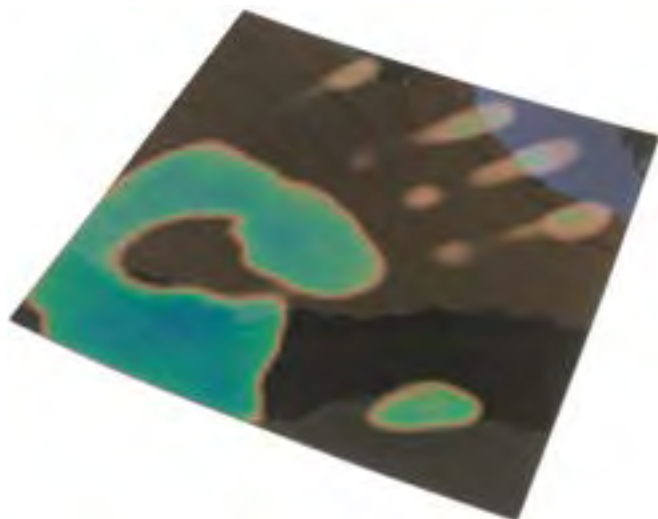
Sheet size: 0.5mm thick x 100mm x 100mm



XSM 050 080

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| XSM 050 070 | Kevlar Woven Fabric | EACH | £5.60 |
| XSM 050 080 | Carbon Fibre Sheet | EACH | £5.40 |





Thermochromic Sheet

A remarkable self adhesive sheet material printed with thermochromic liquid crystal 'ink'. Changes colour (bright blue) when heated above 27°C. Potential applications are many and varied eg temperature indication/warnings, body jewellery, advertising displays (attach a resistance wire to the rear and pass a small current to cause dramatic colour changes to the front 'screen').

| Cat No. | Sheet Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XSM 040 010 | 150 x 150mm | EACH | £6.55 |
| XSM 040 020 | 450 x 300mm | EACH | £36.51 |



Thermochromic Smart Cord

This unique polythene extrusion has some remarkable characteristics and may be used as a single-lesson introduction to smart materials. Below 27°C the cord is pink but above this temperature the colour disappears. The pink then reappears when the temperature drops below 27°C. The cord also exhibits highly unusual behaviour if stretched. When pulled steadily it suddenly necks down at random to a second smaller diameter - and gets stronger! Eventually the whole length of the material reduces to the second diameter as the long molecules are forced to align along the axis of the cord. As the cord stretches there is a temporary loss of colour; the mechanical effort of stretching the cord causes heating - thus neatly demonstrating energy transfer. Short lengths of smart cord may be made into wristbands. At very low cost these could be worn as a constant reminder of the material's unique properties and taken off for use in homework investigations.

Cord diameter approximately 1.5mm
Length 1M

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| XSM 060 040 | Thermochromic Smart Cord | MTR | £0.62 |



Moulding Material

Made from seaweed, this remarkable material is used by dentists to make moulds and is also the moulding material supplied in most baby casting kits. When the fine white powder is mixed with water, it turns purple and then changes colour to indicate readiness for moulding around a pattern - and then setting. It takes just minutes to create a durable, flexible mould capable of taking plaster, plastics and low temperature metals such as Fields Metal. The material is entirely natural and non-toxic, and has a very low cost compared to other high-definition mould making materials, such as silicon compounds.

- Ultrasafe
- Quick setting
- Flexible

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| XSM 060 010 | Moulding Material | 450GM | £8.33 |



Hydrochromic Paint

An amazing paint formula which changes from opaque to transparent when it gets wet. Typically the paint is applied over an image to produce a plain white surface as the paint dries. If the surface is then brushed over with water the hidden image is revealed. As the surface dries it returns to its opaque state.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XSM 060 030 | Hydrochromic Paint | 50ML | £11.18 |



ENVIRONMENTAL SCIENCE

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Tape Measures

Long life, tough, rust-proof tapes made from fibreglass.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| YSU 060 010 | 10m | EACH | £7.64 |
| YSU 060 020 | 20m | EACH | £9.89 |
| YSU 060 030 | 30m | EACH | £19.94 |
| YSU 060 040 | 50m | EACH | £27.02 |



Open Frame Tape Measures

These open frame surveyors' tapes are made from heavy duty plastic with a 13mm wide fibreglass blade. Comes with folding end claw and handle. Measures from zero.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| YSU 090 010 | 30m | EACH | £16.17 |
| YSU 090 020 | 50m | EACH | £24.76 |

Trundle Wheel

Designed for durability, the wheel has a rubber tyre to maintain accuracy. The pointer on the wheel helps children of any size to measure intermediate distances. The clicker can be adjusted to one of three positions: off, click every 10cm and click every metre. The handle can be easily dismantled leaving a very compact unit. Complete with a carry bag. Overall length: 83cm
Size when stored: 37 x 45cm (LxW)



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| YSU 010 010 | Trundle Wheel | EACH | £10.29 |
| YSU 015 010 | Trundle Wheel Counter | EACH | £10.29 |

Orienteering Compass

A liquid-filled compass 50mm in diameter with a clear back and string to wear around the neck.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| YFS 110 031 | Orienteering Compass | EACH | £2.99 |

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Surveying

Tally Counter | Clinometers

SECONDARY



Tally Counter

Reset thumb screw may be removed to prevent unauthorised resetting. 4 digit to 9999.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| CNT 010 010 | Tally Counter | EACH | £5.48 |

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Clinometer Mk II

This compact clinometer has been designed with no external moving parts and a combined sighting angle reading eyepiece. A viewing window on the side of the clinometer allows a second person to confirm or check a reading. All angles are given in degrees followed by a plus or minus sign to indicate an upward or downward slope (inclination or declination). Complete with product guide. Size: 14cm diameter.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| YSU 045 010 | Clinometer Mk II | EACH | £12.79 |

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Clinometer

A well designed height and angle measuring instrument. Point it at the top of the object you are measuring, pull the trigger and then read off the angle on the protractor. The height is then easy to find by using the supplied guide.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| YSU 040 010 | Clinometer | EACH | £10.29 |



Economy Clinometer

A clinometer is a simple device that can be used to measure the elevation/depression of any object. This can also be used to find the height of the building etc.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| YSU 500 010 | Economy Clinometer | EACH | £6.39 |

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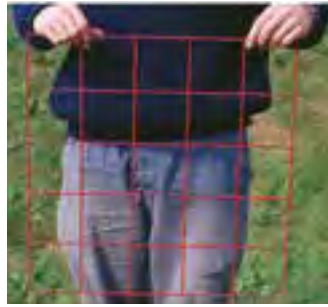


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Rigid Quadrats

These rigid quadrats are made from heavy gauge steel wire and plastic coated to strengthen the welds, protect the wire and make the quadrat highly visible. Our open-style quadrats (YFS 230 030) are zinc plated, with a silver colour finish. These are smooth, U/V resistant and can not be chipped.
Size: 500 x 500mm



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| YFS 230 010 | 100 Squares | EACH | £24.71 |
| YFS 230 020 | 25 Squares | EACH | £20.59 |
| YFS 230 030 | No Sub-Divisions | EACH | £17.50 |

Ranging Poles

2m traditional red and white metal core, plastic covered ranging poles, supplied as a set of 6.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| YSU 070 010 | Ranging Poles | PK6 | £97.84 |



Collapsible Quadrats

100cm collapsible square quadrat with grid holes every 10cm.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YFS 240 020 | Collapsible Quadrats | EACH | £11.18 |

Fixed Quadrats

Plastic 10cm fixed square quadrats.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| YFS 240 010 | Fixed Quadrats | PK5 | £18.58 |

Point Quadrat

Manufactured from stainless steel with a plastic tube. Used for many kinds of field work. Particularly suitable for sampling dense, short vegetation such as grazed land or playing fields. The tube is 600mm long and the pointers 350mm long, spaced at 50mm intervals. Supplied with instructions.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| YFS 340 010 | Point Quadrat | EACH | £65.00 |

Soil Corer

A tommy bar handle is used to insert the corer into the soil and to force out the soil core from the cylinder.
Size: 30 x 4cm (L x Dia)



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| YFS 320 010 | Soil Corer | EACH | £110.94 |

Soil Auger

100cm mild steel screw type soil auger with wooden handle. Graduated in 10cm intervals.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| YFS 330 010 | Soil Auger | EACH | £102.19 |

Stainless Steel Soil Sieve Set

A set of nine stainless steel soil sieves with the following mesh sizes: 10, 20, 30, 40, 60, 80, 100, 120 and 250. Set supplied with an aluminium cover and receiver pan. Mesh number equates to the number of holes per square inch.
Size: 100 x 45mm (Dia x Depth)



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|----------------|
| SVE 010 060 | Soil Sieve Set | EACH | £135.96 |



Sampling Equipment

Soil Analysis Kits



Rapitest® Soil Testing Kit

Soil test kit containing four simple tests to determine the pH, N (nitrogen), P (phosphorus) and K (potassium) status of the soil. Simple to use: soil is mixed with water, allowed to settle and the solution is transferred to the special test containers. A test capsule is added and the developed colour is read off the scale on the container. The pH 4.5 - 7.5 and the N, P and K tests have 5-colour scale indicating depleted, deficient, adequate, sufficient and surplus nutrient content. Supplied with pipette for transferring solution and sufficient capsules for 20 tests, 5 test capsules each for pH, N, P and K.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| SOT 040 010 | Rapitest® Soil Testing Kit | EACH | £19.90 |
| Accessories | | Quantity | £19.90 |
| SOT 044 011 | Replacement pH Capsules | PK8 | £4.99 |
| SOT 044 021 | Replacement N Capsules | PK8 | £4.99 |
| SOT 044 031 | Replacement P Capsules | PK8 | £4.99 |
| SOT 044 041 | Replacement K Capsules | PK8 | £4.99 |



Soil Test Kits

Soil testing kit to test for pH, Nitrogen, Potassium (potash) and Phosphorous. Containing colour coded test tubes, reagents and colour cards.

HI-3985 has reagents for 40 tests. HI-3896 has reagents for 100 tests and also includes extraction solutions. Both kits include comprehensive instructions.

| Cat No. | Description | No. of Tests | Quantity | Price |
|--------------------|-------------|--------------|----------|---------------|
| SOT 170 010 | HI-3895 | 4 x 10 Tests | EACH | £27.50 |
| SOT 170 020 | HI-3896 | 4 x 25 Tests | KIT | £66.20 |



NPK Soil Test Kit

This kit is safe, fun and easily portable.

Contents:

- 50x Tests each for nitrogen, phosphorus and potassium
- Uses non-hazardous TesTabs®
- All necessary apparatus
- Simple, diagrammed instructions
- Laminated colour chart

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| SOT 190 020 | NPK Soil Test Kit | KIT | £59.14 |

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Soil Investigation Kit

Essential for covering the National Curriculum section on describing and grouping soils using the characteristics of appearance, texture and permeability (QCA 3D). The kit includes sandy, clay, peat and calcareous soil types.

The teacher's notes included with the pack take the pupils through understanding and testing soils.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| YES 235 010 | Soil Investigation Kit | EACH | £10.45 |

Soil Thermometer

These thermometers are used to check the temperature of soil and compost. The thermometer has a green knob at the top to assist with location.

| | |
|-------------------|-------------------------------|
| Range: | -10 to +110°C, also Farenheit |
| Divisions: | 1.0°C/2.0°F |
| Length: | 210mm |



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| SOT 100 010 | Soil Thermometer | EACH | £9.30 |



Soil pH Meter

Instantly tells you how acid or alkaline your soil is and checks which plants suit your garden.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| SOT 060 010 | Soil pH Meter | EACH | £18.89 |



Soil Moisture Meter

Instantly tells you when to water your plants. Includes a plant care listing of the individual watering needs of over 150 plants.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| SOT 080 010 | Soil Moisture Meter | EACH | £18.89 |



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Birds of Gardens, Hedgerows and Woodlands Poster

A laminated A2 identification poster showing 28 species of common birds of Gardens, Hedgerows and Woodland, suitable for all ages. All illustrations are original paintings.

The birds are grouped by beak shape. Latin name and information on food and size is shown for each species, making it the perfect educational resource for use at home, in schools and nature reserves. Posters are supplied rolled in individual postal tubes.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|--------------|
| YEN 030 010 | Birds, Hedgerows & Woodlands Poster | EACH | £4.99 |



YEN 070 010



YEN 070 020



YEN 070 040

Laminated & Folded Habitat Guides

The Gatekeeper Habitat series illustrate the common indigenous wildlife of specific habitats and include both plants and animals, 46 species each. They are wipe-clean laminated sheets 39 x 24cm, folded into 3.

| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|---------------|
| YEN 070 010 | Plants & Animals of the Woodland Habitat | PK5 | £12.88 |
| YEN 070 020 | Plants & Animals of the Garden Habitat | PK5 | £12.88 |
| YEN 070 040 | Plants & Animals of the Grassland Habitat | PK5 | £12.88 |
| YEN 070 050 | Plants & Animals of the Hedgerow Habitat | PK5 | £12.88 |
| YEN 070 060 | Set of All 5 Habitat Guides | SET | £12.88 |



YEN 010 010



YEN 010 020



YEN 010 030



YEN 010 040



YEN 010 050



YEN 010 060

Laminated & Folded Identification Keys

Wipe-clean A3 laminated and folded identification keys. These are double sided with a different set of keys on each side. The guides provide easy identification using key questions that are easy to follow and clear illustrations which are attractive to study. Robust, easy to handle and a perfect wildlife reference for schools and nature lovers of all ages.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| YEN 010 010 | Wildflowers of Grassland | PK5 | £12.99 |
| YEN 010 020 | Freshwater Invertebrates | PK5 | £12.99 |
| YEN 010 030 | Land Invertebrates | PK5 | £12.99 |
| YEN 010 040 | Trees & Shrubs | PK5 | £12.99 |
| YEN 010 050 | Dispersal of Seeds & Fruits | PK5 | £12.99 |
| YEN 010 060 | Butterflies | PK5 | £10.80 |
| YEN 010 070 | Common Birds | PK5 | £12.99 |
| YEN 010 080 | Flowers of the Hedgerow | PK5 | £12.99 |
| YEN 010 090 | Common Grasses | PK5 | £12.99 |
| YEN 010 100 | Common Fungi | PK5 | £12.99 |
| YEN 010 110 | Flowers of Chalk Grassland | PK5 | £12.99 |

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Stream Flow Meter Kits

Stream Flow Meter Kit

The easy to use flow meter is fitted with a resettable LCD counter and is powered by a long life battery. The flow meter is supplied complete with a protective carrying pouch, a sturdy hard wearing impeller stick (which disassembles into four parts for easy storage), a compact weatherproof carry bag for all the kit, and a set of three stream elevation rods which allow velocity measurements to be made at fixed heights above the bed of the stream.

Advanced Stream Flow Meter Kit

Containing all the features and benefits of the basic model (YSU 050 010), the Advanced Stream Flow Meter is more versatile with features such as an LCD readout presenting velocity in metres/second or mph. Complete with all accessories as in the basic model.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|-------|
| YSU 050 010 | Stream Flow Meter Kit | EACH | |
| YSU 050 020 | Stream Flow Meter Kit, Advanced | EACH | |

Waterproof pH Meter

A waterproof pocket pH tester that measures four parameters in one without changing probes. Simply press a button to switch from pH to EC to TDS, with temperature continuously displayed on the bottom half of a large LCD screen.

Although packed with features, this tester has just two buttons and is simple to use.



| | |
|--------------|-------------------|
| Range | HI-98129 |
| EC | 0-3999 μ S/cm |
| TDS | 0-2000 ppm |

| Cat No. | Model | Quantity | Price |
|--------------------|----------|----------|----------------|
| PHM 450 010 | HI-98129 | EACH | £178.15 |



Water Monitoring Kit

A great introduction to any water quality monitoring investigation. This kit provides hands-on methods using TesTabs® for brackish, fresh or sea water.

Contents:

- 8 different test factors pH, dissolved oxygen, biochemical oxygen demand, temperature, turbidity, nitrate, phosphate and coliform bacteria
- Manual with step by step instructions
- All necessary apparatus
- Safe, non-hazardous TesTabs® to test 10 water samples
- Laminated colour chart

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YFS 710 010 | Water Monitoring Kit | KIT | £77.21 |



Estuary & Marine Monitoring Kit

This kit is designed to provide simple, economical and non hazardous methods for testing saline and brackish water.

Tests for:

- pH
- Dissolved oxygen
- Nitrate
- Biochemical oxygen demand
- Phosphate
- Temperature
- Coliform bacteria
- Turbidity
- Chloride

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| YFS 710 020 | Estuary & Marine Monitoring Kit | KIT | £78.32 |



Water Testing

Kits



Single Parameter Water Test Kits

A range of simple to use chemical test kits to measure a selection of important environmental parameters. Step by step instructions are included along with all necessary apparatus to perform the tests.



Single Parameter Water Testing Kits

This range of compact test kits are easy, quick to use and inexpensive, moreover, they offer interesting environmental education. Depending on the test, the kit system can be either a drop test or colorimetric test. All kits perform approximately 70 to 80 tests and replacement reagents are available, please ask for details. Accuracy: within 10%. Dimensions: 140 x 130x 38mm

Colorimetric Test Kits

Supplied in a small plastic case containing colour card, reagents and test cells.

Drop Test Kits

Supplied in a small plastic case containing reagents and test cells.

| Cat No. | Description | Range | No. of Tests | Quantity | Price |
|--------------------|----------------|------------|--------------|----------|---------------|
| YFS 300 020 | Free Chlorine | 0-2.5 mg/L | 50 | KIT | £25.45 |
| YFS 300 030 | Total Chlorine | 0-2.5 mg/L | 50 | KIT | £21.90 |

| Cat No. | Test | Range | Quantity | Price |
|-------------------------------|-------------|----------------|----------|---------------|
| Colorimetric Test Kits | | | | |
| WAT 710 080 | Nitrate | 0 - 80mg/L | EACH | £34.24 |
| Drop Tests Kits | | | | |
| WAT 710 040 | Chloride HR | 100 - 3000mg/L | EACH | £34.24 |

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BioDegradability Kit®

A new and innovative environmental science kit to demonstrate materials biodegrading in compounds and liquids. The kit comes with 6 specially designed containers and a number of clips and cages to hold different materials in place. In addition there is a quantity of metal, card and biodegradable plastic samples to experiment with and also a project work book. Pupils may bring their own materials to conduct the experiments with and observe the amount and rate of degrading over time in differing compounds and liquids.

The BioDegradability Kit® has been designed to support the teaching of science and geography within the National Curriculum framework and encourage discussion on sustainability and environmental issues.

Container Dimensions: 145mm high x 12mm across corners

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| GRN 010 010 | BioDegradability Kit® | KIT | £59.72 |

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Igneous Rock Specimens

Supplied in 1kg quantities unless otherwise stated.

| Cat No. | Rock | Location | Quantity | Price |
|--------------------|-----------|----------|----------|--------------|
| YES 110 010 | Basalt | Skye | 1KG | £5.14 |
| YES 110 040 | Dolerite | Teeside | 1KG | £5.14 |
| YES 110 050 | Gabbro | Cumbria | 1KG | £4.93 |
| YES 110 080 | Granite | Cumbria | 1KG | £5.14 |
| YES 110 110 | Obsidian* | Turkey | 500G | £5.14 |
| YES 110 130 | Pumice** | Iceland | 250G | £5.14 |

* 500g pack; ** 250g pack

Metamorphic Rock Specimens

Supplied in 1kg quantities.

| Cat No. | Rock | Location | Quantity | Price |
|--------------------|---------------|----------|----------|--------------|
| YES 110 420 | Phyllite | Scotland | 1KG | £5.14 |
| YES 110 430 | Mica Schist | Scotland | 1KG | £5.14 |
| YES 110 440 | Metaquartzite | Various | 1KG | £5.14 |
| YES 110 450 | Slate | Wales | 1KG | £5.14 |
| YES 110 470 | White Marble | Italy | 1KG | £5.14 |
| YES 110 490 | Gneiss | Scotland | 1KG | £5.14 |

Sedimentary Rock Specimens

Supplied in 1kg quantities.

| Cat No. | Rock | Location | Quantity | Price |
|--------------------|-------------------------------|------------|----------|--------------|
| YES 110 190 | Sandstone, Pre-Cambrian | Skye | 1KG | £5.14 |
| YES 110 230 | Limestone, Carboniferous | Derbyshire | 1KG | £5.14 |
| YES 110 240 | Shale, Carboniferous | Lancashire | 1KG | £5.14 |
| YES 110 250 | Siltstone, Carboniferous | Lancashire | 1KG | £5.14 |
| YES 110 300 | Millstone Grit, Carboniferous | Lancashire | 1KG | £5.14 |
| YES 110 320 | Desert Sandstone, Permian | Cumbria | 1KG | £5.14 |
| YES 110 350 | Fossiliferous Shale, Jurassic | Yorkshire | 1KG | £5.14 |
| YES 110 370 | Shelly Limestone, Jurassic | Various | 1KG | £5.14 |
| YES 110 380 | Chalk, Cretaceous | Yorkshire | 1KG | £5.14 |
| YES 110 390 | Conglomerate, Cretaceous | Berkshire | 1KG | £5.14 |
| YES 110 400 | Breccia, Pleistocene | Staffs | 1KG | £5.14 |
| YES 110 480 | Flint, Cretaceous | Norfolk | 1KG | £5.14 |



Geology

Rocks & Minerals

SECONDARY



Basic Rock Set

The Basic Rock Set has been designed for the National Curriculum section on rocks & soils. The set consists of twelve different handy sized rock specimens of igneous, sedimentary and metamorphic origin. The set is supplied with teacher's notes and identification key on the inside of the lid.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| YES 210 011 | Basic Rock Set | SET | £31.56 |

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Class Rock Pack

Based around a laminated flow chart the pack takes students through the principle tests for identifying rocks, including separating on the basis of grain size, textures, structures and colour. Five samples of each rock are supplied. Also includes full teacher's notes.

Contents:

- Limestone
- Sandstone
- Slate
- Porphyry
- Basalt
- Granite
- Chalk
- Gabbro
- Marble
- 1x tub of Clay Soil
- 1x tub of Sandy Soil

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| YES 180 011 | Class Rock Pack | SET | £36.55 |



Rock Board

Perspex display board showing eight high quality samples of rock from the main sedimentary, metamorphic and igneous rock groups. Includes teacher's notes.
Size: 150 x 150mm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| YES 190 011 | Rock Board | EACH | £16.69 |



Rock Cycle Pack

A range of rock and mineral specimens that explain how the rock cycle involves sedimentary, metamorphic and igneous processes. The pack includes a laminated sheet showing the rock cycle. Five samples of each rock/mineral included: Quartz, Clay, Mudstone, Limestone, Sandstone, Granite, Gabbro, Quartzite, Slate, Gneiss, Marble and Schist.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| YES 230 010 | Rock Cycle Pack | PACK | £40.13 |

Petrology Set

A set of 15 specimens including 6 igneous rocks, 3 metamorphic and 6 sedimentary rocks. Supplied in a sectioned box with key on the inside of the box lid. Average specimen length 40 to 50mm. Overall dimensions of the box are 260 x 190 x 40mm (LxWxD).

Contents:

- Granite Pink Feldspathic
- Syenite
- Limestone Jurassic
- Granite White Biotite Mica
- Marble
- Limestone Permian
- Limestone Carboniferous
- Schist
- Sandstone Carboniferous
- Slate
- Banded Gneiss
- Sandstone Triassic
- Amigdaloidal Basalt
- Chalk
- Dolerite



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| YES 100 010 | Petrology Set | EACH | £25.75 |

Economic Rocks & Mineral Set

A set of 15 specimens of rocks and minerals which are typical of 'mine run' production. Supplied in a sectioned box with key to the specimens on the inside of the box lid. These specimens are production samples and are not intended to illustrate crystal structure.

Box dimensions: 260 x 190 x 40mm (WxDxH)

Contents:

- Fluorite
- Barite
- Sphalerite
- Hematite
- Gypsum
- Flint
- Cassiterite
- Coal
- Ironstone
- Halite
- Limonite
- Magnesite
- Dolomite Limestone
- Galena
- Wolframite
- Quartz



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| YES 060 010 | Economic Rocks & Mineral Set | EACH | £34.33 |





Basic Mineral Set

The Basic Mineral Set includes 12 high quality student samples. Designed for the National Curriculum. The twelve different mineral specimens are ideal for explaining that metal ores are found in the Earth and how a combination of minerals forms different rock types. Supplied with teacher's notes and identification key on the inside of the lid.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| YES 240 010 | Basic Mineral Set | SET | £31.56 |



Class Mineral Pack

The Class Mineral Pack takes students through the principle tests for identifying minerals including: specific gravity, hardness, streak, colour and lustre tests. Samples of each mineral are supplied in sturdy plastic containers, packed in a storage box. Five streak plates and five hardness testers are also supplied.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| YES 200 011 | Class Mineral Pack | PACK | £40.13 |

Mineral Study Pieces

Supplied in 500g quantities unless otherwise stated.



| Cat No. | Rock | Location | Quantity | Price |
|--------------------|-----------------|---------------|----------|---------------|
| YES 120 041 | Bauxite* | Ireland | 1KG | £6.43 |
| YES 120 070 | Chalcopyrite | Cuba | 500G | £5.40 |
| YES 120 120 | Graphite | Sri Lanka | 500G | £20.81 |
| YES 120 140 | Gypsum Selenite | Turkey | 500G | £5.36 |
| YES 120 150 | Haematite | Great Britain | 500G | £6.43 |
| YES 120 160 | Halite | Great Britain | 500G | £3.81 |
| YES 120 180 | Magnetite | Norway | 500G | £4.33 |
| YES 120 230 | Pyrite | Peru | 500G | £6.59 |
| YES 120 240 | Quartz Rose | Madagascar | 500G | £4.33 |
| YES 120 250 | Quartz Milky | Great Britain | 500G | £4.35 |

* pack = 1kg; ** pack = 250g



Geology

Rocks & Minerals & Fossils

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Mineral Set

A set of 15 mineral specimens which illustrates crystal form where possible. Supplied in a sectioned box with key on the inside of the box lid. Average specimen length approximately 40mm. Box dimensions: 260 x 190 x 40mm (WxDxH)

Contents:

- Aragonite
- Halite
- Fluorite
- Dolomite
- Calcite Crystal
- Satin Spar Gypsum
- Gypsum Crystal
- Quartz Crystal
- Barite
- Calcite Rhomb
- Sphalerite
- Chalcopyrite
- Hematite
- Galena
- Pyrite



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| YES 090 010 | Mineral Set | EACH | £25.75 |

Gem Stones Set

A collection of 10 specimens in a blue plastic box.

Contents:

- Amethyst
- Aquamarine
- Ruby
- Sapphire
- Rubellite
- Tourmaline
- Citrine
- Garnet
- White topaz
- Yellow topaz



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| YES 090 010 | Mineral Set | EACH | £25.75 |

Fossil, Mineral & Rock Set

A set of 36 genuine British specimens: 12 fossil, 12 mineral and 12 rock. Each specimen is individually wrapped in a resealable polythene bag and labelled with name and locality. The set is contained in a robust cardboard box with individual sections for each specimen.

Box dimensions: 500 x 480 x 90mm (L x W x H)

Contents:

- Fossils: Ammonite, Crinoid, Ammonite, sectioned Echinoid, Plant Trilobite, Corals (2 or 3 types), Bivalves (3 or 4 types)
- Minerals: Barite, Gypsum, Calcite, Halite, Chalcopyrite, Hematite, Feldspar, Pyrite, Fluorite, Quartz, Galena, Sphalerite
- Rocks: Chalk, Sandstone, Coal, Schist, Dolerite, Slate, Granite (2 types), Syenite, Limestone (3 types)

NB: Contents may vary slightly due to the availability of specimens.



| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|---------|
| YES 050 010 | Fossil, Mineral & Rock Set | EACH | £103.00 |

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Mineral Hardness Set

Contains 9 minerals illustrating Moh's scale of hardness. Supplied with data sheet.

Contents:

- Talc
- Gypsum
- Calcite
- Fluorite
- Apatite
- Feldspar
- Quartz
- Topaz
- Carborundum

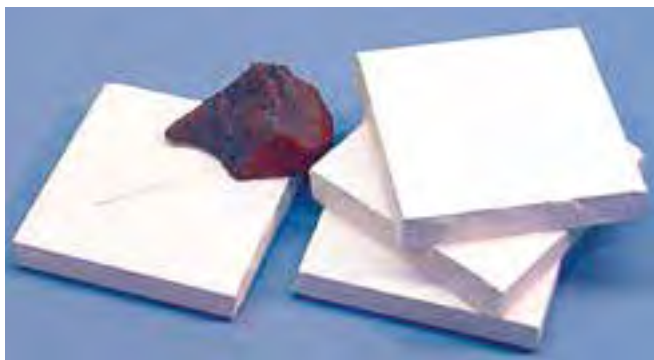


| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| YES 020 010 | Mineral Hardness Set | EACH | £19.99 |



Fossil Sets

| Cat No. | Fossil Type | Origin | Quantity | Price |
|--------------------|------------------------|----------|----------|--------------|
| YES 140 010 | Brachiopods | Morocco | PK10 | £5.15 |
| YES 140 020 | Echinoids | Morocco | PK10 | £5.15 |
| YES 140 030 | Trilobite, Diacalymene | Morocco | EACH | £4.74 |
| YES 140 050 | Ammonite | Somerset | EACH | £2.58 |



Streak Plates

Unglazed ceramic tiles manufactured for the streak testing of minerals.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| YES 040 011 | Streak Plates | EACH | £9.50 |



Geological Hammer

Forge hardened steel chisel head (455g) with hickory handle. Safety goggles should always be worn when using geological hammers.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| YES 070 010 | Geological Hammer | EACH | £20.59 |



Folding Pocket Magnifiers

Metal case, with a 17mm diameter lens.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| MAG 020 010 | x5 Magnification | EACH | £1.42 |
| MAG 020 030 | x10 Magnification | EACH | £1.85 |

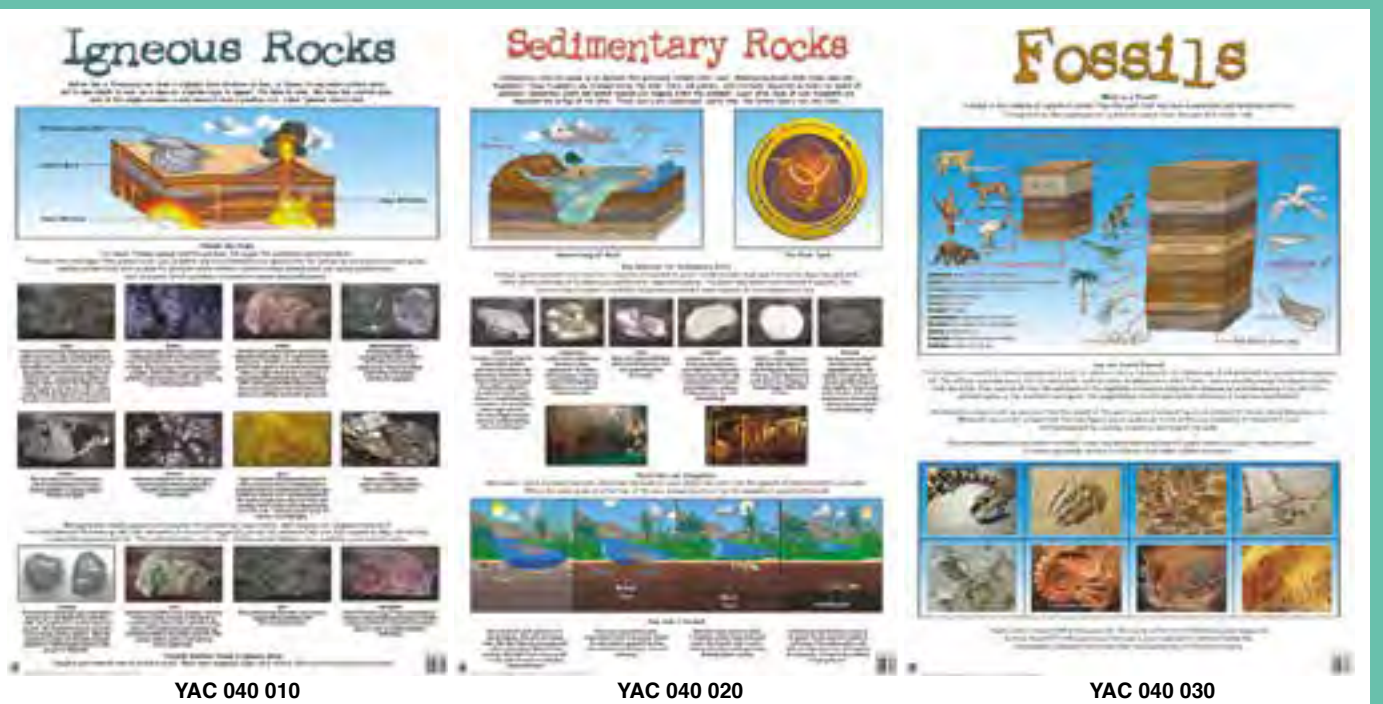


Folding Pocket Magnifiers

Lens diameter: 25mm

| Cat No. | Lens | Magnification | Quantity | Price |
|--------------------|--------|---------------|----------|--------------|
| MAG 030 010 | Single | x4 | EACH | £1.22 |
| MAG 030 020 | Double | x8 | EACH | £1.29 |





Rock Posters

Size: 760 x 520mm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| YAC 040 010 | Igneous Rocks | EACH | £3.61 |
| YAC 040 020 | Sedimentary Rocks | EACH | £3.61 |
| YAC 040 030 | Fossils | EACH | £3.61 |

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Lascells Plate Tectonics Kit

This apparatus provides teachers with all the background information on Plate Tectonics for GCSE KS4, together with a stimulating set of jigsaw pieces in colour coded acrylic for students to use so that they can manipulate the continent shapes to see how the surface of the Earth has evolved over the last 250 million years. The acrylic shapes can also be used as stencil outlines for drawing around directly into student notes.

Contents:

- 1 set of teaching notes with full background information and historical data
- 1 printed outline diagram of the Permian era known as Pangaea
- 1 printed outline diagram of the Cretaceous era
- 1 printed outline diagram of the present day
- 1 acrylic set for the Permian era, 300 x 250mm overall
- 1 acrylic set for the Cretaceous era, 300 x 250mm overall
- 1 acrylic set for the present day, 300 x 250mm overall

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| YES 260 010 | Plate Tectonics Kit | EACH | £38.10 |



YGL 010 010

Globes

Traditional and essential teaching aids for every classroom, these top quality, large globes are constructed from robust spheres made of recycled materials and mounted on a sturdy plastic stand. Superior graphic quality showing political or physical detail.
Diameter: 30cm
Height: 41cm

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| YGL 010 010 | Political Globe | EACH | £46.34 |
| YGL 010 020 | Physical Globe | EACH | £46.34 |



Giant Inflatable Globe

Customise this write-on/wipe-off globe to enrich your lessons. Locate and label continents, bodies of water, countries, trade routes and more. Features no printed words -perfect for assessments. Includes activity guide, repair kit, and display hook and string. Use with wet-erase markers.

Diameter: 68cm

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| YGL 060 010 | Giant Inflatable Globe | EACH | £15.45 |



Cross Section Earth

This hands-on model makes illustrating the mysteries of the Earth easy. The outside of the model shows the oceans and continents. The Earth's two hemispheres separate to show the four main layers of the Earth: crust, mantle, outer core and inner core, their temperatures and depths. It's size and foam construction make it easy for students to handle and examine. Includes a fact-filled activity guide.
Diameter: 12.7cm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| YGL 030 010 | Cross Section Earth | EACH | £12.36 |



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Water Poster

Size: 760 x 520mm

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|-------|
| XCP 030 050 | Water Poster | EACH | £3.61 |



Rain Gauge

Plastic body and 100mm diameter funnel.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| MET 490 010 | Rain Gauge | EACH | £27.44 |



Rainmaker Water Cycle Kit

The Rainmaker Water Cycle simulator is simple to set up and operate. Fill the ocean with salt water or vinegar, load the clouds with ice, and switch on a lamp. Rain will fall over the hills and water will run into the rivers and the lake. The Rainmaker lid remains clear, enabling the water cycle to be observed. Water in the raindrops, rivers and lakes can be tested. Conduct experiments using food colouring or brown sugar as pollutants. Investigate how we can help nature and protect the environment. Supplied with full teacher's notes with experiments. Lamp NOT supplied.

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| MET 210 010 | Rainmaker | EACH | £56.15 |
| MIA 020 032 | White Bench Lamp | EACH | £7.20 |





Weather Vane

A simple robust and practical weather vane which can be hand-held or fixed permanently. Can be dismantled for pupils to incorporate any part in their own designs.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| MET 380 030 | Weather Vane | EACH | £10.11 |



Anemometer

The unique design of this Anemometer gives a direct reading of wind speed, without the need to count revolutions. The low and high calibrations register m/s and the Beaufort scale. It can be hand-held or fixed permanently.

Complete with product guide.
Dimensions: 28 x 19cm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| MET 350 020 | Anemometer | EACH | £8.89 |

Waterproof Anemometer

A pocket sized microprocessor based waterproof vane anemometer.

Features:

- Ideal for monitoring fume cupboard extraction and small grills
- IP67 ABS plastic case, which will float if dropped in water
- Sapphire bearings giving accuracy at low speeds
- Replaceable vane head
- 14mm screen display
- Powered by 1 x 3V lithium battery (supplied)
- Supplied with case, neck cord and full instructions
- Measurement features include current velocity, max velocity since power up and average velocity



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|----------------|
| MET 010 010 | Waterproof Anemometer | EACH | £133.89 |

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Electronic Weather Station

Hand held electronic thermometer with probe and maximum/minimum temperature memory for a wide range of applications.

Features:

- Measures indoor and outdoor temperatures and humidity
- Max/Min readouts with memory
- Wet/comfort/dry level indicator
- °C and °F selectable
- Alert function
- Large LCD display

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| MET 310 011 | Electronic Weather Station | EACH | £30.20 |
| Accessories | Description | Quantity | £30.20 |
| BAT 010 020 | AAA Size - 1.5V Batteries | PK4 | £2.99 |



Thermo-Hygrometer

A combined temperature and humidity meter. The large LCD display is easy to read at a distance.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| MET 910 010 | Thermo-Hygrometer | EACH | £16.01 |



Max/Min Dial Thermometer

100mm diameter dial, -30/60°C and -20/140°F. The red and blue max/min pointers are reset by a central knob on the face.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| MET 530 010 | Max/Min Dial Thermometer | EACH | £11.78 |



Thermometer & Hygrometer

A 100mm gilt dial with temperature and humidity scales printed in black.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| MET 420 010 | Thermometer & Hygrometer | EACH | £9.70 |





Aneroid Barometer

With an 80mm diameter brushed aluminium face reading in mbars. The body is gilded and supplied with a hanging hook.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| MET 390 010 | Aneroid Barometer | EACH | £16.91 |



Direct Reading Hygrometer

A 65mm diameter slate blue dial with dark blue humidity scale and red pointer. Humidity range 0 to 100%.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| MET 410 010 | Direct Reading Hygrometer | EACH | £3.58 |

Mason's Hygrometer

A Mason's hanging hygrometer with white plastic case and scales and red spirit tubes. Calculator included. Range: -5/50°C



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| MET 230 010 | Mason's Hygrometer | EACH | £18.79 |



Pen Type Thermometer/Hygrometer

A humidity meter with an LCD display which simultaneously displays Temperature and % Relative Humidity. The sensors are located in a protective grill, making this Pen Type Thermometer/Hygrometer ideally suited for taking measurements in air stream.

Features:

- Displays temperature in °C or °F
- Displays humidity in %RH
- Impact-resistant ABS case with integrated sensors & protective grill
- Sensors grill opens & closes to protect sensors when not in use
- Large 58 x 12mm LCD display
- Min/max memory
- Supplied with battery and hard case
- Optional Calibration Certificate available



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| MET 980 010 | Pen Type Thermometer/Hygrometer | EACH | £30.89 |





Compact 4 in 1 Multifunction Meter

The compact 4 in 1 multifunction environment meter measures Sound Levels, Light Levels, Humidity and Temperature. It is extremely easy to use with a single rotary switch controlling all functions.

Features:

- Sound with selectable 'A' or 'C' frequency weightings
- Cosine corrected silicon diode sensor for Lux level with 4 selectable ranges 20, 200, 2000 & 20,000 Lux
- Semiconductor sensor for humidity measurements in %RH and ambient temperature in °C/°F
- K-type input for °C/°F temperature measurements
- 18mm LCD display with function indicators
- Over Range indication
- Low Battery indication
- Auto Power Off after 10 minutes, preserves battery life
- Supplied with rubber boot, K-Type wire probe and battery

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| MET 700 011 | 4 in 1 Multifunction Meter | EACH | £72.09 |

Pocket Light Meter

This easy to use instrument offers compact design and robust construction. It is a precision luminance meter designed for environmental monitoring, health & safety checks, and industrial applications.



| Cat No. | Description | Quantity | Price | |
|--------------------|-------------------------|-------------|---------------|-------|
| MET 020 011 | Pocket Light Meter | EACH | £46.95 | |
| Accessories | | Description | Quantity | Price |
| BAT 010 050 | PP3 9V Duracell Battery | EACH | £3.29 | |

“ When filling syringes with sand, water and air to show solids liquids and gases under pressure, use a piece of nichrome wire down the side of the plunger to release all the air then pull the wire out leaving no air inside. ”

— Overton Grange School

“ Use baby wipes to get streak-free cleaning on stainless steel. ”

— The Ockendon Academy

“ To clean the red stain out of test tubes after positive Benedicts reagent tests, place them in the dishwasher the right way up so they collect the water. Then wash them again the normal way up – this seems to remove 99% of the red staining. ”

— King James’s School



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FORENSIC SCIENCE

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Forensic Investigation 397

Fingerprinting 402

Footprints 405

Crime Scene 406

Fiber Identification Kit

For a class of up to 30 students. Students identify an unknown fiber by performing identical tests on the unknown and on several reference fibers. Introduces students to basic investigative techniques. Identity of unknown is included with kit.

Contents:

- Unknown Fabric
- Multifiber Fabric
- Acetone
- Hydrochloric Acid
- Sodium Hypochlorite Solution
- Fiber Identification Stain
- Acetic Acid
- Mountant
- Microscope Slides
- Coverslips



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| CBL 129 010 | Fibre Identification Kit | EACH | £84.90 |

Forensic Chemistry of Drug Detection Kit

All of the students who ate the chili in the school cafeteria became ill. As forensic toxicologists, your students are directed to perform a series of chemical tests to determine whether aspirin, stolen from the nurse's office, has been substituted for one of the chili ingredients. Materials are sufficient for 15 groups of students.

Contents:

- Control Acetylsalicylic Acid
- 3x Bottles Chili Ingredients
- Ferric Nitrate, 0.1 M Solution
- Dilute Lugol's Iodine
- 15x Microreaction Plates



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| CBL 115 010 | Drug Detection Kit | EACH | £42.98 |

The Case of the Murdered Mayor Kit

For a class of 30 working in groups of 3. Students assume the role of crime scene investigators as they use their observational skills and deductive reasoning to solve a realistic crime scenario. They attempt to identify a prime suspect from a pool of 6 alleged perpetrators using these traditional forensic techniques:

- Fingerprinting
- Hair analysis (requires low-power microscope, not included)
- Tyre track impression analysis
- Blood typing (using synthetic blood)
- Forensic entomology (with artificial fly larvae or maggots)
- Police log review

Contents:

- 10x Synthetic Blood Samples
- 2x Synthetic Anti-A Serum
- 2x Synthetic Anti-B Serum
- 2x Synthetic Anti-Rh (D) Serum
- 120x each colour Blood Mixing Sticks, Blue, Yellow & White
- 10x Rulers
- Artificial Maggots, 42g
- Magnetic Fingerprinting Powder
- Fingerprinting Powder Applicator (magnetic stem with clear plastic sleeve)
- Fingerprint Lifting Tape
- 10x Dual Magnifiers
- 72x Microscope Slides
- 100x Coverslips
- 10x Dissecting Forceps
- 2x Dog Hair Samples
- 2x Human Hair Samples
- 10x Plastic Pipettes, 3ml
- 100x Blood Typing Slides
- Teacher's Manual and Reproducible Student Guide



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| CBL 114 010 | Murdered Mayor Kit | EACH | £108.77 |



Forensic Investigation

Kits

Forensic Investigations: Blood Kit

This forensic investigation scenario and kit comes complete with simulated blood samples and serums, equipment, teacher and technician's guide and crime scene notes for students. This activity kit covers:

- Components and function of blood
- Preparation of microscope slides
- Haemoglobin and Presumptive blood testing
- Blood types and blood type testing
- Importance of blood at crime scenes
- Enough provided for a class of 30
- Used properly the kit is designed for at least 3 uses Teacher's Guide included as PDF on the accompanying CD-ROM along with any additional documentation and worksheets.



ZFK 200 010

Refill Kit

This refill kit contains a set of simulated blood samples, serums, presumptive test reagents and more spotting tiles for replenishing or extending the Forensic Investigation of Blood Kit (ZFK 200 010).

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ZFK 200 500

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| ZFK 200 010 | Blood Kit | KIT | £66.94 |
| ZFK 200 500 | Blood Refill Kit | KIT | £30.89 |



Forensics Mystery with Synthetic Blood Kit

Students perform a simulated test for the presence of blood on evidence collected from 2 suspects in a murder case. They then use synthetic blood typing to test whether either suspect can be linked to the crime. Kit contains enough materials for a class of 30. Note: Use with Carolina™ Synthetic Blood products and accessories only. Not designed for actual blood typing.

Contents:

- Synthetic Anti-A, and -B, and Anti-Rh Serum
- Synthetic Blood
- Blood Typing Slides
- Mixing Sticks
- Synthetic Blood-Stained Cloth
- Red Liquid-Stained Cloth
- Phenolphthalein Solution
- Teacher's Manual with Reproducible Student Guide

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| CBL 116 010 | Synthetic Blood Kit | EACH | £40.79 |



Presumptive Blood Test Kit

Perform the classic 3-step Kastle-Meyer test for blood using the premixed solutions in this convenient kit. In the test's final step, the sample is treated with hydrogen peroxide, which reacts with haemoglobin and phenolphthalein to produce a bright pink colour. The test detects both human and animal blood. Includes instructions and materials sufficient for 30 tests.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| CBL 131 010 | Presumptive Blood Test Kit | EACH | £28.80 |



Forensic Investigations: Crime Scenes Kit

This forensic investigation scenario and kit comes complete with several different crime scene scenarios which you can replicate in your classrooms, various evidence packaging methods to learn about and equipment to facilitate crime scene photography. Teacher's Guide included as PDF on the accompanying CD-ROM along with any additional documentation and worksheets.



Refill Kit

This refill kit contains more materials for setting up your crime scenes, ideal for restocking your Crime Scene Kits.

Investigation of Crime Scenes Poster

This poster is specifically designed as a learning aid to supplement the teaching kit but also works well on its own, individually or part of a larger forensic investigation display. Covers crime scenes, contamination, chain of custody and evidence packaging in forensic science. Printed on a robust PVC, these wipe-clean posters are a great addition to any classroom display.

Size: 841 x 594mm

Contents:

- Crime scene scenarios, hints and tips for teachers and technicians
- Crime scene tape
- Evidence tape
- Lifting tape for collecting trace evidence
- Evidence bags
- Photographic markers
- Photographic scales
- Supplied in a deep Gratnells tray



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| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| ZFK 270 010 | Crime Scenes Kit | EACH | £84.98 |

Junior Forensic Investigations: My Fingerprints Kit

An introduction to the science of fingerprints. Pupils will practise the investigation skills they have learned by investigating the pattern types on their own fingerprints. They will each make their own fingerprint cards to take away. Looking at individuality and patterns, they will investigate which patterns are more frequent in their class and construct a graph of their results. Teacher's Guide included as PDF on the accompanying CD-ROM along with any additional documentation and worksheets.



Contents:

- 5 Fingerprinting ink pads
- 5 Examination magnifying glasses
- Teaching notes and CD
- Pupil worksheets
- Fingerprint card template

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| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| ZFK 220 010 | My Fingerprints Kit | KIT | £40.21 |



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CSI Educational Fingerprint Kit

A very useful kit designed for students. Kit contains: brushes, powders (both magnetic and brushing), gloves, apron, face mask and instructional manual.

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------|----------|--------|
| ZFK 130 010 | CSI Educational Fingerprint Kit | EACH | £93.98 |

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Forensic Investigations: Fingerprint Keyrings Kit

This fingerprint investigation based kit enables immediate development of fingerprints from a variety of surfaces and also contains 50 keyrings, enabling your pupils to place their fingerprint on a slip of card (provided), develop it, and then place it in a keyring to keep. Works well for open days, science clubs and covering work activities. Also includes a template on CD-ROM so that you can produce keyrings with your own school logo on the back. Teacher's Guide included as PDF on the accompanying CD-ROM along with any additional documentation and worksheets.

Refill Kit

Another 50 keyrings, 100 card inserts and magnetic powder to replenish your Fingerprint Keyring Kit (ZFK 280 010) or increase its size for whole year groups.



ZFK 280 500

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| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------|----------|--------|
| ZFK 280 010 | Fingerprint Keyrings Kit | EACH | £86.99 |
| ZFK 280 500 | Fingerprint Keyrings Refill Kit | EACH | £37.99 |



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Fingerprinting

Accessories | Applicators

Fingerprint Powders

Every crime scene examiner will have a range of fingerprint powders at their disposal. Different powders are suitable for use on surfaces and it is important to be aware of which work best in different situations before they arrive at the scene.

Bichromatic Powder

Bichromatic powder will appear silver on dark surfaces and black on light silver surfaces, enabling this to be used on a large range of household objects that may be encountered at a scene.

Black and White Powders

Black powders work well on clear or light coloured surface, and white on black surfaces. The objective with each powder choice is to obtain the greatest contrast possible for photography and comparison.

Fluorescent Powders

Fluorescent powders have a very light base and require a light touch to obtain the best results. Try using a Marabou Duster for perfect results, but these are ideal for patterned surfaces where one single colour of powder will not give great contrast, as with a UV lamp the powder will fluoresce in the dark allowing a photograph to be taken with great contrast. With or without the UV lamp these are very popular with pupils.

Metallic Powders

Ideal for smooth surfaces such as glass, metallic flake powders are very successful for many prints and work best with fibreglass brushes. Choose the colour which gives the best contrast for the surfaces you will be using or have your pupils experiment with both.



ZFK 050 020

| Cat No. | Description | Quantity | Price |
|--------------------------------|--------------------|----------|--------|
| Class Size | | | |
| ZFK 050 020 | Black Powder | 30G | £3.75 |
| ZFK 050 030 | White Powder | 30G | £3.75 |
| ZFK 050 060 | Yellow Fluorescent | 59ML | £20.00 |
| ZFK 050 090 | Aluminium Powder | 30G | £3.75 |
| Individual Student Size | | | |
| ZFK 050 240 | Bronze Powder | EACH | £3.99 |
| ZFK 050 280 | Magnetic Powder | EACH | £3.43 |

Fingerprint Brushes

Zephyr Fibreglass Brush

Zephyr fibreglass brushes are ideal for use with metallic fingerprint powders as these are of a different shape to the normal powder. However, they can be used with all powders.

Skye Synthetic White Brush

Skye synthetic fibre brushes are able to be washed clean and so reduce mess. It is recommended that you do not use the same brush for two different coloured powders as this can lead to contamination of your powder stocks and 'dirty looking' prints.

Carbon Filament Brush

The carbon filament brush is ideal for projects where it is important not to overdevelop the prints such as student projects. This brush is moisture and corrosion resistant. Unlike the Zephyr and Skye brushes, powders can be changed quickly due to the low friction fibres by shaking out the initial powder and reloading with a new one.

Marabou Feather Duster Brush

Marabou brushes are extremely light and so ideal for use with the lightweight fluorescent powders or for removing excess powder with overdeveloped prints. Black.



ZFK 070 010



ZFK 070 020



ZFK 070 040

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| ZFK 070 010 | Zephyr Fibreglass Brush | EACH | £14.76 |
| ZFK 070 020 | Skye Synthetic Brush | EACH | £12.88 |
| ZFK 070 040 | Marabou Feather Brush | EACH | £15.64 |



Magnetic Fingerprint Powder Applicator

Magnetic fingerprinting is one of the magical processes in forensic science. Using the spring loaded applicator you can develop prints on a variety of surfaces including fresh prints on paper. The attraction of the magnetic powder to the brush makes it difficult to overdevelop a print. Using the brush you can also pick up all the excess powder meaning there is very little wastage and no mess! A single magnetic brush can also be used with more than one colour powder without contamination making it ideal for taking advantage of the versatility of bichromatic and fluorescent powders. This spring loaded Magnetic Powder Applicator is made of aluminium and incorporates rare Earth magnets. Magnetic powders can only be used with a magnetic brush. The powder is attracted by the magnet in the head of the magnetic brush, causing the iron particles to form a kind of brush.



| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|--------|
| ZFK 080 200 | Magnetic Powder Applicator | EACH | £34.33 |
| Accessories | Description | Quantity | £34.33 |
| ZFK 050 280 | Magnetic Powder | EACH | £3.43 |

Fingerprint Lifting

Fingerprint Lifting Tape As used by the professionals this tape is extremely clear, allowing prints to be lifted without distorting or damaging the print or creating air bubbles and so maintaining the detail and integrity of the original print.
Roll: 50mm x 20m.

Lifting Gel Sheets

As an alternative, Lifting Gel Sheets are available which allow prints on curved or porous surfaces (such as paper) to be lifted without damaging the print.

Hinged Instant Lifters

Hinged Instant Fingerprint Lifters have their own backing sheet already attached making the fingerprint lifting process easier.

Cobex Sheets

These are used for nearly everything in forensic science; perfect as a backing for lifted fingerprints or tape lifted hairs, fibres, and powders. The clear low glare plastic allows the object to be viewed against any colour backing for greater contrast.



| Cat No. | Heading 1 | Quantity | Price |
|-------------|--------------------------|----------|--------|
| ZFK 080 110 | Fingerprint Lifting Tape | EACH | £10.79 |
| ZFK 080 180 | Cobex Sheets | PK100 | £5.49 |



Fingerprinting

Applicators | DNA

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Ninhydrin Spray

Spray Can. 237ml.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| ZFK 060 070 | Ninhydrin Spray | EACH | £69.49 |

Ink Pads

Ideal for hectic classrooms these economy solutions to inking fingerprints use an ink which is easier to clean from hands.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| ZFK 080 030 | Circular Ink Pad, 38mm | EACH | £19.99 |



Inkless Fingerprinting

Sometimes used for obtaining comparison or elimination prints in the field, such as the owner of a recently burgled property, without the inconvenience of having to leave the scene or having to clean up afterwards. Pack contains 50 sheets.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| ZFK 080 011 | Inkless Fingerprinting | EACH | £33.50 |



Professional Inking Equipment

The standard method of collecting fingerprints in the UK for many years using the copper Inking slab fingerprint ink and roller. Recommended if good quality prints are needed for comparison with lifted prints.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| ZFK 080 080 | Ink Roller, 75mm | EACH | £6.67 |
| ZFK 080 100 | Fingerprint Ink, 8ml | EACH | £3.83 |

Ultraviolet Lamp

A robust, lightweight and compact UV lamp. Requires 4 x AA batteries (not included). For safety reasons, do not point UV light towards the face.

Safe Usage Recommendations PLEASE NOTE: THESE ARE ONLY GENERAL SAFETY GUIDELINES

1. Place the unit at a height that will not allow anybody to look directly at the UV bulb. If this is not possible, then the lamp must be placed 30-40cm away from the eyes
2. It is recommended that the operator does not expose their hands to UV light for more than 90 minutes on a continuous basis

To Change the UV Bulb PLEASE NOTE: THESE ARE ONLY GENERAL SAFETY GUIDELINES

1. Unplug the unit from the AC mains supply if AC powered
2. Remove covers
3. Replace bulb/tube
4. Put the covers back into place

If you have any doubts please use a qualified electrician only

Permanent UV Marker Pen

- Permanent UV ink
- Markings light up under UV light
- Works on most surfaces
- Extra fine tip for easy writing
- Non-toxic ink



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| UVL 270 010 | Ultraviolet Lamp | EACH | £7.20 |
| UVL 270 521 | Permanent UV Marker Pen | EACH | £2.03 |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |





GAROLINA



Caught by a Kiss, Forensics for the Biology Lab Kit

Students act as crime scene technicians to figure out which pieces of evidence from multiple crime scenes contain potentially useful DNA information. By detecting amylase activity, students infer the presence/absence of saliva on the evidence. Students learn why the detection of saliva is important at a crime scene, as well as how the amylase enzyme works. Materials supplied are for 6 groups of 4 students each to examine 4 different pieces of evidence.

Contents:

- Melt 'n Pour Starch Agar
- Cotton Swabs
- Plastic Cups
- Straws
- Envelopes
- Toothpicks
- Petri Dishes
- IKI Solution
- Teacher and Student Instructions

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| CBL 111 010 | Caught by a Kiss Kit | EACH | £57.66 |



Casting Plaster

Casting plaster suitable for taking impressions of footwear and vehicle tracks etc. The Crownstone plaster offers a more durable impression ideal for displays.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| ZFK 090 020 | Crownstone Casting Plaster | 5KG | £36.37 |
| ZFK 090 030 | Dentstone Casting Plaster | 5KG | £19.99 |

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Blood Spatter Apparatus

The bloodstain angle board enables the investigator to look at the effects of angle upon the shape of bloodstains. By adjusting the angle the investigator can replicate the different impact angles they may see at a violent crime scene. Similarly, by changing the surface, the effect of texture upon the shape of the blood spatter can also be observed. Folds flat without need for disassembly and fits into a standard Grattells tray.



| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| ZFK 350 010 | Blood Spatter Apparatus | EACH | £51.49 |

Protective Clothing

Essential to protect evidence from contamination; pupils will enjoy your crime scenes even more when they look and feel the part. With these easy disposable white suits and other protective clothing they will not get any stains on their own clothing and will usually become more engaged in the activity.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|-------|
| SAC 450 011 | Coverall, Small | EACH | POA |

Evidence Bags

Have your students treat their evidence as it would be in real life, to teach them the importance in chain of custody and contamination, these sizes will cover nearly all types of evidence. These authentic bags contain space for you to write down all details concerning the evidence and case, as well as a tamper proof seal.



| Cat No. | Size | Quantity | Price |
|-------------|-------------|----------|--------|
| Bags | | | |
| ZFK 230 030 | 190 x 260mm | PK100 | £29.90 |
| ZFK 230 040 | 250 x 420mm | PK100 | £43.90 |
| ZFK 230 050 | 390 x 610mm | PK100 | £75.50 |



Sharps Container

Clear, durable screw top tube designed for safely storing and transporting sharp objects. The telescopic design easily extends and contracts to fit the various sizes of weapon and the metal ends ensure the user is protected from any sharp blades. The hexagon shape end also prevents rolling during transportation and storage. Simply place the item into the smaller tube and screw the top on. Seal with tamper tape for a realistic crime scene. Dimensions: 375 x 52mm

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|-------|
| ZFK 230 091 | Sharps Container | PK5 | £8.00 |



Crime Scene Tape

Liven up your crime scenes and evidence displays with some of this authentic crime scene tape. Strong and weatherproof; going this extra mile will pay dividends for realism.

| Cat No. | Description | Length | Quantity | Price |
|-------------|------------------|--------|----------|--------|
| ZFK 080 240 | Crime Scene Tape | 250m | EACH | £13.91 |



Tamper Tape

Used to seal or reseal all evidence packaging this tamper proof tape prevents unauthorised opening of evidence to maintain the chain of custody. When applied the tape should be signed and dated by the packager. Try challenging your students to open a package without leaving Forensic proof behind; its harder than it looks.

| Cat No. | Description | Length | Quantity | Price |
|-------------|-------------|--------|----------|--------|
| ZFK 230 080 | Tamper Tape | 33m | EACH | £24.62 |

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SIMAX TALL FORM BEAKERS

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The Globally Harmonised System (GHS)

The Globally Harmonised System (GHS) within the EU. The classification and labelling system according to CLP regulation (EC) No 1272/2008

| Hazard class | Category | Pictogram | Signal word | Code | Hazard statements | P-Codes |
|--|--|---|-------------|---------------------------|---|---|
| Explosives | Unstable Explosive. |  GSHO1 | Danger | H200 | Unstable Explosive | P201, P202, P281, P372, P373, P380, P401, P501 |
| | Div 1.1 | | Danger | H201 | Explosive; mass explosion hazard | P210, P230, P240, P250, P280, P370+P380, P372, P373, P401, P501 |
| | Div 1.2 | | Danger | H202 | Explosive; severe projection hazard | P210, P230, P240, P250, P280, P370+P380, P372, P373, P401, P501 |
| | Div 1.3 | | Danger | H203 | Explosive; fire, blast or projection hazard | P210, P230, P240, P250, P280, P370+P380, P372, P373, P401, P501 |
| | Div 1.4 | Warning | H204 | Fire or projection hazard | P210, P240, P250, P280, P370+P380, P372, P373, P374, P401, P501 | |
| | Div 1.5 | No Pictogram | Danger | H205 | May mass explode in fire | P210, P230, P240, P250, P280, P370+P380, P372, P373, P401, P501 |
| | Div 1.6 | No Pictogram | | | | |
| Flammable gases | Category 1 |  GSHO2 | Danger | H220 | Extremely flammable gas | P210, P377, P381, P403 |
| | Category 2 | No Pictogram | Warning | H221 | Flammable gas | P210, P377, P381, P403 |
| Flammable aerosols | Category 1 |  GSHO2 | Danger | H222 | Extremely flammable aerosol | P210, P211, P251, P410+P412 |
| | Category 2 | | Warning | H223 | Flammable aerosol | P210, P211, P251, P410+P412 |
| Flammable liquids | Category 1 |  GSHO2 | Danger | H224 | Extremely flammable liquid and vapour | P210, P233, P240, P241, P242, P243, P280, P303+ P361+P353, P370+P378, P403+P235, P501 |
| | Category 2 | | Danger | H225 | Highly Flammable liquid and vapour | |
| | Category 3 | | Warning | H226 | Flammable liquid and vapour | |
| Flammable solids | Category 1 |  GSHO2 | Danger | H228 | Flammable solid | P210, P240, P241, P280, P370+P378 |
| | Category 2 | | Warning | H228 | Flammable solid | |
| Self-reactive substances and mixtures; and organic peroxides | Type A |  GSHO1 | Danger | H240 | Heating may cause an explosion | P210, P220, P234, P280, P370+ P378, P370+ P380+P375, P403+P235, P411, P420, P501 |
| | Type B |  GSHO1 | Danger | H241 | Heating may cause a fire or explosion | P210, P220, P234, P280, P370+P378, P370+ P380+P375, P403+P235, P411, P420, P501 |
| | Type C, D, |  GSHO2 | Danger | H242 | Heating may cause a fire | P210, P220, P234, P280, P370+P378, P403+P235, P411, P420, P501 |
| | Type E, F | | Warning | H242 | Heating may cause a fire | P210, P220, P234, P280, P370+P378, P403+P235, P411, P420, P501 |
| | Type G | No Pictogram | | | | |
| Pyrophoric liquids Pyrophoric solids Self-heating substances and mixtures Substances and mixtures which, in contact with water emit flammable gases | Category 1 |  GSHO1 | Danger | H250 | Catches fire spontaneously if exposed to air | P210, P222, P280, P302+P334, P370+P378, P422 |
| | Category 1 | | Danger | H251 | Self-heating; may catch fire | P235+P410, P280, P407, P413, P420 |
| | Category 2 | | Warning | H252 | Self-heating in large quantities; may catch fire | |
| | Category 1 | | Danger | H260 | In contact with water releases flammable gases which may ignite spontaneously ¹⁾ | P223, P231+P232, P280, P335+ P334, P370+P378, P402+P404, P501 |
| | Category 2 | | Danger | H261 | In contact with water releases flammable gas | |
| | Category 3 | | Warning | H261 | In contact with water releases flammable gas | |
| Oxidising gases Oxidising liquids; oxidising solids | Category 1 |  GSHO3 | Danger | H270 | May cause or intensify fire; oxidizer | P220, P244, P370+P376, P403 |
| | Category 1 | | Danger | H271 | May cause fire or explosion; strong oxidiser | P210, P220, P221, P280, P283 P306+P360, P371+P380+P375, P370+P378, P501 |
| | Category 2 | | Danger | H272 | May intensify fire; oxidizer | P210, P220, P221, P280, P370+P378, P501 |
| | Category 3 | | Warning | H272 | May intensify fire; oxidizer ³⁾ | |
| Gases under pressure | Compressed gas Liquefied gas Dissolved gas |  GSHO3 | Warning | H280 | Contains gas under pressure; may explode if heated | P410+P403 |
| | Refrigerated liquefied gas | | Warning | H281 | Contains refrigerated gas may cause cryogenic burns or injury | P282, P336, P315, P403 |
| Corrosive to metals | Category 1 |  GSHO3 | Warning | H290 | May be corrosive to metals | P234, P390, P404 |
| Acute toxicity, oral | Category 1, 2 |  GSHO3 | Danger | H300 | Fatal if swallowed | P264, P270, P301+P310, P321, P330, P405, P501 |
| | Category 3 | | Danger | H301 | Toxic if swallowed | P264, P270, P301+P310, P321, P330, P405, P501 |
| | Category 4 |  GSHO3 | Warning | H302 | Harmful if swallowed | P264, P270, P301+P312, P330, P501 |

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The Globally Harmonised System (GHS) within the EU. The classification and labelling system according to CLP regulation (EC) No 1272/2008

| Hazard class | Category | Pictogram | Signal word | Code | Hazard statements | P-Codes |
|---|---------------------|---|-------------|------|---|--|
| Aspiration hazard | Category 1 |  GSHO8 | Danger | H304 | May be fatal if swallowed and enters airways | P301+P310, P331, P405, P501 |
| Acute toxicity, dermal | Category 1, 2 |  GSHO6 | Danger | H310 | Fatal in contact with skin | P262, P264, P270, P280, P302+P350, P310, P322, P361, P363, P405, P501 |
| | Category 3 | | Danger | H311 | Toxic in contact with skin | P280, P302+P352, 312,P322, P361, P363, P405, P501 |
| | Category 4 |  GSHO7 | Warning | H312 | Harmful in contact with skin | P280,P302+P352, P312, 322, P363, P501 |
| Skin corrosion/irritation | Category 1A, B, C |  GSHO6 | Danger | H314 | Causes severe skin burns and eye damage | P260,P264, P280, P301+P330+P331,P303+P361+P353, P363, P304+P340, P310, P321, P305+ P351+P338, P405, P501 |
| | Category 2 |  GSHO7 | Warning | H315 | Causes skin irritation | P264, P280, P302+P352,P321, P332+P313, P362 |
| Sensitisation, skin | Category 1 |  GSHO7 | Warning | H317 | May cause an allergic skin reaction | P261, P272, P280, P302+P352, P333+P313, P321, P363, P501 |
| Serious eye damage/ eye irritation | Category 1 |  GSHO5 | Danger | H318 | Causes serious eye damage | P280, P305+P351+P338, P310 |
| | Category 2 |  GSHO7 | Warning | H319 | Causes serious eye irritation | P264, P280, P305+P351+P338, P337+P313 |
| Acute toxicity, inhalation | Category 1, 2 |  GSHO6 | Danger | H330 | Fatal if inhaled | P260, P271, P284, P304+P340, P310, P320, P403+P233, P405, P501 |
| | Category 3 | | Danger | H331 | Toxic if inhaled | P261, P271, P304+P340, P311, P321, P403+P233, P405, P501 |
| | Category 4 |  GSHO7 | Warning | H332 | Harmful if inhaled | P261, P271, P304+P340, P312 |
| Sensitisation, respiratory | Category 1 |  GSHO8 | Danger | H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled | P261, P285, P304+P341, P342+P311, P501 |
| Specific target organ toxicity, single exposure; Respiratory tract irritation | Category 3 |  GSHO7 | Warning | H335 | May cause respiratory irritation | P261, P271, P304+P340 P312, P403+P233, P405, P501 |
| Specific target organ toxicity, single exposure ; narcotic effect | Category 3 | | Warning | H336 | May cause drowsiness or dizziness | |
| Germ cell mutagenicity | Category 1A, 1B |  GSHO8 | Danger | H340 | May cause genetic defects | P201, P202, P28, P308+P313, P405, P501 |
| | Category 2 | | Warning | H341 | Suspected of causing genetic defects | |
| Carcinogenicity | Category 1A, 1B |  GSHO8 | Danger | H350 | May cause cancer | P201, P202, P281, P201, P202, P281, |
| | Category 2 | | Warning | H351 | Suspected of causing cancer | |
| Reproductive toxicity | Category 1A, 1B |  GSHO8 | Danger | H360 | May damage fertility or the unborn child | P201, P202, P281, P308+P313, P405, P501 |
| | Category 2 | | Warning | H361 | Suspected of damaging fertility or the unborn child | |
| Reproductive toxicity, effects on/via lactation | Additional category | No Pictogram | Danger | H362 | May cause harm to breast-fed children | P201, P260, P263, P264, P270, P308+P313 |
| Specific target organ toxicity, single exposure | Category 1 |  GSHO8 | Danger | H370 | Causes damage to organs | P260, P264, P270, P307+P311, P321, P405, P501 |
| | Category 2 | | Warning | H371 | May cause damage to organs | P260, P264, P270, P309+P311, P405, P501 |
| Specific target organ toxicity, repeated exposure | Category 1 |  GSHO8 | Danger | H372 | Causes damage to organs through prolonged or repeated exposure | P260, P264, P270, P314, P501 |
| | Category 2 | | Warning | H373 | Causes damage to organs through prolonged or repeated exposure | P260, P314, P501 |
| Hazardous to the aquatic environment | Category 1 |  GSHO9 | Warning | H400 | Very toxic to aquatic life | P273, P391, P501 |
| Hazardous to the aquatic environment, long-term hazard | Category 1 |  GSHO9 | Warning | H410 | Very toxic to aquatic life with long lasting effects | P273, P391, P501 |
| | Category 2 | | | H411 | Toxic to aquatic life with long lasting effects | |
| | Category 3 | No Pictogram | | H412 | Harmful to aquatic life with long lasting effects | P273, P501 |
| | Category 4 | | | H413 | May cause long lasting harmful effects to aquatic life | |



Handling and Use

- Read the label before opening the container
- Check that the chemical is the one required
- Consider the hazards including violent reactions between chemicals and use appropriate protective clothing and equipment
- Open container carefully in well ventilated area
- Take care while extracting and using hazardous chemicals and use methods which reduce the risk of inhalation, ingestion and contact with skin, eyes and clothing
- Avoid using contaminated apparatus and instruments
- Seal container tightly after use
- Do not eat, drink or smoke while handling and using chemicals
- Wash hands/exposed areas regularly, and change contaminated clothing
- Deal with spillages using precautions and methods appropriate to the hazards
- Seek medical attention immediately if affected by chemicals and use appropriate first aid until medical attention is available

Storage

- Store in dry well ventilated area, protected from extremes of temperature and sources of ignition
- Secure chemicals from unauthorized use
- Segregate stock to reduce hazards
- Inspect stock from time to time and dispose of deteriorated materials
- Do not smoke where flammable chemicals are stored
- Take care in handling containers with hazardous residues

PHYSICAL HAZARDS

| | |
|------|---|
| H200 | Unstable explosive |
| H201 | Explosive; mass explosion hazard |
| H202 | Explosive; severe projection hazard |
| H203 | Explosive; fire, blast or projection hazard |
| H204 | Fire or projection hazard |
| H205 | May mass explode in fire |
| H220 | Extremely flammable gas |
| H221 | Flammable gas |
| H222 | Extremely flammable aerosol |
| H223 | Flammable aerosol |
| H224 | Extremely flammable liquid and vapour |
| H225 | Highly Flammable liquid and vapour |
| H226 | Flammable liquid and vapour |
| H228 | Flammable solid |
| H240 | Heating may cause an explosion |
| H241 | Heating may cause a fire or explosion |
| H242 | Heating may cause a fire |
| H250 | Catches fire spontaneously if exposed to air |
| H251 | Self-heating; may catch fire |
| H252 | Self-heating in large quantities; may catch fire |
| H260 | In contact with water releases flammable gases which may ignite spontaneously |
| H261 | In contact with water releases flammable gases |
| H270 | May cause or intensify fire; oxidizer |
| H271 | May cause fire or explosion; strong oxidiser |
| H272 | May intensify fire; oxidizer |
| H280 | Contains gas under pressure; may explode if heated |
| H281 | Contains refrigerated gas; may cause cryogenic burns or injury |
| H290 | May be corrosive to metals |

HEALTH HAZARDS

| | |
|------|---|
| H300 | Fatal if swallowed |
| H301 | Toxic if swallowed |
| H302 | Harmful if swallowed |
| H304 | May be fatal if swallowed and enters airways |
| H310 | Fatal in contact with skin |
| H311 | Toxic in contact with skin |
| H312 | Harmful in contact with skin |
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H317 | May cause an allergic skin reaction |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H330 | Fatal if inhaled |
| H331 | Toxic if inhaled |
| H332 | Harmful if inhaled |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation |

| | |
|------|---|
| H336 | May cause drowsiness or dizziness |
| H340 | May cause genetic defects |
| H341 | Suspected of causing genetic defects |
| H350 | May cause cancer |
| H351 | Suspected of causing cancer |
| H360 | May damage fertility or the unborn child |
| H361 | Suspected of damaging fertility or the unborn child |
| H362 | May cause harm to breast-fed children |
| H370 | Causes damage to organs |
| H371 | May cause damage to organs |
| H372 | Causes damage to organs through prolonged or repeated exposure |
| H373 | May cause damage to organs through prolonged or repeated exposure |

ENVIRONMENTAL HAZARDS

| | |
|------|--|
| H400 | Very toxic to aquatic life |
| H410 | Very toxic to aquatic life with long lasting effects |
| H411 | Toxic to aquatic life with long lasting effects |
| H412 | Harmful to aquatic life with long lasting effects |
| H413 | May cause long lasting harmful effects to aquatic life |

COMBINATION OF H-CODES

| | |
|--------------------|--|
| H300 + H310 | Fatal if swallowed or in contact with skin |
| H300 + H330 | Fatal if swallowed or if inhaled |
| H310 + H330 | Fatal in contact with skin or if inhaled |
| H300 + H310 + H330 | Fatal if swallowed, in contact with skin or if inhaled |
| H301 + H311 | Toxic if swallowed or in contact with skin |
| H301 + H331 | Toxic if swallowed or if inhaled |
| H311 + H331 | Toxic in contact with skin or if inhaled |
| H301 + H311 + H331 | Toxic if swallowed, in contact with skin or if inhaled |
| H302 + H312 | Harmful if swallowed or in contact with skin |
| H302 + H332 | Harmful if swallowed or if inhaled |
| H312 + H332 | Harmful in contact with skin or if inhaled |
| H302 + H312 + H332 | Harmful if swallowed, in contact with skin or if inhaled |
| H315 + H320 | Causes skin and eye irritation |

ADDITIONAL HAZARD STATEMENTS (EU)

| | |
|--------|--|
| EUH001 | Explosive when dry |
| EUH006 | Explosive with or without contact with air |
| EUH014 | Reacts violently with water |
| EUH018 | In use may form flammable explosive vapour-air mixture |
| EUH019 | May form explosive peroxides |
| EUH029 | Contact with water liberates toxic gas |
| EUH031 | Contact with acids liberates toxic gas |
| EUH032 | Contact with acids liberates very toxic gas |
| EUH044 | Risk of explosion if heated under confinement |
| EUH059 | Hazardous to the ozone layer |
| EUH066 | Repeated exposure may cause skin dryness or cracking |
| EUH070 | Toxic by eye contact |
| EUH071 | Corrosive to the respiratory tract |



Handling, Usage & Storage

GENERAL

GENERAL

- P101 If medical advice is needed, have product container or label at hand.
 P102 Keep out of reach of children.
 P103 Read label before use

PREVENTION

- P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
 P211 Do not spray on an open flame or other ignition source.
 P220 Keep/Store away from clothing/.../combustible materials.
 P221 Take any precaution to avoid mixing with combustibles/...
 P222 Do not allow contact with air.
 P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
 P230 Keep wetted with ...
 P231 Handle under inert gas.
 P232 Protect from moisture.
 P233 Keep container tightly closed.
 P234 Keep only in original container.
 P235 Keep cool.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ventilating/lighting/equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P244 Keep reduction valves free from grease and oil.
 P250 Do not subject to grinding/shock/.../friction.
 P251 Pressurized container: Do not pierce or burn, even after use.
 P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P262 Do not get in eyes, on skin, or on clothing.
 P263 Avoid contact during pregnancy/while nursing.
 P264 Wash hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P272 Contaminated work clothing should not be allowed out of the workplace.
 P273 Avoid release to the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.
 P281 Use personal protective equipment as required.
 P282 Wear cold insulating gloves/face shield/eye protection.
 P283 Wear fire/flame resistant/retardant clothing.
 P284 Wear respiratory protection.
 P285 In case of inadequate ventilation wear respiratory protection.
 P231 + P232 Handle under inert gas. Protect from moisture.
 P235 + P410 Keep cool. Protect from sunlight.

RESPONSE

- P310 Immediately call a POISON CENTER or doctor/physician.
 P311 Call a POISON CENTER or doctor/physician.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P313 Get medical advice/attention.
 P314 Get medical advice/attention if you feel unwell.
 P315 Get immediate medical advice/attention.
 P320 Specific treatment is urgent (see ... on this label).
 P321 Specific treatment (see ... on this label).
 P322 Specific measures (see ... on this label).
 P330 Rinse mouth.
 P331 Do NOT induce vomiting.
 P334 Immerse in cool water/wrap in wet bandages.
 P335 Brush off loose particles from skin.
 P336 Thaw frosted parts with lukewarm water. Do not rub affected area.
 P338 Remove contact lenses, if present and easy to do. Continue rinsing.
 P340 Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P341 If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P342 If experiencing respiratory symptoms:
 P350 Gently wash with plenty of soap and water.
 P351 Rinse cautiously with water for several minutes.
 P352 Wash with plenty of soap and water.
 P353 Rinse skin with water/shower.
 P360 Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
 P361 Remove/Take off immediately all contaminated clothing.
 P362 Take off contaminated clothing and wash before reuse.

- P363 Wash contaminated clothing before reuse.
 P371 In case of major fire and large quantities:
 P372 Explosion risk in case of fire.
 P373 DO NOT fight fire when fire reaches explosives.
 P374 Fight fire with normal precautions from a reasonable distance.
 P376 Stop leak if safe to do so.
 P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
 P378 Use ... for extinction.
 P380 Evacuate area.
 P381 Eliminate all ignition sources if safe to do so.
 P390 Absorb spillage to prevent material damage.
 P391 Collect spillage. Hazardous to the aquatic environment
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 P301 + P312 IF SWALLOWED: call a POISON CENTER or doctor/physician if you feel unwell.
 P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P302 + P334 IF ON SKIN: Immerse in cool water/wrap in wet bandages.
 P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.
 P302 + P352 IF ON SKIN: wash with plenty of soap and water.
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse SKIN with water/shower.
 P304 + P312 IF INHALED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P306 + P360 IF ON CLOTHING: Rinse immediately contaminated CLOTHING and SKIN with plenty of water before removing clothes.
 P307 + P311 IF exposed: call a POISON CENTER or doctor/physician.
 P308 + P313 IF exposed or concerned: Get medical advice/attention.
 P309 + P313 IF exposed or if you feel unwell: call a POISON CENTER or doctor/physician.
 P332 + P313 IF SKIN irritation occurs: Get medical advice/attention.
 P333 + P313 IF SKIN irritation or rash occurs: Get medical advice/attention.
 P335 + P334 Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
 P337 + P313 IF eye irritation persists: Get medical advice/attention.
 P342 + P311 IF experiencing respiratory symptoms: call a POISON CENTER or doctor/physician.
 P370 + P376 In case of fire: Stop leak if safe to do so.
 P370 + P378 In case of fire: Use ... for extinction.
 P370 + P380 In case of fire: Evacuate area.
 P370 + P380 + P375 In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.
 P371 + P380 + P375 In case of major fire and large quantities: evacuate area. Fight fire remotely due to the risk of explosion.

STORAGE

- P401 Store...
 P402 Store in a dry place.
 P403 Store in a well-ventilated place.
 P404 Store in a closed container.
 P405 Store locked up.
 P406 Store in corrosive resistant/... container with a resistant inner liner.
 P407 Maintain air gap between stacks/pallets.
 P410 Protect from sunlight.
 P412 Do not expose to temperatures exceeding 50°C/ 122°F.
 P413 Store bulk masses greater than ... kg/... lbs at temperatures not exceeding ... °C/...°F.
 P420 Store away from other materials.
 P422 Store contents under ...
 P402 + P404 Store in a dry place. Store in a closed container.
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
 P410 + P403 Protect from sunlight. Store in a well-ventilated place.
 P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
 P411 + P235 Store at temperatures not exceeding ... °C/...°F. Keep cool.

STORAGE

- P501 Dispose of contents/container to....
 P502 Refer to manufacturer/supplier for information on recovery/recycling

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Illustrated below is a typical catalogue entry, with an explanation of the various symbols, abbreviations and safety data.

1. Product Name

4. UN Hazard Classification

5. Cas Number

6. EC Number

7. Signal Word

H Gives information about the relative hazard level of a substance or mixture and alerts the reader to a potential hazard. Danger: indicates more severe hazard categories. Warning: indicates less severe hazard categories. Some lower level hazard categories do not use signal words.

3. Flash Point

8. Catalogue number

9. Size of Pack

Acetaldehyde (Ethanal)

(Ethanal)
CH₃.CHO
M.W. 44.05
Flashpoint: -27°C

UN Class. 3/1089/I
Cas No. 75-07-0
EC No. 200-836-8

DANGER H224, H351, H319, H335
P210, P280, P303 + P361 + P353,
P304 + P340, P305 + P351 + P338, P312

AC010 **500ML**

2. Hazard Symbols

- GHS01** Explosive
- GHS02** Flammable
- GHS03** Oxidising
- GHS04** Compressed gas
- GHS05** Skin corrosion
- GHS06** Acute toxicity
- GHS07** Skin irritation
- GHS08** Health hazard
- GHS09** Environment hazard

10. Hazard & Precautionary Codes

H and P codes are included as part of the product description in this catalogue. These codes comply with the Global Harmonisation System (GHS) within the EU according to CLP regulation (EC) No 1272/2008. See the previous pages for detailed explanation of these codes

11. Restriction

Chemicals showing this symbol cannot be shipped via passenger aircraft.

Chemicals - Chemicals Alternative Names

| Alternative Name | Catalogue Name | Cat No. | Alternative Name | Catalogue Name | Cat No. |
|--|--|---------|------------------------|----------------------------|-----------|
| 1-6 Diaminohexane | Hexane-1-6-diamine | HE030 | Laevulose | D-Fructose | FR005 |
| 2-Hydroxy propane-1,2,3-tricarboxylic acid | Citric acid | 0090/1 | Lead ethanoate | Lead (II) acetate-3-water | LE025 |
| 3-Aminophthalhydrazide | Luminol | LU005 | Lead monoxide | Lead (II) oxide litharge | LE070 |
| Adenosine-5-triphosphoric acid | ATP | AT005 | Lead, red | Lead (II,IV) oxide | LE055 |
| Alcohol, industrial | Ethanol - industrial methylated spirit | ET025 | Marble chips | Calcium carbonate | CA045 |
| Ammonium ethanoate | Ammonium acetate | AM030 | Methanoic acid | Formic acid | FO005 |
| Ammonium ferric Sulfate | Ammonium iron (III) Sulfate | AM100 | Methyl alcohol | Methanol | ME060 |
| Ammonium ferrous Sulfate | Ammonium iron (II) Sulfate | AM095 | Methyl ethyl ketone | Butanone | BU090 |
| Ammonium oxalate | Ammonium ethanedioate | AM065 | Methylene chloride | Dichloromethane | DI040 |
| Ammonium purpurate | Murexide | MU005 | n-Amyl alcohol | Pentan-1-ol | PE010 |
| Aniline | Phenylamine | PH040 | n-Butyl alcohol | Butan-1-ol | BU080 |
| Benzyl alcohol | Phenylmethanol | PH080 | n-Butyl bromide | 1-Bromobutane | BR040 |
| Boric acid | Trioxoboric (III) Acid Cryst | TR075 | n-Butyl iodide | 1-Iodobutane | IO025 |
| Calcium ethanoate | Calcium acetate | CA040 | n-Butylaldehyde | Butanal | BU060 |
| Calcium hydroxide solution | Lime water | LI005 | n-Butyric acid | Butanoic acid | BU100 |
| Calcium Hypochlorite | Bleaching powder | BI005 | n-Octanol | Octan-1-ol | AC021 |
| Carbamide | Urea | UR020 | n-Phenylacetamide | Acetanilide | AC020 |
| Carbolic acid | Phenol | PH005 | n-Propyl alcohol | Propan-1-ol | PR025 |
| Carbonic acid | Sodium carbonate | SO075 | Oleic acid | Octadec-9-enoic acid | OC010 |
| Caustic Soda | Sodium hydroxide | SO200 | Oxalic acid | Ethanedioic acid-2-water | ET005 |
| Chloroform | Trichloromethane | TR050 | o-Xylene | 1-2 Dimethylbenzene | DI080 |
| Chromic acid | Chromium (VI) oxide | CH060 | Petroleum spirit | Petroleum ether | PE055 |
| Copper ethanoate | Copper (II) acetate-1-water | CO065 | Plaster of paris | Calcium Sulfate anhydrous | CA095 |
| Cupric salts | Copper (II) salts | CO090 | PMMA | Methyl Methacrylate | ME215 |
| Cuprous salts | Copper (I) salts | CO085 | Potassium periodate | Potassium iodate (VII) | PO170 |
| DCPIP | 2-6 Dichlorophenolindophenol | DI055 | Potassium permanganate | Potassium (VII) manganate | PO121 |
| Diethyl ether | Ethoxyethane | ET040 | Propanone | Acetone | AC040 |
| Dodecyl Sulfate | Sodium lauryl Sulfate | SO235 | Propionaldehyde | Propanal | PR005 |
| Eriochrome black T | Solochrome black | SO370 | Propylene glycol | Propane ^9^9-diol | PR010 |
| Ethanal | Acetaldehyde | AC010 | Pyrogallol | Benzene-1-2-3-triol | BE055 |
| Ethanamide | Acetamide | AC015 | Quicklime | Calcium oxide | CA080 |
| Ethanoic acid | Acetic acid | AC025 | Resorcinol | Benzene-1-3-diol | BE045 |
| Ethanoic anhydride | Acetic anhydride | AC035 | Rochelle salts | Potassium sodium tartarate | PO140 |
| Ethanol | Ethyl alcohol | ET020 | Salicylic acid | 2-Hydrobenzoic acid | HY055 |
| Ethyl bromide | Bromoethane | BR080 | Salol | Phenyl-2-hydroxybenzoate | PH075 |
| Ethyl ethanoate | Ethyl acetate | ET055 | sec-Butyl alcohol | Butan-2-ol | BU085/A |
| Ethyl iodide | Iodoethane | IO030 | Soda ash | Sodium carbonate anhydrous | SO274/500 |
| Ethylene glycol | Ethane 1-2 diol | ET010 | Sodium bicarbonate | Sodium hydrogen carbonate | SO175 |
| Ethylenediamine tetraacetic acid | E.D.T.A | ED005 | Sodium ethanoate | Sodium acetate-3-water | SO035 |
| Formaldehyde | Methanal | ME050 | Stearic acid | Octadecanoic acid | OC015 |
| Glycerol | Propane 1-2-3-triol | PR015 | Styrene | Phenylethylenemonomer | PH060/100 |
| Gum acacia | Acacia | AC005 | Succinic acid | Butanedioic acid | BU070 |
| Hexamethylenetetramine | Hexamine | HE017 | Sugar | Sucrose | SU010 |
| Hydroquinone | Benzene-1-4-diol | BE050 | Sulphamic acid | Aminosulphonic acid | AM015 |
| iso-Amyl alcohol | 3-Methyl butan-ol | ME125 | Talc | French chalk | TA005 |
| iso-Butyl alcohol | 2-Methylpropan-1-ol | ME175 | Tannins | Tannic acid | TA015 |
| iso-Octane | 2-2-4-Trimethylpentane | TR070 | tert-Butyl alcohol | 2-Methylpropan-2-ol | ME180 |
| iso-Propyl alcohol | Propan-2-ol | PR030 | Toluene | Methyl benzene | ME110 |
| | | | Trichloroethene | Trichloroethylene | TR035 |
| | | | Turpentine substitute | White spirit | WH010 |
| | | | Vitamin C | Ascorbic acid | AS010 |



Acacia Powder

N/A
 M.W. N/A
 Acid-insoluble ash0.5%
 Insoluble matter0.5%
 Loss on drying at 105°C 15%
 Ash5%
(Gum Acacia) Colourless to yellow, Solid, Characteristic odour

UN Class. NR
 Cas No. 9000-01-5
 EC No. 232-519-5

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AC0 05 | 100GM | £4.60 |

Acetamide

CH₃.CO.NH₂
 M.W. 59.07
 Assay98%
 Melting point 78-81°C
 Acidity (CH₃.COOH)..... 0.5%
 Sulfated ash..... 0.025%



(Ethanamide)

White, Crystalline, Characteristic odour

UN Class. NR
 Cas No. 60-35-5
 EC No. 200-473-5

Warning

H351
P201, P202, P308+P313, P405, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AC0 15 | 100GM | £14.57 |

Acetic Acid Glacial

CH₃COOH
 M.W. 60.05
 Flashpoint: 40°C
 Grade.....BPC
 Minimum Assay 99.5%
 S.G. at 20°C046-1.051
 Freezing point.....Not below 15.6°
 Non-volatile matter 0.01%
 Chloride (Cl) 0.0005%
 Formic acid 0.1%
 Sulfate (SO₄)..... 0.0005%
 Iron (Fe)..... 0.0001%
 Lead (Pb)..... 0.0001%



(Ethanoic Acid)

UN Class. 8+3/UN2789/II
 Cas No. 64-19-7
 EC No. 200-580-7

Danger

H226, H314
P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|-----------|---------------|
| AC0 25 | 500ML | £6.49 |
| AC0 27 | 1LTR | £8.29 |
| AC0 30 | SURCHARGE | £12.50 |

Acetaldehyde

CH₃.CHO
 M.W. 44.05
 Flashpoint: -27°C
(Ethanal)



UN Class. 3/UN1089/I
 Cas No. 75-07-0
 EC No. 200-836-8

Danger

H224, H319, H335, H341, H350
P201, P210, P280, P304+P340, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AC0 10 | 500ML | £23.36 |

Acetanilide

C₆H₅.NH.CO.CH₃
 M.W. 135.17
 Assay99%
 Melting point 114-116°C
 Sulfated ash..... 0.05%



(N-Phenylacetamide)

White, Solid powder, Characteristic odour

UN Class.NR
 Cas No. 103-84-4
 EC No. 204-261-3

Warning

H302, H315, H319, H335
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AC0 21 | 100GM | £7.55 |

Acetic Anhydride

(CH₃CO)₂O
 M.W. 102.09
 Flashpoint: 49°C
 Assay..... 98%
 Weight per ml at 20°C 1.079-1.085g
 Non-volatile matter 0.001%
 Chloride (Cl) 0.001%
 Sulfate (SO₄)..... 0.001%
 Iron (Fe)..... 0.001%
 Lead (Pb)..... 0.001%
 Phosphate (PO₄)..... 0.001%
 Aluminium (Al) 0.001%
 Freezing point..... 15.8°C



(Ethanoic Anhydride)

UN Class. 8+3/UN1715/II
 Cas No. 108-24-7
 EC No. 203-564-8

Danger

H226, H302 +H332, H314
P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AC0 35 | 500ML | £9.99 |



Aceto Orcein

N/A
M.W. N/A
Dark brown red solution



UN Class. 8/UN1760/II
Cas No. 64-19-7
EC No. 200-580-7

Danger**H314**

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| OR0 16 | 100ML | £4.06 |

Acetyl Chloride

CH₃.COCl
M.W. 78.5
Flashpoint: 5°C
Colourless to light yellow, Liquid, Pungent



UN Class. 3+8/UN1717/II
Cas No. 75-36-5
EC No. 200-865-6

Danger**H225, H314**

P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P403+P235, P501 EUH014

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AC0 55 | 100ML | £9.23 |

Agar Media - see Biology Section**DL-Alanine (2-Aminopropanoic Acid)**

CH₃CH(NH₂).COOH
M.W. 89.09
Assay98.5%
Loss on drying at 110°C0.5%
Sulfated ash.....0.1%
Iron (Fe).....0.0005%
Lead (Pb).....0.001%

(2-Aminopropanoic Acid)

White, Powder, Almost odourless

UN Class. NR
Cas No. 302-72-7
EC No. 206-126-4

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AL0 05 | 25GM | £5.61 |

Acetone

(CH₃)₂CO
M.W. 58.08
Flashpoint: -20°C



Assay99%
Weight per ml at 20°C0.789-0.792g
Boiling range (95%)55.5-56.5°C
Non-volatile matter0.005%
Water0.2%
Acidity0.2ml N%

(Propanone)

Colourless, Liquid, Characteristic fruit-like odour

UN Class. 3/UN1090/II
Cas No. 67-64-1
EC No. 200-662-2

Danger**H225, H319, H336**

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501 EUH066

| Cat No. | Quantity | Price |
|-------------------------|----------|--------------|
| AC0 40 | 500ML | £3.10 |
| AC0 42 | 1LTR | £4.75 |
| AC0 45 Surcharge | 2.5LTR | £8.95 |

Agar Powder

N/A
M.W. N/A

UN Class. NR
Cas No. 9002-18-0
EC No. 232-658-1

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AG0 05 | 100GM | £8.23 |

Albumen Egg

Off white or yellow, Solid, Odourless

UN Class. NR
Cas No. 9006-50-2
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AL0 10 | 100GM | £7.44 |



Aluminium Metal Sheet

Al
M.W. 26.98
100 x 50mm

UN Class. NR
Cas No. 7429-90-5
EC No. 231-072-3

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AL0 45 | BK10 | £7.50 |

Aluminium Ammonium Sulfate-12-Water

$\text{AlNH}_4(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$
M.W. 453.33

Assay 99%
Chloride (Cl) 0.002%
Iron (Fe) 0.005%
Lead (Pb) 0.003%
Potassium (K) 0.2%
Sodium (Na) 0.01%

White, almost colourless, Crystals, Odourless

UN Class. NR
Cas No. 7784-26-1
EC No. 232-055-3

Warning

H315, H319, H335

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AL0 55 | 500GM | £5.69 |

Aluminium Powder Fine

Al
M.W. 26.98

Assay 99%
Copper (Cu) 0.02%
Silicon (Si) 0.25%
Iron (Fe) 0.35%
Manganese (Mn) 0.02%

UN Class. 4.3/UN1396/II
Cas No. 7429-90-5
EC No. 231-072-3

Danger

H250, H261

P210, P231+P232, P233, P280, P302+P335+P334, P370+P378, P402+P404, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AL0 30 | 250GM | £12.29 |
| AL0 35 | 500GM | £21.49 |

Aluminium Chloride-6-Water

$\text{AlCl}_3 \cdot 6\text{H}_2\text{O}$
M.W. 241.43

Assay 97%
Sulfate (SO_4) 0.01%
Iron (Fe) 0.005%

UN Class. NR
Cas No. 7784-13-6
EC No. 231-208-1

Danger

H315, H319, H335

P260, P264, P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P310

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AL0 59 | 100GM | £7.55 |
| AL0 60 | 250GM | £18.33 |

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Aluminium Chloride Anhydrous

AlCl₃

M.W. 133.34

UN Class. 8/UN1726/II

Cas No. 7446-70-0

EC No. 231-208-1



Danger

H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AL0 64 | 100GM | £5.46 |

Aluminium Nitrate 9-Water

Al(NO₃)₃·9H₂O

M.W. 375.13

Assay 98%

Chloride (Cl) 0.005%

Sulfate (SO₄) 0.01%

Iron (Fe) 0.005%

Potassium (K) 0.01%

Sodium (Na) 0.01%

Colourless, Deliquescent crystals

UN Class. 5.1/UN1438/III

Cas No. 7784-27-2

EC No. 236-751-8



Warning

H272, H315, H319

P210, P220, P264, P280, P302+P352, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AL0 75 | 250GM | £7.40 |

Aluminium Potassium Sulfate-12-Water

AlK(SO₄)₂·12H₂O

M.W. 474.38

Assay 99% - 102%

Chloride (Cl) 0.01%

Ammonium (NH₄) 0.05%

Iron (Fe) 0.01%

Lead (Pb) 0.01%

White, Crystalline powder, Odourless

UN Class. NR

Cas No. 7784-24-9

EC No. 233-141-3

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AL0 85 | 500GM | £3.43 |

Aluminium Hydroxide

Al(OH)₃

M.W. 78

Residue at 1100°C 62-67%

Chloride (Cl) 0.01%

Sulfate (SO₄) 0.05%

Iron (Fe) 0.01%

Sodium (Na) 0.3%

White, Powder

UN Class. NR

Cas No. 21645-51-2

EC No. 244-492-7



Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AL0 70 | 500GM | £16.99 |

Aluminium Oxide

Al₂O₃

M.W. 101.96

Assay 98%

Silicon dioxide (SiO₂) 0.2%Ferric oxide (Fe₂O₃) 0.2%Sodium oxide (Na₂O) 1%

Calcium oxide (CaO) 0.2%

Sulfur trioxide (SO₃) 0.2%

Loss on ignition at 1100°C 1%

White, Crystals or Powder

UN Class. NR

Cas No. 1344-28-1

EC No. 215-691-6

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AL0 80 | 500GM | £4.97 |

Aluminium Sulfate-16-Water

Al₂(SO₄)₃·16H₂O

M.W. 630.4

Assay 97%

Chloride (Cl) 0.01%

Ammonia (NH₃) 0.05%

Iron (Fe) 0.01%

Potassium (K) 0.01%

Sodium (Na) 0.2%

Colourless to white, Solid, Odourless

UN Class. NR

Cas No. 16828-11-8

EC No. 233-135-0



Danger

H318

P280, P305+P351+P338, P310

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AL0 90 | 500GM | £4.86 |



Aminoacetic Acid

NH₂CH₂COOH

M.W. 75.07

Assay99%

Chloride (Cl)0.005%

Sulfate (SO₄)0.01%

(Glycine)

White, Crystals/powder

UN Class. NR

Cas No. 56-40-6

EC No. 200-272-2

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AMO 05 | 100GM | £6.18 |

3-Amino-Phthalhydrazine - see Luminol,

2- Aminopropionic Acid - see DL-Alanine

Ammonia Solution 0.880 SG

NH₄OH

M.W. 35.05

Weight per ml at 20°C0.88g

Non-volatile matter0.01%

Chloride (Cl)0.001%

Sulfate (SO₄)0.002%

Arsenic (As)0.00002%

Iron (Fe)0.0001%

Lead (Pb)0.0001%

Silicate (SiO₂)0.002%

Copper (Cu)0.0001%

UN Class. 8/UN2672/III

Cas No. 1336-21-6

EC No. 215-647-6



Danger

H314, H318, H335, H400

P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338,

P501

| Cat No. | Quantity | Price |
|---------------|----------------|--------------|
| AMO 18 | 1LTR | £6.17 |
| AMO 20 | UK Only 2.5LTR | £9.26 |

NB. Use within 12 months of opening

Ammonium Bromide

NH₄Br

M.W. 97.94

Assay98%

Non-volatile matter0.05%

Chloride (Cl)0.5%

Sulfate (SO₄)0.05%

Iron (Fe)0.005%

Lead (Pb)0.001%

Colourless, Powder, Odourless

UN Class. NR

Cas No. 12124-97-9

EC No. 235-183-8

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AMO 35 | 250GM | £9.99 |

Aminosulphonic Acid

NH₂SO₃H

M.W. 97.09

Assay99%

Non-volatile matter0.2%

Melting point, with decomposition203-205°C

(Sulfamic Acid)

Colourless, Crystals

UN Class. 8/UN2967/III

Cas No. 5329-14-6

EC No. 226-218-8



Warning

H315, H319, H412

P264, P273, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313,

P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AMO 15 | 500GM | £5.39 |

Ammonium Acetate

CH₃COONH₄

M.W. 77.08

Assay96%

Chloride (Cl)0.01%

Sulfate (SO₄)0.03%

Iron (Fe)0.0005%

Lead (Pb)0.0005%

Sulfated ash0.035%

(Ammonium Ethanoate)

UN Class. NR

Cas No. 631-61-8

EC No. 211-162-9

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AMO 30 | 500GM | £7.27 |

Ammonium Aluminium - see Aluminium Ammonium

Ammonium Carbonate

NH₄HCO₃.NH₂.COO.NH₄

M.W. 157.13

Ammonia (NH₃)30-33%

Chloride (Cl)0.005%

Sulfate (SO₄)0.005%

Iron (Fe)0.001%

UN Class. NR

Cas No. 10361-29-2

EC No. 233-786-0



Warning

H302

P264, P270, P280, P301+P312, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AMO 40 | 500GM | £6.69 |

SAFETY NOTE - AMMONIA

Handling: Cool to 0°C Do not breathe fumes.
Storage: Store in a cool place (below 15°C) Keep well closed and protected from direct sunlight and moisture.
Use within 12 months of opening.



Ammonium Chloride

NH₄Cl

M.W. 53.49

UN Class. NR

Cas No. 12125-02-9

EC No. 235-186-4



Warning

H302, H319

P264, P270, P280, P301+P312, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AMO 47 | 500GM | £2.27 |
| AMO 48 | 3KG | £7.86 |

Ammonium Ethanedioate

(COONH₄)₂.H₂O

M.W. 142.11

Assay99%

Iron (Fe).....0.002%

Chloride (Cl)0.005%

Sulfate (SO₄).....0.04%

Sulfated ash.....0.04%



(Ammonium Oxalate)

Colourless to white, Solid, Odourless

UN Class. NR

Cas No. 6009-70-7

EC No. 214-202-3

Warning

H302 + H312

P264, P270, P280, P301+P312, P302+P352, P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AMO 65 | 100GM | £11.10 |

Ammonium Ethanoate - see Ammonium Acetate,

Ammonium Ferric Sulfate - see Ammonium Iron

(III)Sulfate, Ammonium Ferrous Sulfate - see

Ammonium Iron (II) Sulfate

Ammonium Iron (II) Sulfate-6-water

(NH₄)₂Fe(SO₄)₂.6H₂O

M.W. 392.14

Assay98.5%

Chloride (Cl)0.002%

Ferric Iron (Fe).....0.03%

Lead (Pb).....0.003%

Blue/green, Crystals or Powder



UN Class. NR

Cas No. 7783-85-9

EC No. 233-151-8

Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AMO 95 | 500GM | £14.79 |

Ammonium Dichromate

(NH₄)₂Cr₂O₇

M.W. 252.06

Assay99.5%

Chloride (Cl)0.005%

Sulfate (SO₄).....0.05%

Loss on drying3%

Orange-red, Crystals, in a slightly moist state



UN Class. 5.1/UN1439/II

Cas No. 7789-09-5

EC No. 232-143-1

Danger

H272, H330, H312, H301, H334, H317, H340, H350, H372, H400, H410, H360FD, H314

P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AMO 60 | 250GM | £36.07 |

di-Ammonium Hydrogen Phosphate

(NH₄)₂HPO₄

M.W. 132.06

Assay98%

Chloride (Cl)0.005%

Sulfate (SO₄).....0.01%

Nitrate (NO₃).....0.002%

Lead (Pb).....0.001%

White/colourless, Crystals/powder

UN Class. NR

Cas No. 7783-28-0

EC No. 231-987-8

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AMO 80 | 500GM | £11.99 |

Ammonium Iron (III) Sulfate

NH₄Fe(SO₄)₂.12H₂O

M.W. 482.2

Assay98%

Chloride (Cl)0.005%

Violet, Crystals or Powder



UN Class. NR

Cas No. 7783-83-7

EC No. 233-382-4

Warning

H315, H319

P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AM1 00 | 500GM | £16.69 |



Ammonium Metavanadate

NH_4VO_3

M.W. 116.98

Assay.....98%
Chloride (Cl)0.2%
Sulfate (SO₄).....0.05%

White/yellow, Crystalline powder

UN Class. 6.1/UN2859/II

Cas No. 7803-55-6

EC No. 232-261-3



Danger

H330, H301, H315, H341, H335, H319

P201, P280, P301+P310, P302+P352, P304+P340, P305+P351+P338, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AM1 05 | 100GM | £21.37 |

Ammonium Nickel (II) Sulfate-6-Water

$(NH_4)_2SO_4 \cdot NiSO_4 \cdot 6H_2O$

M.W. 394.99

Assay.....98.5%
Chloride (Cl)0.003%
Cobalt (Co)0.15%
Iron (Fe).....0.01%

Green, Solid

UN Class. 9/UN3077/III

Cas No. 7785-20-8

EC No. 239-793-5



Danger

H302+H332, H334, H317, H341, H350, H360, H372, H400, H410

P201, P264, P271, P280, P302+P352, P304+P340, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AM1 14 | 100GM | £5.99 |
| AM1 15 | 250GM | £8.83 |

Ammonium Sulfate

$(NH_4)_2SO_4$

M.W. 132.14

Assay.....98.5%
Chloride (Cl)0.005%
Iron (Fe).....0.002%
Lead (Pb).....0.002%

White, Crystalline powder

UN Class. NR

Cas No. 7783-20-2

EC No. 231-984-1

| Cat No. | Quantity | Price |
|---------|----------|-------|
| AM1 30 | 500GM | £1.73 |
| AM1 31 | 3KG | £5.99 |

Ammonium Molybdate-4-Water

$(NH_4)_6Mo_7O_{24} \cdot 4H_2O$

M.W. 1235.86

Assay.....98%
Iron (Fe).....0.005%
Lead (Pb).....0.005%
Phosphate (PO₄).....0.02%

White, sometimes with a slightly greenish/yellowish tint, Crystals or crystalline masses

UN Class. NR

Cas No. 12054-85-2

EC No. 234-722-4



Warning

H315, H319, H335

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AM1 10 | 100GM | £24.29 |

Ammonium Nitrate

NH_4NO_3

M.W. 80.04

White to greyish brown, Solid, Weak odour

UN Class. 5.1/UN1942/III

Cas No. 6484-52-2

EC No. 229-347-8



Danger

H272, H315, H319, H335

P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AM1 21 | 500GM | £13.75 |

Ammonium Oxalate - see Ammonium Ethanedioate

Ammonium Thiocyanate

NH_4SCN

M.W. 76.12

Assay.....97%
Non-volatile matter0.1%
Chloride (Cl)0.02%
Sulfate (SO₄).....0.02%
Iron (Fe).....0.0005%

Colourless, Crystals

UN Class.NR

Cas No. 1762-95-4

EC No. 217-175-6



Warning

H302 + H312, + H332, H412

P261, P264, P271, P273, P280, P302+P352, P304+P340, P501
EUH032

| Cat No. | Quantity | Price |
|---------|----------|--------|
| AM1 40 | 100GM | £6.99 |
| AM1 45 | 500GM | £24.49 |



α-Amylase (Fungal)

N/A
M.W. N/A
Cream to light brown coloured powder; almost odorless, hygroscopic.

NB: Store in refrigerator

UN Class. NR
Cas No. 9000-90-2
EC No. 232-565-6



Danger

H334
P261, P284, P304+P340, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AM1 65 | 25GM | £5.14 |

Aniline Blue Stain Water Soluble

N/A
M.W. N/A
Dark blue, Solid, Odourless

UN Class. NR
Cas No. 28983-56-4
EC No. 249-352-9



Warning

H302, H315, H319, H335
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AN0 20 | 25GM | £7.99 |

Aniline - see Phenylamine, Aniline Hydrochloride

- see Phenylammonium Chloride

α-Amylase (Bact. Source)

N/A
M.W. N/A
Contains about 50% reducing sugars determined as maltose
Light brownish to yellow, Solid, Weak odour

UN Class. NR
Cas No. 9000-90-2
EC No. 232-565-6



Danger

H334
P261, P284, P304+P340, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AM1 90 | 50GM | £19.98 |

Anti Bumping Granules

Granules of fused alumina, more effective and easier to use than broken porous pot in preventing boiling liquids from "bumping".

UN Class. NR
Cas No. 1344-28-1
EC No. 215-691-6

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| ANO 05 | 250GM | £3.96 |

Aquadag

N/A
M.W. N/A
Black, Liquid, Almost odourless

UN Class. NR
Cas No. 7782-42-5
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AQ0 05 | 100GM | £3.30 |

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L+Arabinose

CH₂(CH.OH)₄.O

M.W. 150.13

White, Powder

UN Class. NR

Cas No. 5328-37-0

EC No. 224-214-6

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AR0 10 | 10GM | £26.18 |

DL Aspartic Acid

NH₂.CH(COOH).CH₂.COOH

M.W. 133.1

White, Crystalline powder, Odourless

UN Class. NR

Cas No. 617-45-8

EC No. 210-513-3

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AS0 15 | 25GM | £6.12 |

Barium Carbonate

BaCO₃

M.W. 197.34

White to grey white, Powder, Odourless

UN Class. NR

Cas No. 513-77-9

EC No. 208-167-3



Warning

H302

P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BA0 05 | 500GM | £5.49 |

Ascorbic Acid

O.CO.C(OH):C(OH).CH.CH(OH).CH₂OH

M.W. 176.13

Assay.....99%

Iron (Fe).....0.001%

White, Crystalline powder

UN Class. NR

Cas No. 50-81-7

EC No. 200-066-2

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| AS0 10 | 100GM | £5.49 |

ATP (Adenosine-5-Triphosphoric Acid)

C₁₀H₁₄N₅O₁₃P₃Na₂.3H₂O

M.W. 605.19

White, Powder

UN Class. NR

Cas No. 51963-61-2

EC No. 213-579-1

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| AT0 06 | 1GM | £5.72 |
| AT0 11 | 5GM | £17.31 |

Barfoeds Reagent

N/A

M.W. N/A

Slight bluish-green, Liquid, Slightly acetic odour

UN Class. NR

Cas No. N/A

EC No. N/A



Warning

H315, 319

P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BA0 50 | 500ML | £4.99 |

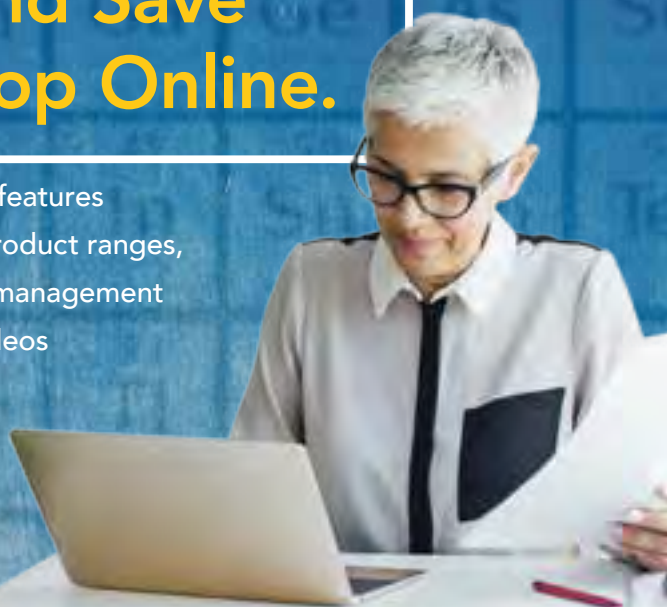
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Barium Chloride-2-Water

BaCl₂·2H₂O

M.W. 244.26

| | |
|--------------------|--------|
| Assay..... | 99% |
| Iron (Fe)..... | 0.001% |
| Lead (Pb)..... | 0.01% |
| Potassium (K)..... | 0.01% |
| Sodium (Na)..... | 0.02% |



UN Class. 6.1/UN1564/III

Cas No. 10326-27-9

EC No. 233-788-1

Danger**H301, H332****P261, P264, P271, P301+P310, P304+P340, P312, P330, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BA0 10 | 250GM | £3.83 |
| BA0 15 | 500GM | £7.14 |

Barium Nitrate

Ba(NO₃)₂

M.W. 261.34

| | |
|--------------------|--------|
| Assay..... | 98% |
| Chloride (Cl)..... | 0.005% |
| Iron (Fe)..... | 0.001% |
| Lead (Pb)..... | 0.01% |
| Potassium (K)..... | 0.025% |
| Sodium (Na)..... | 0.05% |



Colourless, Crystals

UN Class. 5.1+ 6.1/UN1446/II

Cas No. 10022-31-8

EC No. 233-020-5

Danger**H272, H302, H332****P261, P264, P270, P271, P304+P340, P312, P330, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BA0 25 | 250GM | £11.49 |

Barium Sulfate

BaSO₄

M.W. 233.39

| | |
|--------------------------|-------|
| Acid-soluble matter..... | 0.5% |
| Chloride (Cl)..... | 0.01% |

White, Powder

UN Class. NR

Cas No. 7727-43-7

EC No. 231-784-4

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BA0 40 | 500GM | £10.85 |

Barium Hydroxide-8-Water

Ba(OH)₂·8H₂O

M.W. 315.46

| | |
|-------------------------------------|--------|
| Assay..... | 97% |
| Carbonate (BaCO ₃)..... | 2% |
| Chloride (Cl)..... | 0.05% |
| Iron (Fe)..... | 0.005% |
| Sulfate (BaSO ₄)..... | 0.05% |



Colourless, Crystals

UN Class. 8/UN3262/III

Cas No. 12230-71-6

EC No. 241-234-5

Danger**H314, H318, H302+H332****P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BA0 20 | 500GM | £11.19 |

Barium Peroxide

BaO₂

M.W. 169.33

| | |
|--------------------|--------|
| Assay..... | 85% |
| Chloride (Cl)..... | 0.03% |
| Calcium (Ca)..... | 0.1% |
| Iron (Fe)..... | 0.03% |
| Lead (Pb)..... | 0.002% |
| Potassium (K)..... | 0.02% |
| Sodium (Na)..... | 0.02% |



Grey-white to slightly yellowish, Solid, Odourless

UN Class. 5.1+ 6.1/UN1449/II

Cas No. 1304-29-6

EC No. 215-128-4

Danger**H272, H302 + H332****P210, P220, P221, P271, P280, P304+P340, P370+P378, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BA0 35 | 100GM | £21.24 |



Benedict's Solution

N/A
M.W. N/A
For detection of sugar in urine

UN Class. 9/UN3082/III
Cas No. N/A
EC No. N/A



Warning

H319, H411
P264, P273, P280, P305+P351+P338, P337+P313, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 20 | 500ML | £3.08 |
| BE0 25 | 2.5LTR | £9.54 |

Benzaldehyde

$C_6H_5.CHO$
M.W. 106.12
Flashpoint: 64°C
Assay98.5%
Weight per ml at 20°C 1.042-1.045g
Acidity (C_6H_5COOH) 1%
Yellow, Liquid, Bitter almond odour

UN Class. 9/UN1990/III
Cas No. 100-52-7
EC No. 202-860-4



Warning

H302
P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BE0 30 | 100ML | £5.77 |
| BE0 31 | 500ML | £17.65 |

Benzene-1-2-3-Triol (Pyrogallol)

$C_6H_3(OH)_3$
M.W. 126.11
Assay99%
Melting point 132-134°C
Sulfated ash0.1%

(1,2,3-Trihydroxybenzene)

UN Class. 6.1/UN2811/III
Cas No. 87-66-1
EC No. 201-762-9



Warning

H302 + H312 + H332, H341, H412
P201, P264, P271, P280, P302+P352, P304+P340, P308+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BE0 55 | 100GM | £44.94 |

Benedicts Solution Quantitative

N/A
M.W. N/A
UN Class. 9/UN3082/III
Cas No. N/A
EC No. N/A



Warning

H319, H411
P264, P273, P280, P305+P351+P338, P337+P313, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 80 | 500ML | £9.81 |

Benzene-1-3-Diol (Resorcinol)

$C_6H_4(OH)_2$
M.W. 110.11
(Resorcinol)
Colourless/pinkish/grey,
Crystals/powder



UN Class. 6.1/UN2876/III
Cas No. 108-46-3
EC No. 203-585-2

Warning

H302, H315, H319, H400
P264, P273, P280, P302+P352, P305+P351+P338, P330, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 45 | 100GM | £9.31 |

Butanoic Acid

$C_4H_8O_2$
M.W. 88.11
Flashpoint: 69°C
(n-Butyric Acid) Colourless, Liquid, Unpleasant putrid odour



UN Class. 8/UN2820/III
Cas No. 107-92-6
EC No. 203-532-3

Danger

H314
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BU1 00 | 100ML | £7.15 |
| BU1 01 | 250ML | £14.49 |



Benzoic Acid

C₆H₅.COOH
M.W. 122.12
Flashpoint: 121°C
Assay99.5%
Melting point 121-124°C
Sulfated ash 0.05%
Total chlorine0.1%
Lead (Pb)0.0005%
Colourless/white, Crystals/powder



UN Class. NR
Cas No. 65-85-0
EC No. 200-618-2

Danger

H318, H335
P261, P271, P280, P304+P340, P305+P351+P338, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 60 | 250GM | £9.49 |

Benzyl Chloride

C₆H₅.CH₂Cl
M.W. 126.59
Flashpoint: 67°C
Colourless, Liquid, Pungent



UN Class. 6.1+8/UN1738/II
Cas No. 100-44-7
EC No. 202-853-6

Danger

H302, H315, H318, H331, H335, H350, H373
P210, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 75 | 100ML | £9.85 |

Bile Salts

N/A
M.W. N/A

UN Class. NR
Cas No. N/A
EC No. N/A



Warning

H315, H319, H335
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| B10 10 | 25GM | £15.03 |

Benzoyl Chloride

C₆H₅.COCl
M.W. 140.57
Flashpoint: 72°C
Assay98%
Weight per ml at 20°CAbout 1.21g
Non-volatile matter 0.05%
Phosphorus compounds(P) 0.01%
Clear, colourless, Liquid, Pungent



UN Class. 8/UN1736/II
Cas No. 98-88-4
EC No. 202-710-8

Danger

H302 + H312 + H332, H314, H317
P271, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BE0 65 | 100ML | £6.82 |

Benzyl Alcohol - see Phenylmethanol

Bicarbonate Indicator

N/A
M.W. N/A
Dilute x10 before use with freshly boiled distilled water Red-orange, Liquid,
None reported

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| B10 05 | 250ML | £3.08 |

Biuret Reagent

N/A
M.W. N/A
Working solution for protein. Blue, Liquid, Odourless



UN Class. NR
Cas No. N/A
EC No. N/A

Danger

H314, H318, H412
P264, P273, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| B10 25 | 500ML | £3.08 |



Bleaching Powder (Calcium Hypochlorite)

N/A
M.W. N/A
White to slightly yellowish white powder,
Chlorine-like odour



UN Class. 5.1/UN2208/ III
Cas No. 7778-54-3
EC No. 231-908-7

Danger

H272, H302, H314, H400
P210, P280, P301+P330+P331, P303+P361+P353, P305+P351+P338, P370+P378 EUH031

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BL0 05 | 500GM | £5.99 |

Brass rivets - see Rivets, Borax - see Disodium

Tetraborate Decahydrate, Boric Acid

- see Trioxoboric (III) Acid

Bromine Ampoules 1CC

Br₂
M.W. 159.81
Sold in packs of 10, 1cc amps
Now includes two safety openers Brown, Liquid



UN Class. 8+6.1/UN1744/1
Cas No. 7726-95-6
EC No. 231-778-1

Danger

H314, H330, H400
P271, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BR0 15 | PK10 | £16.99 |

Bromobenzene

C₆H₅Br
M.W. 157.01
Flashpoint: 51°C
Colourless, Liquid, Aromatic odour



UN Class. 3/UN2514/III
Cas No. 108-86-1
EC No. 203-623-8

Warning

H226, H315, H411
P210, P233, P264, P280, P302+P352, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 35 | 100ML | £9.99 |

Bromine Water 0.2M

N/A
M.W. N/A
UN Class. 6.1/UN1744/1
Cas No. 7726-95-6
EC No. 231-778-1



Danger

H330, H314, H400
P280, P301+P330+P331, P303+P361+P353, P304+P340, P305+P351+P338, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR1 25 | 200ML | £6.99 |

2-Bromo-2-Methylpropane

(CH₃)₃CBr
M.W. 137.02
Flashpoint: 16°C
(**t-Butyl Bromide**)
Colourless, Liquid, Perceptible aromatic odour



UN Class. 3/UN2342/II
Cas No. 507-19-7
EC No. 208-065-9

Danger

H225
P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BR0 20 | 25ML | £11.99 |

1-Bromobutane (n-Butyl Bromide)

CH₃CH₂CH₂CH₂.Br
M.W. 137.02
Flashpoint: 16°C
Assay.....98%
Weight per ml at 20°C1.270-1.277g
Boiling range (95%)100-103°C
(**N-Butyl Bromide**)



Colourless, Liquid, Characteristic odour

UN Class. 3/UN1126/II
Cas No. 109-65-9
EC No. 203-691-9

Danger

H225, H315, H319, H335, H411
P210, P261, P273, P305+P351+P338

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BR0 40 | 100ML | £8.10 |
| BR0 41 | 500ML | £40.11 |



2-BromobutaneCH₃.CHBr.CH₂.CH₃

M.W. 137.02

Flashpoint: 21°C

Assay97%

Weight per ml at 20°C 1.25-1.27g

(sec-Butyl Bromide)

Clear, colourless to pale yellow, Liquid, Perceptible pleasant odour

UN Class. 3/UN2339/II

Cas No. 78-76-2

EC No. 201-140-7

Danger**H225****P210, P233, P240, P241, P280, P370+P378, P403+P235, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 45 | 25ML | £6.94 |

Bromocresol Green Solution

Flashpoint: >39°C

Dark Green Coloured Solution. pH 3.6 - 5.4, yellow to blue.

UN Class.3/UN1993/III

Cas No. N/A

EC No. N/A

Danger**H225, H319, H336****P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 61 | 500ML | £6.17 |

Bromophenol Blue Indicator

N/A

M.W. N/A

UN Class. NR

Cas No. 115-39-9

EC No. 200-086-2

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 90 | 5GM | £3.96 |

Bromothymol Blue Indicator Solution (0.04%)

N/A

M.W. N/A

A dark bluish/brown green colored solution, pH transition (6.0-7.6), Yellow to blue

UN Class. N/A

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR1 11 | 500ML | £4.39 |
| BR1 16 | 500ML | £4.39 |

Bromocresol Green IndicatorC₂₁H₁₄Br₄O₅S

M.W. 698.02

UN Class. NR

Cas No. 76-60-8

EC No. 200-972-8

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 51 | 5GM | £8.49 |

Bromoethane (Ethyl Bromide)C₂H₅Br

M.W. 108.97

Flashpoint: -20°C

Assay99%

Weight per ml at 20°C 1.456-1.460g

Boiling range (95%)37-40°C

Refractive index 1.4235-1.4250

Non-volatile matter0.02%

Acidity (HBr)0.02%

Free bromine0.01%

(Ethyl Bromide)

Colourless, Liquid, Sweetish ethereal odour

UN Class. 6.1/UN1891/II

Cas No. 74-96-4

EC No. 200-825-8

Danger**H225, H302+H332, H351****P201, P210, P280, P304+P340, P308+P313, P370+P378, P403+P235, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR0 80 | 100ML | £7.95 |

Bromophenol Blue Indicator Solution

N/A

M.W. N/A

Dark purple colored solution, pH 3.0-4.6, Yellow to Blue

UN Class. N/A

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BR1 01 | 500ML | £4.39 |



Butanedioic Acid (Succinic Acid)

(CH₂.COOH)₂

M.W. 118.09

| | | |
|---------------------------------|-------|---|
| Assay..... | 99% |  |
| Sulfated ash..... | 0.1% | |
| Chloride (Cl)..... | 0.01% | |
| Sulfate (SO ₄)..... | 0.04% | |

(Succinic Acid)

Colourless/white, Crystals

UN Class. NR
Cas No. 110-15-6
EC No. 203-740-4

Danger

H315, H318, H335

P271, P280, P302+P352, P304+P340, P305+P351+P338, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BU0 70 | 100GM | £5.21 |



Buffer Solution pH 2 - 1 Litre

| Cat No. | Description | Quantity | Price |
|---------------|-------------|----------|--------------|
| BU0 05 | pH2 | 1LTR | £3.69 |
| BU0 10 | pH3 | 1LTR | £4.20 |
| BU0 15 | pH4 | 1LTR | £4.00 |
| BU0 20 | pH5 | 1LTR | £4.03 |
| BU0 25 | pH6 | 1LTR | £4.66 |
| BU0 35 | pH8 | 1LTR | £3.68 |
| BU0 40 | pH9 | 1LTR | £3.68 |
| BU0 43 | pH10 | 1LTR | £3.82 |

Buffer Solution pH 2 - 2.5 Litre

| Cat No. | Description | Quantity | Price |
|---------------|-------------|----------|--------------|
| BU0 06 | pH2 | 2.5LTR | £7.30 |
| BU0 11 | pH3 | 2.5LTR | £7.77 |
| BU0 16 | pH4 | 2.5LTR | £8.33 |
| BU0 21 | pH5 | 2.5LTR | £7.77 |
| BU0 26 | pH6 | 2.5LTR | £7.30 |
| BU0 36 | pH8 | 2.5LTR | £7.30 |
| BU0 41 | pH9 | 2.5LTR | £7.30 |
| BU1 44 | pH10 | 2.5LTR | £8.18 |

Buffer Solution pH 2 - 5 Litre

| Cat No. | Description | Quantity | Price |
|---------------|-------------|----------|---------------|
| BU0 07 | pH2 | 5LTR | £11.75 |
| BU0 22 | pH5 | 5LTR | £11.59 |
| BU0 27 | pH6 | 5LTR | £11.65 |
| BU0 37 | pH8 | 5LTR | £11.88 |
| BU0 42 | pH9 | 5LTR | £12.57 |
| BU1 45 | pH10 | 5LTR | £12.86 |

Buffer Solution pH 7

Yellow color solution, pH (at 25°C) 7.0 ± 0.05

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| BU0 33 | 1LTR | £4.06 |
| BU0 34 | 2.5LTR | £7.63 |

Butanal (Butyraldehyde)

CH₃.CH₂.CH₂.CHO

M.W. 72.11

Flashpoint: -11°C

| | | |
|----------------------------|--------------|---|
| Assay..... | 98% |  |
| Weight per ml at 20°C..... | About 0.804g | |
| Refractive index..... | 1.379-1.381 | |
| Acidity..... | 10ml N% | |

(n-Butyraldehyde)

Clear, colourless, Liquid, Unpleasant odour

UN Class. 3/UN1129/II
Cas No. 123-72-8
EC No. 204-646-6

Danger

H225

P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BU0 60 | 500ML | £28.49 |

Buffer Solution 1 Litre



| Cat No. | Colour | Description | Quantity | Price |
|----------------|--------|-------------|----------|--------------|
| BU5 011 | Red | pH4.0 | 1LTR | £6.80 |
| BU5 021 | Yellow | pH7.0 | 1LTR | £6.80 |
| BU5 031 | Blue | pH10.0 | 1LTR | £6.80 |

Buffer Tablets

| Cat No. | Description | Quantity | Price |
|---------------|-------------|----------|---------------|
| BU0 45 | pH4.0 | PK50 | £3.50 |
| BU0 50 | pH7.0 | PK50 | £3.50 |
| BU0 55 | pH9.0 | PK50 | £12.51 |



Butan-1-ol (n-Butyl Alcohol)CH₃·(CH₂)₃·OH

M.W. 74.12

Flashpoint: 29°C

Assay 99.5%

Weight per ml at 20°C 0.809-0.811g

Boiling range (95%) 116-118°C

Non-volatile matter 0.005%

(n-Butyl Alcohol)

Clear, Liquid

UN Class. 3/UN1120/III

Cas No. 71-36-3

EC No. 200-751-6

**Danger**

H226, H302, H315, H318, H335, H336

P210, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378,

P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BU0 80 | 500ML | £7.19 |
| BU0 81 | 2.5LTR | £17.26 |

ButanoneCH₃CH₂COCH₃

M.W. 72.11

Flashpoint: -4°C

Assay 99%

Weight per ml at 20°C 0.803-0.805g

Non-volatile matter 0.005%

(Methyl Ethyl Ketone)

Clear, Liquid

UN Class. 3/UN1193/II

Cas No. 78-93-3

EC No. 201-159-0

**Danger**

H225, H319, H336

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233,

P403+P235, P501 EUH066

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BU0 90 | 500ML | £3.54 |
| BU0 92 | 1LTR | £4.57 |
| BU0 95 | 2.5LTR | £11.79 |

Butan-2-ol (sec-Butyl Alcohol)CH₃·CH₂·CH(OH)·CH₃

M.W. 74.12

Flashpoint: 24°C

Assay 99%

Water 0.2%

Acidity (CH₃COOH) 0.002%

Non-volatile matter 0.001%

(sec-Butyl Alcohol)

Clear, Liquid

UN Class. 3/UN1120/III

Cas No. 78-92-2

EC No. 201-158-5

**Warning**

H226, H319, H335, H336

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233,

P403+P235, P501

| Cat No. | Quantity | Price |
|-----------------|----------|---------------|
| BU0 85/A | 500ML | £10.18 |

n-ButylamineCH₃·(CH₂)₃·CH₂·NH₂

M.W. 73.14

Flashpoint: -12°C

UN Class. 3+8/UN1125/II

Cas No. 109-73-9

EC No. 203-699-2

**Danger**

H225, H302 + H312 + H332, H314

P210, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338,

P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| BU1 05 | 250ML | £12.99 |

iso-Butyl Alcohol - see 2-Methylpropan-1-ol**n-Butyl Alcohol - see Butan-1-ol****sec-Butyl Alcohol - see Butan-2-ol****tert-Butyl Alcohol - see 2-Methylpropan-2-ol****n-Butyl Bromide - see 1-Bromobutane****n-Butyl Iodide - see 1-Iodobutane****Butyraldehyde - see Butanal**

Calcium Metal Granules

Ca
M.W. 40.08
Assay.....97.5%
Silver white, soft, coarse granules which tarnish on exposure to air. Odourless.



UN Class. 4.3/UN1401/II
Cas No. 7440-70-2
EC No. 231-179-50

Danger

H261
P223, P231+P232, P280, P302+P335+P334, P370+P378, P402+P404, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA0 35 | 100GM | £7.55 |

Calcium Carbide

CaC₂
M.W. 64.10
Black-grey, Solid, Weak characteristic garlic-like



UN Class. 4.3/UN1402/I
Cas No. 75-20-7
EC No. 200-848-3

Danger

H260
P223, P231+P232, P280, P302+P335+P334, P370+P378, P402+P404, P501

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| CA1 56 | Surcharge 1KG | £30.50 |

Calcium Carbonate

CaCO₃
M.W. 100.09
(Marble Chips) White, Powder, Odourless

UN Class. NR
Cas No. 471-34-1
EC No. 207-439-9

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA0 43 | 3KG | £7.99 |
| CA0 45 | 3KG | £7.99 |

Calcium Chloride Granules Anhydrous

CaCl₂
M.W. 110.98
Assay.....90%
Colourless to white, Powder, Odourless



UN Class. NR
Cas No. 10043-52-4
EC No. 233-140-8

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA0 55 | 500GM | £2.99 |

Calcium Carbonate (Precipitated)

CaCO₃
M.W. 100.09
Assay.....99%
Chloride (Cl)0.005%
Sulfate (SO₄).....0.05%
Iron (Fe).....0.002%
Lead (Pb).....0.002%
Colourless/white, Deliquescent crystals

UN Class. NR
Cas No. 471-34-1
EC No. 207-439-9

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA0 50 | 1KG | £4.11 |



Calcium Chloride Dihydrate

CaCl₂·2H₂O
M.W. 147.01



Exceeds DAB/Ph Eur/USP Specifications
Assay99.0-103.0%
Acid or alkaline reacting substances passes test
Aluminium (Al) passes test
Appearance of solution passes test
Barium (Ba) passes test
Heavy Metals (as Pb) max. 0.001%
Identification passes test
Iron (Fe) max. 0.001%
Iron, Aluminium and Phosphate passes test
Magnesium and Alkalies (as SO₄) max.0.3%
Organic Volatile Impurities passes test
pH of 5% Solution at 25°C 4.5-9.2
Sulfate (SO₄) max. 200 ppm
White, Solid, Odourless

UN Class. NR
Cas No. 10035-04-8
EC No. 233-140-8

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA1 60 | 100GM | £4.73 |

Calcium Hydroxide

Ca(OH)₂
M.W. 74.09



Assay90%
Calcium carbonate (CaCO₃) 1.5%
Calcium Sulfate (CaSO₄)0.5%
Magnesium oxide (M₂O)0.8%
Ferric oxide (Fe₂O₃)0.1%
Aluminium oxide (Al₂O₃)0.2%
Silicon dioxide (SiO₂)0.5%
White/grey, Powder

UN Class. NR
Cas No. 1305-62-0
EC No. 215-137-3

Danger

H318

P280, P305+P351+P338, P310

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA0 70 | 1KG | £4.18 |

Calcium Hypochlorite - see Bleaching Powder

Calcium Chloride-6-Water

CaCl₂·6H₂O
M.W. 219.08



Assay98%
Sulfate (SO₄)0.02%
Iron (Fe)0.002%
Lead(Pb)0.002%
Colourless, Solid, Odourless

UN Class. NR
Cas No. 7774-34-7
EC No. 233-140-8

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CA0 60 | 500GM | £18.49 |

Calcium Nitrate-4-Water

Ca(NO₃)₂·4H₂O
M.W. 236.15



Assay98%
Chloride (Cl)0.005%
Sulfate (SO₄)0.04%
Iron (Fe)0.001%
Lead (Pb)0.001%
Magnesium (Mg)0.05%

White/colourless, Deliquescent crystals

UN Class. 5.1/UN1454/III
Cas No. 13477-34-4
EC No. 233-332-1

Danger

H272

P210, P220, P280, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CA0 75 | 500GM | £14.49 |



Calcium Oxide Lump

CaO
M.W. 56.08
(Quicklime)

UN Class. 8/UN1910/III (IATA)
Cas No. 1205-78-8
EC No. 215-138-9



Danger

H315, H318, H335
P271, P280, P302+P352, P304+P340, P305+P351+P338, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CA0 80 | 1KG | £11.00 |

Calcium Sulfate-2-Water

CaSO₄·2H₂O
M.W. 172.17
Assay.....98%
Carbonate (CO₃).....0.2%
Chloride (Cl).....0.04%
Iron (Fe).....0.005%

White, Powder

UN Class. NR
Cas No. 10101-41-4
EC No. 231-900-3

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CA0 90 | 500GM | £5.95 |

Casein Soluble in Alkali

N/A
M.W. N/A
Light brown colored powder, Odorless

UN Class. NR
Cas No. 9000-71-9
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CA1 41 | 250GM | £9.35 |

Calcium Oxide Powder

CaO
M.W. 56.08
Assay..... min. 90%
Carbonate..... passes test
Insoluble Matter in HCl..... max. 1.0%
Loss on Ignition..... max. 10%
Magnesium and Alkalies..... passes test



UN Class. 8/UN1910/III (IATA)
Cas No. 1205-78-8
EC No. 215-138-9

Danger

H315, H318, H335
P271, P280, P302+P352, P304+P340, P305+P351+P338, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CA0 85 | 1KG | £5.17 |

Calcium Sulfate Anhydrous (POP)

CaSO₄·½H₂O
M.W. 145.15

(Plaster of Paris)

UN Class. NR
Cas No. 10034-76-1
EC No. 231-900-3

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CA0 95 | 2KG | £4.99 |
| CA1 00 | 5KG | £9.97 |



Castor Oil

N/A
M.W. N/A
Wt. per ml at 20°CApprox. 0.96g
Pale-yellow, Liquid, Characteristic odour



UN Class. NR
Cas No. 8001-79-4
EC No. 232-293-8

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CA1 45 | 500ML | £8.16 |

Charcoal Activated

C
M.W. 12.01
UN Class. NR
Cas No. 7440-44-0
EC No. 231-153-3

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CH0 05 | 500GM | £8.65 |

Chlorobenzene

C₆H₅Cl
M.W. 112.56
Flashpoint: 28°C
Assay99%
Weight per ml at 20°C 1.105-1.108g
Refractive index 1.5235-1.5250
Colourless, Liquid, Aromatic odour



UN Class. 3/UN1134/III
Cas No. 108-90-7
EC No. 203-628-5

Warning

H226, H332, H411
P210, P271, P280, P302+P352, P304+P340, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 30 | 250ML | £16.49 |

Catechol

C₆H₄(OH)₂
M.W. 110.11
(Benzene-1,2-diol)
White to brown, Crystals, Faint odour



UN Class. 6.1/UN2811/III
Cas No. 120-80-9
EC No. 204-427-5

Warning

H301, H311, H315, H319, H341
P264, P280, P302+P352, P305+P351+P338, P312, P330, P337+P313, P501

Cetyl alcohol - see Hexadecan-1-ol

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CA1 50 | 100G | £12.92 |

Chloroacetic Acid

CH₂Cl.COOH
M.W. 94.5
Flashpoint: 126°C
Assay99%
Dichloroacetic acid0.8%
Acetic acid0.3%
Water0.3%
Melting point61-62°C
White/colourless crystal/flakes



UN Class. 6.1-8/UN1751/II
Cas No. 79-11-8
EC No. 201-178-4

Danger

H301+H311+H331, H400, H314
P280, P301+P310, P301+P330+P331, P302+P352, P304+P340,
P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CH0 25 | 100GM | £9.28 |

1-Chlorobutane

CH₃CH₂CH₂CH₂Cl
M.W. 92.57
Flashpoint: -9°C
Assay99%
Weight per ml at 20°C0.882-0.884g
Refractive index 1.400-1.403
Non-volatile matter0.005%
Clear, colourless, Liquid, Characteristic odour



UN Class. 3/UN1127/II
Cas No. 109-69-3
EC No. 203-696-6

Danger

H225
P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 35 | 100ML | £7.49 |
| CH0 36 | 250ML | £17.49 |



2-Chlorobutane

CH₃CHCl.CH₂.CH₃

M.W. 92.57

Flashpoint: -10°C

Clear, colourless, Liquid, Usually has perceptible ethereal odour

UN Class. 3/UN1127/II

Cas No. 78-86-4

EC No. 201-151-7



Danger

H225, H290, H412

P210, P233, P234, P273, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 75 | 100ML | £17.49 |

2-Chloro-2-Methylpropane

(CH₃)₃CCl

M.W. 92.57

Flashpoint: -27°C

Clear, colourless, Liquid, Characteristic odour



UN Class. 3/UN1127/II

Cas No. 507-20-0

EC No. 208-066-4

Danger

H225

P210, P233, P240, P280, P303+P361+P353, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 80 | 100ML | £11.21 |

Chromium (III) Chloride-6-Water

CrCl₃.6H₂O

M.W. 266.45

Assay95%

Sulfate (SO₄)0.03%

Aluminium (Al)0.1%

Iron (Fe)0.02%

Green, Crystalline powder, Characteristic odour



UN Class. NR

Cas No. 10060-12-5

EC No. 233-038-3

Warning

H302

P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CH0 48 | 100GM | £9.29 |

Trichloromethane (Chloroform)

CHCl₃

M.W. 119.38

Assay99%

Weight per ml at 20°C 1.474-1.480g

Non-volatile matter 0.002%

Acidity 0.1ml N%

Boiling range (95%)59.5-62.0°C



(Trichloromethane)

Clear, colourless, Liquid, Sweetish

UN Class. 6.1/UN1888/III

Cas No. 67-66-3

EC No. 200-663-8

Danger

H331, H302, H315, H351, H372, H361d, H319

P201, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| TR0 50 | 1LTR | £9.22 |
| TR0 55 | 2.5LTR | £43.55 |

Cholesterol

C₂₇H₄₆O

M.W. 386.66

White or faintly yellow pearly leaflets, Solid, Practically odourless

UN Class. NR

Cas No. 57-88-5

EC No. 200-353-2

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 85 | 25G | £14.40 |

Chrome Alum - see Chromium (III)

Potassium Sulfate-12-water

Chromium (III) Nitrate-9-Water

Cr(NO₃)₃.9H₂O

M.W. 400.15

Assay98%

Chloride (Cl) 0.003%

Sulfate (SO₄) 0.01%

Iron (Fe) 0.05%

Potassium (K) 0.02%

Sodium (Na) 0.1%

Dark violet., Crystalline, Nitric acid



UN Class. 5.1/UN2720/III

Cas No. 7789-02-8

EC No. 236-921-1

Warning

H272, H315, H319

P210, P220, P264, P280, P302+P352, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 49 | 100GM | £23.99 |

Chromium (III) Potassium Sulfate-12-Water

CrK(SO₄)₂·12H₂O
M.W. 499.4

Assay.....98% 
Iron (Fe).....0.05%
Chloride (Cl)0.04%
Aluminium (Al)0.3%

(**Chrome Alum**) Violet, Crystalline powder, Odourless

UN Class. NR
Cas No. 7788-99-0
EC No. 233-401-6

Warning

H315, H319

P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 65 | 500GM | £19.66 |

Citric Acid

C₆H₈O₇·H₂O
M.W. 210.14

Assay.....99.5% 
Sulfated ash.....0.02%
Sulfate (SO₄).....0.01%
Iron (Fe).....0.0005%
Lead (Pb).....0.0005%

White, Solid, Odourless

UN Class. NR
Cas No. 5949-29-1
EC No. 201-069-1

Warning

H319


P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CI0 05 | 500GM | £2.88 |
| CI0 10 | 3KG | £12.26 |

Citric Acid Anhydrous AR

C₆H₈O₇
M.W. 192.12

Meets ACS Specifications

Assay.....min. 99.5% 
Chloride (Cl)max. 0.001%
Insoluble Mattermax. 0.005%
Oxalate (C₂O₄)passes test
Phosphate (PO₄).....max. 0.001%
Residue after Ignition.....max. 0.02%
Substances Carbonizable by Hot H₂SO₄ (Tartrates, etc.) passes test
Sulfate (SO₄).....max. 0.002%
Trace Impurities (in ppm)
Iron (Fe).....max. 3
Lead (Pb).....max. 2

Baker Analysed/ACS

UN Class. NR
Cas No. 5949-29-1
EC No. 201-069-1

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| 009 0/1 | 1KG | £42.99 |

Chromium (III) Sulfate

Cr₂(SO₄)₃·xH₂O
M.W. 392.18

Chromium (Cr₂O₃).....25%  
Neutral salt (Na₂SO₄)25%
Chloride (Cl)0.15%
Iron (Fe).....0.005%

Dark green, Crystalline powder

UN Class. 8/UN3260/II
Cas No. 15244-38-9
EC No. 233-253-2

Danger


H302+H312+H332, H314

P271, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CH0 70 | 100GM | £10.50 |

Citric Acid Monohydrate AR

C₆H₈O₇·H₂O
M.W. 210.14

Assay.....99.0-102.0% 
Chloride (Cl)max 0.001%
Insoluble mattermax 0.005%
Oxalate (C₂O₄)passes test
Phosphate (PO₄).....max 0.001%
Residue after ignition.....max 0.02%
Sulfate (SO₄).....max 0.002%
Trace Impurities (in ppm)
Iron (Fe).....max. 3
Lead (Pb).....max. 2

UN Class. NR
Cas No. 5949-29-1
EC No. 201-069-1

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| 008 8/1 | 1KG | £45.90 |

Clinical Strips - Urine

Test For Glucose in Urine

| Cat No. | Quantity | Price |
|---------|----------|-------|
| UR0 41 | 50PK | £4.99 |

Cobalt Metal Powder

Co
M.W. 58.93
Black-grey, Powder/shot, Odourless



UN Class. 4.1/UN3089/II
Cas No. 7440-48-4
EC No. 231-158-0

Danger

H334, H317, H413, H228
P261, P272, P273, P280, P302+P352, P304+P340, P333+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| C00 05 | 25GM | £15.49 |

Cobalt (II) Nitrate-6-Water

Co(NO₃)₂·6H₂O
M.W. 291.03
Assay97%
Chloride (Cl)0.005%
Nickel (Ni)0.1%
Sulfate (SO₄)0.03%
Iron (Fe)0.01%
Potassium (K)0.01%
Red, Deliquescent crystals



UN Class. 5.1/UN1477/II
Cas No. 10026-22-9
EC No. 233-402-1

Danger

H272, H302, H317, H341, H400, H410, H360F, H350i, H334
P210, P280, P302+P352, P304+P340, P308+P313, P342+P311, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| C00 25 | 100GM | £7.92 |

Cobalt (II) Sulfate-7-Water

CoSO₄·7H₂O
M.W. 281.1
Assay97%
Chloride (Cl)0.005%
Nitrogen compounds (N)0.01%
Iron (Fe)0.01%
Nickel (Ni)0.5%
Red, Crystals/powder



UN Class. 9/UN3077/III
Cas No. 10026-24-1
EC No. 233-334-2

Danger

H302, H334, H317, H350, H400, H410
P201, P264, P280, P302+P352, P304+P340, P308+P313, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| C00 35 | 100GM | £7.69 |

Cobalt (II) Chloride-6-Water

CoCl₂·6H₂O
M.W. 237.93
Assay97%
Sulfate (SO₄)0.03%
Nickel (Ni)0.3%
Iron (Fe)0.01%
Potassium (K)0.01%
Sodium (Na)0.03%
Deep red, Crystals/powder



UN Class. 9/UN3077/III
Cas No. 7791-13-1
EC No. 231-589-4

Danger

H302, H334, H317, H341, H400, H410, H360F, H350i
P201, P264, P280, P302+P352, P304+P340, P308+P313, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| C00 15 | 100GM | £7.77 |
| C00 20 | 250GM | £16.25 |

Cobalt (II) Oxide Black

Co₃O₄
M.W. 240.8
Black, Solid, Odourless



UN Class. NR
Cas No. 1307-96-9
EC No. 215-157-2

Danger

H412, H334
P261, P273, P284, P304+P340, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| C00 30 | 100GM | £15.99 |

Congo Red

C₃₂H₂₂N₆O₆Na₂S₂
M.W. 696.68
Red/brown, Powder



UN Class. NR
Cas No. 573-58-0
EC No. 209-358-4

Danger

H350, H361d
P201, P202, P280, P308+P313, P405, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| C00 45 | 10GM | £2.88 |



Copper Metal Fine Powder

Cu
M.W. 63.55
Assay.....99%
Reddish gold to brown, Powder, Odourless

UN Class. 4.1/UN3089/II
Cas No. 7440-50-8
EC No. 231-159-6



Warning

H228, H410

P210, P240, P241, P273, P280, P370+P378, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 50 | 100GM | £4.15 |

Copper Metal Foil

Cu
M.W. 63.55
Arsenic (As).....0.001%
Iron (Fe).....0.05%
Lead (Pb).....0.02%

UN Class. NR
Cas No. 7440-50-8
EC No. 231-159-6



Warning

H410

P273, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CO0 55 | 250GM | £14.03 |

Copper (II) Acetate-1-Water

$(CH_3COO)_2Cu \cdot H_2O$
M.W. 199.65
Assay.....98%
Iron (Fe).....0.02%
Chloride (Cl).....0.005%
Sulfate (SO₄).....0.03%

UN Class. 9/UN3077/III
Cas No. 6046-93-1
EC No. 205-553-3



Warning

H302, H315, H335, H400, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CO0 65 | 250GM | £13.18 |

Copper Metal Powder Precipitated

Cu
M.W. 63.55
Reddish gold to brown, Solid, Odourless

UN Class. NR
Cas No. 7440-50-8
EC No. 231-159-6



Warning

H410

P273, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 52 | 100GM | £4.15 |

Copper Metal Chips

Cu
M.W. 63.55
Reddish metal turnings

UN Class. NR
Cas No. 7440-50-8
EC No. 231-159-6



Warning

H410

P273, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CO0 61 | 500GM | £24.49 |

Copper (II) Carbonate, Basic

$CuCO_3 \cdot Cu(OH)_2$
M.W. 221.11
Copper (Cu).....55%
Iron (Fe).....0.2%
Sulfate (SO₄).....0.2%
Chloride (Cl).....0.05%

(Cupric)

Green, Powder

UN Class. 9/UN3077/III
Cas No. 12069-69-1
EC No. 235-113-6



Warning

H302, H400

P261, P264, P271, P273, P304+P340, P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 75 | 250GM | £5.44 |
| CO0 80 | 500GM | £8.16 |



Copper (I) Chloride

CuCl
M.W. 99
Assay.....96%
Sulfate (SO₄).....0.1%
Iron (Fe).....0.05%
Potassium (K).....0.05%
Sodium (Na).....0.05%



(Cuprous)

Grey, Powder

UN Class. 8/UN2802/III
Cas No. 7758-89-6
EC No. 231-842-9

Warning

H302, H400, H410

P264, P270, P273, P301+P312, P330, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 85 | 100GM | £6.49 |

Copper Ethanoate - see Copper (II) Acetate-1-water

Copper (II) Nitrate-3-Water

Cu(NO₃)₂·3H₂O
M.W. 241.6
Assay.....95%
Iron (Fe).....0.02%
Chloride (Cl).....0.005%
Sulfate (SO₄).....0.02%



(Cupric)

Blue, Crystalline powder, Odourless

NB: Very deliquescent and may set solid even in closed containers

UN Class. 5.1/UN1477/II
Cas No. 10031-43-3
EC No. 221-838-5

Danger

H272, H302, H315, H318, H400

P210, P220, P221, P280, P302+P352, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 95 | 250GM | £5.73 |

Copper (II) Oxide Black

CuO
M.W. 79.55
Assay.....97%
Chloride (Cl).....0.1%
Sulfate (SO₄).....0.1%
Iron (Fe).....0.1%



(Cupric)

Black, Powder

UN Class. 9/UN3077/III
Cas No. 1317-38-0
EC No. 215-269-1

Warning

H400

P273, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CO1 05 | 250GM | £6.52 |
| CO1 10 | 500GM | £10.99 |

Copper (II) Chloride-2-Water

CuCl₂·2H₂O
M.W. 170.48
Assay.....97%
Sulfate (SO₄).....0.05%
Barium (Ba).....0.02%
Iron (Fe).....0.05%



(Cupric)

Blue/green, Moist crystals

UN Class. 8/UN2802/III
Cas No. 10125-13-0
EC No. 231-210-2

Danger

H302, H400, H410, H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| CO0 90 | 250GM | £5.44 |

Copper (I) Oxide Red (Cuprous)

Cu₂O
M.W. 143.09
Assay.....94%
Cupric oxide (CuO).....5%



(Cuprous)

Yellow/red/brown, Crystals

UN Class. 9/UN3077/III
Cas No. 1317-39-1
EC No. 215-270-7

Warning

H302, H410

P264, P270, P273, P301+P312, P330, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| CO1 00 | 250GM | £15.10 |



Copper (II) Sulfate-5-Water

CuSO₄·5H₂O
M.W. 249.69

Assay.....98.5%
Iron (Fe).....0.05%
Chloride (Cl)0.005%
Potassium (K).....0.005%
Sodium (Na)0.01%



Blue, Crystals or Powder

UN Class. 9/UN3077/III
Cas No. 7758-99-8
EC No. 231-847-6

Warning

H302, H315, H410, H319

P264, P273, P280, P302+P352, P305+P351+P338, P330, P391, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CO1 20 | 500GM | £4.11 |
| CO1 25 | 1KG | £7.20 |
| CO1 30 | 5KG | £30.89 |

Cresol Red

C₂₁H₁₈O₅S
M.W. 382.44

Red-brown, Solid

UN Class. NR
Cas No. 1733-12-6
EC No. 217-064-2



Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CR0 05 | 5GM | £4.11 |

Crystal Violet Stain

N/A
M.W. N/A

Green/bronze, Crystals or Powder

UN Class. 9/ UN3077/ III
Cas No. 548-62-9
EC No. 208-953-6



Danger

H302, H318, H351, H400, H410

P201, P264, P273, P280, P305+P351+P338, P308+P313, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CR0 20 | 25GM | £3.49 |

Copper (II) Sulfate Anhydrous

CuSO₄
M.W. 159.61

Assay.....97%
Insoluble matter0.02%
Chloride (Cl)0.01%
Iron (Fe).....0.1%
Lead (Pb).....0.01%



(Cupric)

White/pale grey, Powder

UN Class. 9/UN3077/III
Cas No. 7758-98-7
EC No. 231-847-6

Warning

H302, H315, H400, H410, H319

P264, P273, P280, P302+P352, P305+P351+P338, P330, P391, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CO1 40 | 250GM | £6.46 |

Cresol Red Indicator Solution

N/A

M.W. N/A

Dark red solution

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CR0 11 | 100ML | £2.45 |
| CR0 16 | 500ML | £4.56 |

Crystal Violet Staining Solution

N/A

M.W. N/A

Flashpoint: 35°C

Dark Violet colored solution

UN Class. 3/UN1993/III
Cas No. 548-62-9
EC No. 208-953-6



Warning

H319, H351, H412, H226

P201, P210, P280, P305+P351+P338, P308+P313, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CR0 26 | 100ML | £3.08 |



Cyclohexane

CH₂(CH₂)₄CH₂

M.W. 84.16

Flashpoint: -20°C

Assay 99%

Weight per ml at 20°C 0.776-0.780g

Freezing point 5.0-6.5°C

Non-volatile matter 0.005%

Clear, Liquid



UN Class. 3/UN1145/II

Cas No. 110-82-7

EC No. 203-806-2

Danger

H225, H315, H336, H304, H400, H410

P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| CY0 05 | 500ML | £7.23 |
| CY0 07 | 1LTR | £12.36 |
| CY0 08 | Surcharge 2.5LTR | £19.49 |

Cyclohexanol

CH₂(CH₂)₄.CH.OH

M.W. 100.16

Flashpoint: 68°C

Assay 97%

Weight per ml at 20°C 0.95g

Freezing point 19-25°C

Boiling range (95%) 159-162°C

Water 0.2%

Cyclohexanone 2.5%

Colourless, Liquid, Characteristic odour



UN Class. NR

Cas No. 108-93-0

EC No. 203-630-6

Warning

H302+H332, H315, H335

P261, P264, P271, P280, P302+P352, P304+P340, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CY0 10 | 500ML | £28.49 |

Cyclohexene 98% for Synthesis

CH:CH(CH₂)₃.CH₂

M.W. 82.15

Flashpoint: <-7°C

Clear colourless liquid



UN Class. 3/ UN2256/ II

Cas No. 110-83-8

EC No. 203-807-8

Danger

H225, H311, H302, H304

P210, P233, P264, P280, P302+P352, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| CY0 21 | 500ML | £14.50 |

Neutracon cleaner

Specially formulated for cleaning non-ferrous metals such as aluminium, zinc, copper, etc., 'soft' or coated glass, polymers and other sensitive materials. May also be used for cleaning glassware, ceramics, plastics, rubbers, stainless steel and ferrous metals. Pale-yellow, Liquid, Faint odour

UN Class. NR

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|-------------|----------|--------|
| CLN 050 010 | 1LTR | £8.55 |
| CLN 050 020 | 5LTR | £35.69 |

Decon Product Range - see Cleaning Section

Cyclohexanone

CH₂(CH₂)₄CO

M.W. 98.14

Flashpoint: 43°C

Assay 98%

Weight per ml at 20°C 0.944-0.948g

Refractive index 1.450-1.451

Colourless, Oily liquid



UN Class. 3/UN1915/III

Cas No. 108-94-1

EC No. 203-631-1

Warning

H226, H332

P210, P233, P271, P280, P304+P340, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| CY0 15 | 500ML | £8.49 |

Decon 90

For the safe and total cleaning and/or decontamination of glassware, ceramics, plastics (NOT polycarbonate), rubbers, stainless steel and ferrous metals.

N.B. Being alkaline, DECON 90 is NOT suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).

UN Class. NR

Cas No. N/A

EC No. N/A



Warning

H315, H319

P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313

| Cat No. | Quantity | Price |
|-------------|----------|--------|
| CLN 010 010 | 1LTR | £12.89 |
| CLN 010 020 | 5LTR | £44.00 |



Desolvit 1000

M.W. N/A
Flashpoint: 47°C
Cold cleaning - Natural solvent system
General purpose degreaser

Safe alternative to 1-1-1 Trichloroethane

Please ask for full details of the De-Solv-It range

UN Class. 3/UN1993/III
Cas No. N/A
EC No. N/A



Danger

H226, H315, H336, H304

P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501 EUH066

| Cat No. | Quantity | Price |
|---------|----------|-------|
| DE0 40 | 500ML | £6.85 |

Dichloromethane

CH₂Cl₂
M.W. 84.93
Assay98%
Weight per ml at 20°C1.323-1.327g
Refractive index1.4235-1.4250



(Methylene Chloride)

UN Class. 6.1/UN1593/III
Cas No. 75-09-2
EC No. 200-838-9

Warning

H315, H351, H336, H319

P201, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| D10 40 | 500ML | £2.66 |

Dettol

N/A
M.W. N/A
Clear brown, Liquid, Phenol-like pine characteristic

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| DE0 25 | 500ML | £5.21 |

Devardas Alloy Powder

M.W. N/A
:About 45% Al, 50% Cu and 5% Zn

Grey, Powder



UN Class. 4.1/UN3089/II
Cas No. 8049-11-4
EC No. N/A

Danger

H228

P210, P240, P241, P280, P370+P378

| Cat No. | Quantity | Price |
|---------|----------|--------|
| DE0 70 | 100GM | £14.50 |

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2-6 Dichlorophenolindophenol (DCPIP)

$C_{12}H_6Cl_2NNaO_2$
M.W. 290.08

Redox indicator Dark green/blue, Solid, Odourless

UN Class.NR

Cas No. 620-45-1

EC No. 210-640-4

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| D10 55 | 5GM | £19.49 |
| D10 60 | 1 TABLET | £13.49 |

2 4 Dinitrophenylhydrazine

$(NO_2)_2C_6H_3.NH.NH_2$
M.W. 198.14

Red, Powder, None reported



UN Class. 4.1/UN1325/II

Cas No. 119-26-6

EC No. 204-309-3

Danger

H228, H302

P210, P240, P264, P270, P280, P330, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| D11 05 | 25GM | £14.36 |

Ethoxyethane

$(C_2H_5)_2O$

M.W. 74.12

Flashpoint: -40°C



Assay.....98%

Weight per ml at 20°C0.713-0.717g

Water (H₂O)0.5%

Non-volatile matter0.002%

Acidity (CH₃COOH).....0.003%

Peroxide0.001%

(Ethoxyethane)

UN Class. 3/UN1155/I

Cas No. 60-29-7

EC No. 200-467-2

Danger

H224, H302, H336

P210, P271, P280, P304+P340, P370+P378, P403+P233, P403+P235, P501

EUH019, EUH066

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| ET0 40 | 500ML | £12.99 |

Dutch Metal Leaves

N/A

M.W. N/A

Golden, Metal Foil

UN Class. NR

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| DU0 05 | PK25 | £24.30 |

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E.D.T.A (Disodium Salt) Extra pure

N/A
M.W. N/A
White crystalline powder

UN Class. NR
Cas No. 6381-92-6
EC No. 205-358-3

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| ED0 06 | 500GM | £10.71 |

Eosin (Micro.Stain)

$C_{20}H_6O_9Br_4Na_2$
M.W. 691.86

UN Class. NR
Cas No. N/A
EC No. N/A



Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| EO0 05 | 25GM | £4.90 |

Eriochrome Black T - see Solochrome Black

Ethanal - see Acetaldehyde

Ethanol

C_2H_5OH
M.W. 46.07
Flashpoint: 13°C

Strength at 20°C 99.86-100% v/v
Total acidity as acetic acid 0.006% w/v max.
Alkalinity Not alkaline to phenolphthalein
Aldehydes as
Acetaldehyde 0.001% mass max.
Clarity of solution Passes B.P. test
Reducing substances Passes B.P. test
Other Alcohols Passes B.P. test
Non volatile matter 0.005% w/v max
Apparent density at 20°C 788.16-791.2kg/m³
Benzene Passes B.P. test



99.98% V/V (Duty Paid)

UN Class. 3/UN1170/II
Cas No. 64-17-5
EC No. 200-578-6

Danger

H225
P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|----------------|
| ET0 20 | 100ML | £8.47 |
| ET0 22 | 500ML | £39.97 |
| ET0 23 | 1LTR | £81.17 |
| ET0 24 | 2.5LTR | £152.99 |

EDTA Volumetric Solution 0.1M

N/A
M.W. N/A
Contents per litre at 20°C 37.22g
UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| VS0 05 | 2.5LTR | £12.31 |

Enzymes - see Biology Chemicals

Ethanedioic Acid-2-Water (Oxalic Acid)

$HOCOCOOH.2H_2O$
M.W. 126.07
Assay 99.5%
Sulfated ash 0.1%
Chloride (Cl) 0.005%
Sulfate (SO₄) 0.02%
Iron (Fe) 0.005%
Lead (Pb) 0.005%



(Oxalic Acid)

UN Class. NR
Cas No. 6153-56-6
EC No. 205-634-3

Warning

H302+H312 - H318
P264, P270, P280, P301+P312, P302+P352, P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| ET0 05 | 500GM | £3.53 |



Ethanol

C_2H_5OH
 M.W. 46.07
 Flashpoint: 12°C
 Assay99%
 Weight per ml at 20°C 0.790-0.794g



***Ethanol - 99.0% Vol. 74 O.P.**

UN Class. 3/UN1170/II
 Cas No. N/A
 EC No. N/A

Danger

H225, H319, H371
P210, P260, P264, P280, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| ETO 25 | 500ML | £5.99 |
| ETO 27 | 1LTR | £7.50 |
| ETO 30 | Surcharge 2.5LTR | £11.72 |
| ETO 35 | Surcharge 25LTR | £77.06 |

Ethyl Benzoate

$C_6H_5COO.C_2H_5$
 M.W. 150.18
 Colourless, Liquid, Heavy fruity odour

UN Class. NR
 Cas No. 93-89-0
 EC No. 202-284-3

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ETO 75 | 100ML | £10.24 |

Ethyl Bromide - see Bromoethane

Ethyl Ethanoate - see Ethyl Acetate

Ethylene Glycol - see also Ethane 1 2-Diol

Ethyl Iodide - see Iodoethane

Fehling's Solution No2

Colourless, Liquid, Odourless

UN Class. 8/UN1824/II
 Cas No. 1310-73-2
 EC No. 215-185-5



Danger

H314, H290
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| FE0 15 | 500ML | £4.49 |

Ethyl Acetate

$CH_3COOC_2H_5$
 M.W. 88.11
 Flashpoint: -1°C
 Assay99%
 Weight per ml at 20°C 0.899-0.902g
 Acidity 1ml N%
 Non-volatile matter 0.005%



(Ethyl Ethanoate)

Clear, colourless, Liquid, Fruity

UN Class. 3/UN1173/II
 Cas No. 141-78-6
 EC No. 205-500-4

Danger

H225, H336, H319
P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501

EUH066

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| ETO 55 | 500ML | £7.21 |
| ETO 57 | 1LTR | £11.49 |
| ETO 60 | Surcharge 2.5LTR | £22.49 |

Fehling's Solution No1

UN Class. 9/UN3082/III
 Cas No. N/A
 EC No. N/A



H411

P273, P391, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| FE0 05 | 500ML | £2.74 |



Fluorescein

$C_{20}H_{12}O_5$
M.W. 332.31

Red, Powder, None reported



UN Class. NR
Cas No. 2321-07-5
EC No. 219-031-8

Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|-------|
| FL0 15 | 5GM | £2.49 |

Formaldehyde - see Methanal

D(-)-Fructose (Laevulose)

$OCH_2(CHOH)_3COHCH_2OH$
M.W. 180.16

Loss on drying at 80°C 1%
Sulfated ash 0.2%
Arsenic (As) 0.0001%
Lead (Pb) 0.0002%

(Laevulose)

UN Class. NR
Cas No. 57-48-7
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| FR0 05 | 100GM | £2.49 |

Gelatine Powder

N/A
M.W. N/A
Colourless, Powder, Characteristic odour

UN Class. NR
Cas No. 9002-18-0
EC No. 232-658-1

| Cat No. | Quantity | Price |
|---------|----------|--------|
| GE0 05 | 500GM | £17.96 |

Formic Acid 90% W/V

HCOOH
M.W. 46.03
Flashpoint: 49°C

A clear colorless liquid with pungent odor



UN Class. 3/UN1779/II
Cas No. 64-18-6
EC No. 200-579-1

Danger

H314, H318, H302, H331, H226

P210, P280, P301+P330+P331, P303+P361+P353, P305+P351+P338, P370+P378

| Cat No. | Quantity | Price |
|---------|----------|-------|
| FO0 05 | 500ML | £5.99 |

French Chalk - see Talc

D(+)-Galactose Anhydrous

$O.(CH.OH)_4.CH.CH_2OH$
M.W. 180.16

Flashpoint: White, Powder, Odourless

UN Class. NR
Cas No. 57-48-7
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GA0 06 | 25GM | £5.72 |

Gentian Violet Stain

N/A
M.W. N/A

UN Class. 9/UN3077/III
Cas No. 59-23-4
EC No. 200-41-6



Danger

H302, H318, H351, H400, H410

P201, P264, P273, P280, P305+P351+P338, P308+P313, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GE0 10 | 25GM | £3.99 |

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Gibberellic Acid

C₁₉H₂₂O₆
M.W. 346.38

Colourless to white, Powder, Almost odourless

UN Class. NR
Cas No. 77-06-5
EC No. 201-001-0



Warning

H319

P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| GL0 05 | 1GM | £10.29 |

Glass Wool

N/A
M.W. N/A

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GL0 10 | 250GM | £8.03 |

d-Glucose Monohydrate

O.(CH.OH)₄.CH.CH₂OH.H₂O
M.W. 198.17

Specific rotation52.6 to 53.2°
Heavy Metals (Pb) Max. 0.001%
Maltose Max. 0.02%
Water 8.0 – 10.0%
White, Crystalline Powder, Odourless

UN Class. NR
Cas No. 14431-43-7
EC No. 200-075-1

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GL0 20 | 500GM | £2.99 |

Glycerol - see Propane 1.2.3-Triol

Glycine - see Aminoacetic Acid

Graphite Powder (Carbon)

C
M.W. 12.01

Grey, Powder, Odourless

UN Class. NR
Cas No. 7782-42-5
EC No. 231-955-3



Warning

H319, H335

P261, P264, P271, P280, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| GR005 | 500GM | £15.99 |

Gum Acacia - see Acacia Powder

Glass Beads

N/A
M.W. N/A

Colourless, Solid, Odourless

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GL0 05 | 100GM | £1.85 |

d(+)-Glucose Anhydrous

O.(CH.OH)₄.CH.CH₂OH
M.W. 180.16

Specific rotation52.5 to 53.2°
pH (10%;water)..... 5.7 – 7.0
Chloride (Cl) Max 0.0125%
Maltose Max 0.2%
Heavy metals (as Pb) Max 0.001%
Acidity or alkalinity Passes test
Arsenic (As) Max 0.0001%
Barium (Ba) Passes test
Lead (Pb)..... Max 0.00005%
Calcium (Ca)..... Max 0.02%
Sulfate (SO₄)..... Max 0.02%
Sulfite (SO₃)..... Passes test
Water (KF) Max 0.2%
Sulfated ash..... Max 0.1%
Foreign sugars, soluble starch, dextrine.....
Passes test

White, Crystalline Powder

UN Class. NR
Cas No. 50-99-7
EC No. 200-075-1

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GL0 15 | 500GM | £3.99 |

Grams Iodine Solution

N/A
M.W. N/A

Dark brown, Liquid, Perceptible odour

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| GR0 10 | 100ML | £4.50 |



Haematoxylin Solution Delafields

N/A
M.W. N/A
Flashpoint: 42°C
Purple, Liquid, Weakly alcoholic



UN Class. 3/UN1993/III
Cas No. N/A
EC No. N/A

Danger

H226, H302, H370
P210, P233, P260, P264, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| HA0 05 | 500ML | £29.99 |

n-Hexane

CH₃(CH₂)₄CH₃
M.W. 86.18
Flashpoint: -22°C
Assay97%
Weight per ml at 20°C0.658-0.659g
Bromine index 10
Boiling range (95%)67-70°C



UN Class. 3/UN1208/II
Cas No. 110-54-3
EC No. 203-777-6

Danger

H225, H315, H336, H373, H304, H411, H361f
P201, P210, P280, P302+P352, P304+P340, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| HE0 20 | 100ML | £3.50 |
| HE0 22 | 500ML | £17.50 |

n-Heptane 95%

CH₃(CH₂)₅CH₃
M.W. 100.2
Flashpoint: -4°C
Assay95%
Weight per ml at 20°C0.684g
Refractive index 1.388
Water0.05%
Non-volatile matter0.005%



UN Class. 3/UN1206/II
Cas No. 142-82-5
EC No. 205-563-8

Danger

H225, H315, H336, H304, H400, H410
P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| HE0 05 | 500ML | £8.90 |

Heptan-1-ol

CH₃(CH₂)₅CH₂OH
M.W. 116.2
Flashpoint: 73°C
Colourless, Liquid, Alcohol-like



UN Class. NR
Cas No. 111-70-6
EC No. 203-897-9

Warning

H319, H302+H312
P264, P280, P302+P352, P305+P351+P338, P312, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| HE0 55 | 100ML | £9.60 |

Hexadecan-1-ol

CH₃(CH₂)₁₅OH
M.W. 242.45
(Cetyl Alcohol)
White, Waxy solid, Faint odour



UN Class. NR
Cas No. 36653-82-4
EC No. 253-149-0

Warning

H315, H319
P264, P273, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| HE0 60 | 250GM | £5.78 |

Hexane

CH₃(CH₂)₄CH₃
M.W. 86.18
Flashpoint: -22°C
Boiling range60-80°C
Weight per ml at 20°C0.665-0.683g



(Fraction from Petroleum)

UN Class. 3/UN1208/II
Cas No. 110-54-3
EC No. 203-777-6

Danger

H225, H315, H336, H373, H304, H411, H361f
P201, P210, P280, P302+P352, P304+P340, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| HE0 25 | 500ML | £7.33 |



Hexane-1-6-Diamine

NH₂.(CH₂)₆.NH₂

M.W. 116.21

Flashpoint: 85°C

Assay98.5%

Melting point39-42°C

(1,6-Diaminohexane)

Colourless, Solid, Amine like odour

UN Class. 8/UN2280/III

Cas No. 124-09-4

EC No. 204-679-6

Danger**H302+H312, H335, H314****P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P310, P403+P233, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| HE0 30 | 25GM | £5.00 |



Hexan-1-ol

CH₃.(CH₂)₄.CH₂OH

M.W. 102.18

Flashpoint: 60°C

Assay98%

Weight per ml at 20°C0.817-0.819g

Refractive index1.417-1.419

Non-volatile matter0.05%

Water0.2%

Colourless, Liquid, Characteristic odour

UN Class. 3/UN2282/III

Cas No. III-27-3

EC No. 203-852-3

Warning**H226, H302, H319****P210, P264, P280, P302+P352, P305+P351+P338, P370+P378, P403+P235, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| HE0 45 | 500ML | £34.55 |



Hex-1-Ene

CH₂.CH.(CH₂)₃.CH₃

M.W. 84.16

Flashpoint: -20°C

Assay96%

Weight per ml at 20°C0.672-0.674g

Colourless, Liquid, Benzen like

UN Class. 3/UN2370/II

Cas No. 592-41-6

EC No. 209-753-1

Danger**H225, H304****P210, P233, P280, P301+P310, P331, P370+P378, P403+P235, P501 EUH066**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| HE0 50 | 100ML | £8.96 |



Hydrochloric Acid SG 1.185-1.192

HCl

M.W. 36.46

A liquid free from visible matter.

UN Class. 8/UN1789/II

Cas No. N/A

EC No. 231-595-7

Danger**H290, H318, H335, H314****P234, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P403+P233, P501**

| Cat No. | Quantity | Price |
|---------------|---------------------|---------------|
| HY0 14 | LTR | £9.88 |
| HY0 16 | Surcharge 2.5LTR | £13.99 |



Hydrochloric Acid 5.0M (5N)

HCl

M.W. 36.46

Contents per litre at 20°C 182.30g

UN Class. 8/UN1789/II

Cas No. N/A

EC No. N/A

Warning**H290, H315, H335, H319****P234, P271, P280, P302 + P352, P304+P340, P305 + P351 + P338, P403 +P233, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| VS0 10 | 1LTR | £8.74 |
| VS0 15 | 2.5LTR | £29.99 |



Hydrochloric Acid 4.0M (4N)

HCl

M.W. 36.46

Colourless, Liquid, Odourless

UN Class. 8/UN1789/III

Cas No. N/A

EC No. N/A

Warning**H315, H319, H335****P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| VS0 17 | 1LTR | £16.79 |



Hydrochloric Acid 2.0M (2N)

HCl
M.W. 36.46
Contents per litre at 20°C 72.92g



UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

Warning

H290
P234, P390, P406

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 25 | 2.5LTR | £18.53 |

Hydrochloric Acid 0.5M (0.5N)

N/A
M.W. N/A
Contents per litre at 20°C 18.23g HCl



UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

Warning

H290
P234, P390, P406

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 35 | 2.5LTR | £13.89 |

Hydrochloric Acid 1.0N (1.0M) Ampoules

HCl
M.W. 36.46
Baker DILUT-IT
Resultant quantity per litre at 20°C 36.46g HCl
The above solution is obtained by diluting the contents of 1 vial to 1 litre



UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

Warning

H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VC0 05 | CTN | £61.26 |

Hydrochloric Acid 1.0M (1N)

HCl
M.W. 36.46
Contents per litre at 20°C 36.46g



UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

Warning

H290
P234, P390, P406

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 30 | 2.5LTR | £15.33 |
| VS0 32 | 5LTR | £16.24 |

Hydrochloric Acid 0.1M (0.1N)

N/A
M.W. N/A
Contents per litre at 20°C 3.646g
Colourless to slightly yellowish, Liquid, Almost odourless



UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

Warning

H290
P234, P390, P406

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 40 | 2.5LTR | £12.41 |
| VS0 42 | 5LTR | £13.46 |

Hydrochloric Acid 0.1M Ampoules

HCl
M.W. 36.46
Flashpoint: Baker DILUT-IT
Resultant quantity per litre at 20°C 3.646g HCl
The above solution is obtained by diluting the contents of 1 vial to 1 litre.

UN Class. 8/UN1789/III
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VC0 10 | CTN | £70.88 |



Hydrogen Peroxide 20 Vol



M.W. 34.01

Assay 6% w/v
 Weight per ml at 20°C 1.02g
 Non-volatile matter 0.02%
 Chloride (Cl) 0.001%
 Iron (Fe) 0.0001%



UN Class. NR

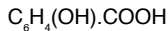
Cas No. 7722-84-1

EC No. 231-765-0

Warning**H319****P264, P280, P305 + P351 + P338, P337 + P313**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| HY0 31 | 2.5LTR | £8.85 |

2-Hydroxybenzoic Acid



M.W. 138.12

Flashpoint: 157°C

Assay 99%
 Melting point 157-162°C
 Sulfated ash 0.1%
 Chloride (Cl) 0.02%
 Sulfate (SO_4) 0.03%
 Iron (Fe) 0.003%
 Heavy metals (Pb) 0.003%



UN Class. NR

Cas No. 69-72-7

EC No. 200-712-3

Danger**H302, H318****P264, P270, P280, P301+P312, P305+P351+P338, P310, P330, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| HY0 55 | 100GM | £6.52 |
| HY0 57 | 500GM | £27.94 |

Indicator Full Range pH 1-14

N/A

M.W. N/A

Flashpoint: 19°C

pH 1.0 - 14.0

Supplied with colour chart Green, Liquid, Alcohol-like



UN Class. 3/UN1993/II

Cas No. N/A

EC No. N/A

Danger**H319, H336, H225****P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501**

| Cat No. | Description | Quantity | Price |
|----------------|---------------------|----------|--------------|
| IN2 00 | | 500ML | £8.21 |
| IN2 00C | Spare Colour Charts | PK10 | £2.99 |

Hydrogen Peroxide 100Vol



M.W. 34.01

Assay 30%
 Weight per ml at 20°C 1.10g
 Non-volatile matter 0.2%
 Sulfate (SO_4) 0.05%



NB: Due to the unstable nature of peroxide, if not used within 3 months, its performance will not be guaranteed.

UN Class. 5.1+8UN2014/II

Cas No. 7722-84-1

EC No. 231-765-0

Danger**H302, H318****P264, P270, P280, P301+P312, P305+P351+P338, P310, P330, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| HY0 40 | 500ML | £6.43 |
| HY0 43 | 1LTR | £8.11 |
| HY0 46 | 2.5LTR | £11.25 |

Universal Indicator Solution pH 4-11

M.W. N/A

Flashpoint: 20°C

pH 4.0 - 11.0

Supplied with colour chart Green, Liquid, Alcohol-like



UN Class. 3/UN1993/II

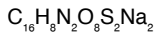
Cas No. N/A

EC No. N/A

Danger**H319, H336, H225****P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501**

| Cat No. | Description | Quantity | Price |
|----------------|---------------------|----------|--------------|
| IN1 00 | | 500ML | £6.41 |
| IN1 00C | Spare Colour Charts | PK10 | £2.90 |

Indigo Carmine



M.W. 466.36

Dark violet, Powder, Odourless



UN Class. NR

Cas No. 860-22-0

EC No. 212-728-8

Warning**H302****P264, P270, P301+P312, P330, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| IN0 30 | 5GM | £3.11 |



Indol-3-Yl-Acetic Acid

$C_6H_4NH.CH:C.CH_2.COOH$
M.W. 175.19

Light brown, Powder, Odourless

UN Class. NR
Cas No. 87-51-4
EC No. 201-748-2

| Cat No. | Quantity | Price |
|---------|----------|-------|
| IN1 95 | 1GM | £5.32 |

Iodine Solution

N/A
M.W. N/A

UN Class. NR
Cas No. N/A
EC No. N/A



Danger

H373

P260, P314, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| IO0 15 | 500ML | £6.84 |
| IO0 20 | 2.5LTR | £17.02 |

Iodine Solution 0.05M (0.1N)

N/A
M.W. N/A

Contents per litre at 20°C 12.69g of I

This solution contains 2% w/v KI

UN Class. NR
Cas No. N/A
EC No. N/A



Danger

H372

P260, P264, P270, P314, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 45 | 2.5LTR | £17.04 |

Iodine Resublimed

I_2
M.W. 253.81

Heavy, grayish-black plates or granules, having a metallic luster and a characteristic odor

UN Class. 6.1/UN3495/III
Cas No. 7553-56-2
EC No. 231-442-4



Warning

H312+H332, H400

P261, P271, P273, P280, P302+P352, P304+P340, P312, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| IO0 07 | 100GM | £17.45 |
| IO0 12 | 250GM | £43.85 |

Iodine Solution 0.05M

N/A
M.W. N/A

Baker Analyzed

Volumetric Solution, ready for use

UN Class. NR
Cas No. N/A
EC No. N/A



Warning

H373

P260, P314, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| 721 0 | 1LTR | £43.90 |

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Chemicals

H - M

1-Iodobutane

 $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{I}$

M.W. 184.02

Flashpoint: 36°C

Assay 98.5%

Weight per ml at 20°C 1.60-1.62g

Refractive index 1.497-1.501

(n-Butyl Iodide)

Colourless to pale orange, Liquid, Odourless

UN Class. 3/UN1993/III

Cas No. 542-69-8

EC No. 208-824-4

Danger**H226, H331****P210, P271, P280, P304+P340, P370+P378, P403+P233, P403+P235, P501**

| Cat No. | Quantity | Price |
|---------------|----------|----------------|
| IO0 25 | 25ML | £12.72 |
| IO0 26 | 250ML | £108.00 |



Iodoethane

 $\text{C}_2\text{H}_5\text{I}$

M.W. 155.97

Flashpoint: 53°C

Assay 99%

Weight per ml at 20°C 1.920-1.930g

Refractive index 1.475-1.5

(Ethyl Iodide)

Colourless, Liquid, Ethereal fruity odour

UN Class. NR

Cas No. 75-03-6

EC No. 200-833-1

Danger**H302, H315, H334, H335, H317, H319****P271, P280, P302+P352, P304+P340, P305+P351+P338, P342+P311, P403+P233, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| IO0 30 | 25GM | £16.79 |



Iron (metal) Filings (100 mesh)

Fe

M.W. 55.85

UN Class. 4.1/UN3089/III

Cas No. N/A

EC No. N/A

Danger**H228****P210, P240, P241, P280, P370+P378**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| IR0 16 | 500GM | £3.64 |
| IR0 05 | 500G | £3.85 |
| IR0 10 | 1KG | £4.93 |



Iron Metal Powder Reduced

Fe

M.W. 55.85

Black-grey, Powder, Odourless

UN Class. 4.1/UN3089/III

Cas No. N/A

EC No. N/A

Danger**H228****P210, P240, P241, P280, P370+P378**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| IR0 25 | 500GM | £8.10 |



Iron Metal Powder Fine

Fe

M.W. 55.85

UN Class. 4.1/UN3089/III

Cas No. N/A

EC No. N/A

Danger**H228****P210, P240, P241, P280, P370+P378**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| IR0 27 | 500GM | £8.03 |



Iron (II) Chloride-4-Water

FeCl₂·4H₂O
M.W. 198.81

Yellowish green colored crystals/powder



UN Class. 8/UN3260/III
Cas No. 13478-10-9
EC No. 231-843-4

Danger

H302, H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| IRO 37 | 500GM | £15.00 |

Iron (III) Chloride Anhydrous

FeCl₃
M.W. 162.21

Assay.....96%
Ferrous chloride.....1%

Dark grey to black or brown, Solid, Characteristic odour



UN Class. 8/UN1773/III
Cas No. 7705-08-0
EC No. 231-729-4

Danger

H290, H302, H315, H318

P234, P264, P280, P302+P352, P305+P351+P338, P310, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| IRO 50 | 250GM | £16.07 |

Iron (III) Oxide

Fe₂O₃
M.W. 159.69

Reddish-brown to black, Powder, Odourless



UN Class. NR
Cas No. 1309-37-1
EC No. 215-168-2

Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| IRO 60 | 500GM | £6.02 |

Iron (III) Chloride-6-Water

FeCl₃·6H₂O
M.W. 270.3

Assay.....97%
Ferrous iron.....0.03%



UN Class. 8/UN3260/III
Cas No. 10025-77-1
EC No. 231-729-4

Danger

H290, H302, H315, H318

P234, P264, P280, P302+P352, P305+P351+P338, P310, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| IRO 40 | 500GM | £22.06 |
| IRO 45 | 1KG | £48.41 |

Iron (III) Nitrate-9-Water

Fe(NO₃)₃·9H₂O
M.W. 404

Assay.....98%
Chloride (Cl).....0.01%
Sulfate (SO₄).....0.02%
Manganese (Mn).....0.02%
Light violet/purple, Crystalline, Characteristic odour



UN Class. 5.1/UN1466/III
Cas No. 7782-61-8
EC No. 233-899-5

Warning

H272, H315, H335, H319

P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| IRO 55 | 250GM | £4.26 |

Iron (II) Sulfate Heptahydrate AR

FeSO₄·7H₂O
M.W. 278.02

(Ferrous) Baker Analysed/ACS

Meets ACS Specifications

Assay (by KMnO₄ titrn.) min. 99.0%
Chloride (Cl).....max. 0.001%
Copper (Cu).....max. 0.005%
Ferric ion (Fe³⁺)..... max. 0.1%
Insoluble Matter max. 0.01%
Manganese (Mn) max. 0.05%
Phosphate (PO₄)..... max. 0.01%
Substances not Precipitated by NH₄OH max. 0.05%
Zinc (Zn).....max. 0.005%



UN Class. NR
Cas No. 7782-63-0
EC No. 231-753-5

Warning

H302, H315, H319

P264, P270, P280, P302+P352, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|------------|----------|--------|
| 012 6/5 00 | 500GM | £23.95 |



Chemicals

H - M

INTRO

Iron (II) Sulfide

FeS
M.W. 87.91
Bluish black sticks

UN Class. NR
Cas No. 1317-37-9
EC No. 215-268-6

BIOLOGY

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| IR0 81 | 500GM | £4.49 |

CHEMISTRY

Kinetin solid

$C_{10}H_9N_5O$
M.W. 117.19
(6-Furfurylaminopurine)

White to yellowish white, Powder, Weak odour

UN Class. NR
Cas No. 525-79-1
EC No. 208-382-2

PHYSICS

ENVIRONMENTAL SCIENCE

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| KI0 05 | 1GM | £30.61 |

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Kaolin Light

$H_2Al_2Si_2O_8 \cdot H_2O$
M.W. 258.16
White, Powder, Odourless

UN Class. NR
Cas No. 1332-58-7
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| KA0 05 | 1KG | £9.59 |

Lactose

$C_{12}H_{22}O_{11} \cdot H_2O$
M.W. 360.32
White crystalline powder

UN Class. NR
Cas No. 5989-81-1
EC No. 200-559-2

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LA0 16 | 500GM | £5.99 |

Laevulose - see d(-) Fructose



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TRADEBE



Lead Metal Foil

Pb
M.W. 207.2
Grey, Foil

UN Class. 9/UN3077/III
Cas No. 7439-92-1
EC No. 231-100-4



Danger

H373, H400, H410, H360Df, H302+H332
P201, P260, P264, P271, P280, P304+P340, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| LE0 05 | 500GM | £13.11 |

Lead (II) Bromide

PbBr₂
M.W. 367.01
Assay.....98%
White, Powder

UN Class. 6.1/UN2291/III
Cas No. 10031-22-8
EC No. 233-084-4



Danger

H302+H332, H360, H373, H400, H410
P201, P260, P264, P271, P280, P304+P340, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| LE0 30 | 100GM | £12.05 |

Lead (II) Nitrate

Pb(NO₃)₂
M.W. 331.21
Assay.....99%
Chloride (Cl)0.005%
Copper (Cu).....0.002%
Iron (Fe).....0.002%
White, Crystals or Powder, Odourless

UN Class. 5.1+6.1/UN1469/II
Cas No. 10099-74-8
EC No. 233-245-9



Danger

H272, H302+H332, H360, H373, H410
P201, P210, P220, P280, P304+P340, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| LE0 65 | 500GM | £31.87 |

Lead (II) Acetate-3-Water

(CH₃COO)₂Pb.3H₂O
M.W. 379.33
Assay.....99%
Chloride (Cl).....0.005%
Copper (Cu).....0.002%
Iron (Fe).....0.002%
White, Crystals, Acidic

UN Class. 6.1/UN1616/III
Cas No. 6080-56-4
EC No. 206-104-4



Danger

H373, H400, H410, H360Df
P201, P260, P273, P280, P308+P313, P314, P391, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| LE0 25 | 500GM | £20.10 |

Lead (II) Chloride

PbCl₂
M.W. 278.11
Assay.....99%
Nitrate (NO₃)0.01%
White, Solid powder, Odourless

UN Class. 6.1/UN2291/III
Cas No. 7758-95-4
EC No. 231-845-5



Danger

H302+H332, H373, H400, H410, H360Df
P201, P260, P264, P271, P280, P304+P340, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| LE0 40 | 100GM | £9.91 |



Lead (II) Oxide Litharge

PbO

M.W. 223.2

Assay98%

Loss on ignition between 600-800°C 1%

Chloride (Cl)0.02%

Copper (Cu)0.005%

Iron (Fe)0.01%

(Lead Monoxide)

Yellow-reddish orange, Powder, Characteristic odour

UN Class. 6.1/UN2291/III

Cas No. 1317-36-8

EC No. 215-267-0

Danger**H302+H332, H351, H372, H400, H410, H360Df****P201, P260, P264, P271, P280, P304+P340, P308+P313, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LE0 70 | 500GM | £13.96 |

Lead Monoxide - see Lead (II) Oxide Litharge

Lead (IV) Oxide

PbO₂

M.W. 239.2

Assay94%

Chloride (Cl)0.2%

Nitrate (NO₃)0.05%Sulfate (SO₄)0.02%**(Lead Dioxide)**

Dark brown, Solid, Odourless

UN Class. 5.1+6.1/UN1872/III

Cas No. 1309-60-0

EC No. 215-174-5

Danger**H272, H302+H332, H373, H410, H360Df****P201, P210, P220, P280, P304+P340, P308+P313, P370+P378, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LE0 75 | 250GM | £20.81 |



Dilead (II) Lead (IV) Oxide

Pb₃O₄

M.W. 685.6

Assay85%

(Red Lead)

Orange red, Powder, Odourless

UN Class. 5.1/UN1479/II

Cas No. 1314-41-6

EC No. 215-235-6

Danger**H272, H302+H332, H373, H400, H410, H360Df****P201, P210, P220, P280, P304+P340, P308+P313, P370+P378, P501**

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LE0 55 | 500GM | £34.36 |



Leishmans Stain Solution

N/A

M.W. N/A

Flashpoint: 11°C

Blue coloured solution, Alcohol odour

UN Class. 3+6.1/UN1230/II

Cas No. 67-56-1

EC No. 200-659-6

Danger**H370, H301+H311+H331, H225****P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233,****P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LE0 96 | 250G | £3.13 |



Lime Water

N/A

M.W. N/A

Colourless, Liquid

UN Class. NR

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 05 | 2.5LTR | £5.84 |

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Lipase

N/A
M.W. N/A
White to light yellow or beige small granules or powder (Store at 2-8°C)

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 11 | 5GM | £2.81 |

Lithium Carbonate

Li₂CO₃
M.W. 73.89
Assay98.5%
Chloride (Cl)0.01%
Sulfate (SO₄)0.4%
Iron (Fe)0.002%



White/off white, Powder

UN Class. NR
Cas No. 554-13-2
EC No. 209-062-5

Warning

H302, H319
P264, P270, P280, P301+P312, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 20 | 100GM | £5.94 |

Lithium Hydroxide

LiOH.H₂O
M.W. 41.96

UN Class. 8/UN2680/II
Cas No. 1310-66-3
EC No. 215-183-4



Danger

H302, H314
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 27 | 100GM | £7.61 |

Lithium Metal in Paraffin

Li
M.W. 6.94
Silver White, Solid, Odourless



UN Class. 4.3/UN1415/I
Cas No. 7439-93-2
EC No. 231-102-5



CANNOT TRAVEL BY PASSENGER AIRCRAFT

Danger

H260, H314
P231+P232, P280, P301+P330+P331, P302+P335+P334, P304+P340, P305+P351+P338, P370+P378, P501
EUH014

| Cat No. | Quantity | Price |
|---------------|-------------------|---------------|
| LI0 15 | Surcharge 10GM | £20.77 |

Lithium Chloride Anhydrous

LiCl
M.W. 42.39
Assay99%
Loss on drying at 120°C2%
Sulfate (SO₄)0.01%
Iron (Fe)0.001%
Lead (Pb)0.0005%
White, Crystals



UN Class. NR
Cas No. 7447-41-8
EC No. 231-212-3

Warning

H302, H315, H319
P264, P270, P280, P302+P352, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 25 | 100GM | £5.99 |

Lithium Nitrate Anhydrous

LiNO₃
M.W. 68.95
Assay98%
Loss on drying1%
Sulfate (SO₄)0.05%
Chloride (Cl)0.01%
Iron (Fe₂O₃)0.005%
White/off white, Powder



UN Class. 5.1/UN2722/III
Cas No. 7790-69-4
EC No. 232-218-9

Warning

H272, H315, H335, H319
P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 30 | 100GM | £8.68 |



Litmus Granules

N/A
M.W. N/A

UN Class. NR
Cas No. 1393-92-6
EC No. 215-739-6

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LI0 35 | 25GM | £10.38 |

Lugols Iodine Solution

N/A
M.W. N/A
Dark brown, Liquid, Slightly pungent

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LU0 10 | 20ML | £3.32 |

Lycopodium Powder

M.W. N/A
Yellow, Very mobile powder, Odourless

UN Class. 4.1/UN1325/II
Cas No. 8023-70-9
EC No. N/A



Danger

H228
P210, P240, P241, P280, P370+P378

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LY0 05 | 50GM | £16.93 |

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Litmus Solution

N/A
M.W. N/A
pH 5.0-8.0, red to blue Dark blue, Solid powder, Odour - none reported

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LI0 45 | 500ML | £5.21 |

Luminol

$\text{NH}_2\text{C}_6\text{H}_3\text{CO.NH.NH.CO}$
M.W. 177.16

(3-A Phthalhydrazide Hydrochloride)

Light yellow, Powder, None reported

UN Class. NR
Cas No. 521-31-3
EC No. 208-309-4



Warning

H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| LU0 05 | 1GM | £14.36 |

L-Lysine Monohydrochloride

$\text{NH}_2(\text{CH}_2)_4\text{CH}(\text{NH}_2).\text{COOH.HCl}$
M.W. 182.65

For Chromatography
Assay.....99%
Loss on drying at 110°C0.5%
Sulfated ash.....0.1%
Iron (Fe).....0.001%
Lead (Pb).....0.001%

For Chromatography

White, Powder, Practically odourless

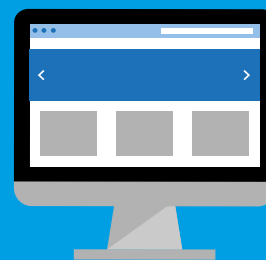
UN Class. NR
Cas No. 657-27-2
EC No. 211-519-9

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| LY0 10 | 25GM | £9.29 |

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Magnesium Metal Powder

Mg
M.W. 24.31
Silver/Grey, Powder

UN Class. 4.3+ 4.2/UN1418/II
Cas No. 7439-95-4
EC No. 231-104-6



CANNOT TRAVEL BY
PASSENGER AIRCRAFT

Danger

H228, H251, H261

P210, P231+P232, P233, P280, P302+P335+P334, P370+P378, P402+P404, P501

| Cat No. | Quantity | Price |
|-------------|-----------------|--------|
| MA0 05/ A | Surcharge 100GM | £7.28 |
| MA0 05/ 250 | Surcharge EACH | £18.37 |

Magnesium Metal Turnings

Mg
M.W. 24.31
Silver/Grey, Turnings

UN Class. 4.1/UN1869/III
Cas No. 7439-95-4
EC No. 231-104-6



Danger

H228, H251, H261

P210, P231+P232, P280, P302+P335+P334, P370+P378, P407, P413, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| MA0 15 | 100GM | £3.19 |
| MA0 16 | 500GM | £13.55 |

Magnesium Carbonate (Light)

4MgCO₃·Mg(OH)₂·4H₂O
M.W. 467.64

Assay (MgO).....40%
Soluble matter1%
Chloride (Cl)0.07%
Sulfate (SO₄).....0.3%
Arsenic (As)0.0002%
Calcium (Ca).....1%
Iron (Fe).....0.04%
Lead (Pb).....0.002%

White, Powder

UN Class. NR
Cas No. 39409-82-0
EC No. 235-192-7

| Cat No. | Quantity | Price |
|---------|----------|-------|
| MA0 25 | 500GM | £9.55 |

Magnesium Metal Ribbon

Mg
M.W. 24.31

Aluminium (Al)0.02%
Copper (Cu).....0.01%
Iron (Fe).....0.01%
Manganese (Mn)0.02%
Nickel (Ni).....0.01%
Silicon (Si)0.01%
Zinc (Zn)0.02%
Silver White, Solid, Odourless



UN Class. 4.1/UN1869/III
Cas No. 7439-95-4
EC No. 231-104-6

Danger

H228, H251, H261

P210, P231+P232, P280, P302+P335+P334, P370+P378, P407, P413, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| MA0 10 | 25GM | £4.02 |

Magnesium Carbonate (Heavy)

4MgCO₃·Mg(OH)₂·5H₂O
M.W. 485.65

Assay (MgO).....40%
Soluble matter1%
Chloride (Cl)0.07%
Sulfate (SO₄).....0.6%
Arsenic (As)0.0002%
Calcium (Ca).....1%
Iron (Fe).....0.04%
Lead (Pb).....0.002%

White, Powder, Odourless

UN Class.NR
Cas No. 39409-82-0
EC No. 235-192-7

| Cat No. | Quantity | Price |
|---------|----------|--------|
| MA0 20 | 500GM | £14.76 |

Magnesium Chloride-6-Water

MgCl₂·6H₂O
M.W. 203.3

Assay.....97%
Phosphate (PO₄).....0.004%
Sulfate (SO₄).....0.04%
Calcium (Ca).....0.01%
Iron (Fe).....0.002%

White/cream, Flakes/crystals/powder


UN Class. NR
Cas No. 7791-18-6
EC No. 232-094-6

| Cat No. | Quantity | Price |
|---------|----------|-------|
| MA0 30 | 500GM | £4.43 |



Magnesium Hydroxide

Mg(OH)₂
M.W. 58.32

Assay.....95% 
Chloride (Cl)0.1%
Sulfate (SO₄)1%
Calcium (Ca)1%
Iron (Fe)0.05%

White, Powder, Odourless

UN Class. NR
Cas No. 1309-42-8
EC No. 215-170-3

Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233,
P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA0 35 | 100GM | £4.36 |
| MA0 36 | 250GM | £8.11 |

Magnesium Oxide (Heavy)

MgO
M.W. 40.30

Assay.....96%
Water-soluble matter2%
Loss on ignition at 1000°C.....5%
Chloride (Cl)0.05%
Sulfate (SO₄)1%
Arsenic (As)0.0004%
Iron (Fe)0.07%
Lead (Pb)0.002%

White, Powder

UN Class.NR
Cas No. 1309-48-4
EC No. 215-171-9

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| MA0 45 | 250GM | £10.68 |

Magnesium Sulfate

MgSO₄·7H₂O
M.W. 246.48

Assay.....99.0–100.5%
pH (5% water).....5.0–9.2
Water insoluble matterMax 0.025%
Free alkali (as NaOH)Max 0.008%
Free Acid (H₂SO₄)Max 0.01%
Chloride (Cl)Max 0.014%
Phosphate (PO₄)Max 0.002%
Ammonium (NH₄)Max 0.005%
Heavy metals (as Pb)Max 0.001%
Arsenic (As)Max 0.0002%
Iron (Fe)Max 0.001%
Selenium (Se)Max 0.001%


Loss on drying at 450°C48–52%
White, Crystalline Powder

UN Class. NR
Cas No. 10034-99-8
EC No. 231-298-2

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA0 55 | 1KG | £5.75 |

Magnesium Nitrate-6-Water

Mg(NO₃)₂·6H₂O
M.W. 256.41

Assay.....99% 
Chloride (Cl)0.005%
Sulfate (SO₄)0.01%
Calcium (Ca)0.01%
Iron (Fe)0.002%

Lead (Pb)0.001%
Colourless, Crystalline, Odourless

UN Class. NR
Cas No. 13446-18-9
EC No. 233-826-7

Warning

H319

P264, P280, P305+P351+P338

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| MA0 40 | 500GM | £15.61 |

Magnesium Oxide (Light)

MgO
M.W. 40.30

Assay.....96%
Water-soluble matter2%
Loss on ignition at 1000°C.....8%
Chloride (Cl)0.1%
Sulfate (SO₄)0.5%
Arsenic (As)0.0001%
Iron (Fe)0.1%
Lead (Pb)0.002%

White, Powder

UN Class. NR
Cas No. 1309-48-4
EC No. 215-171-9

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| MA0 50 | 500GM | £19.75 |

Maltose

C₁₂H₂₂O₁₁·H₂O
M.W. 360.32

Water (by Karl Fischer)6%
Sulfated ash0.1%
Dextrin1%
Arsenic (As)0.0002%
Lead (Pb)0.001%

White, Powder, Odourless

UN Class. NR
Cas No. 6363-53-7
EC No. 200-716-5

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA0 75 | 25GM | £2.23 |
| MA0 76 | 100GM | £8.16 |



Manganese Metal Electrolytic

Mn
M.W. 54.94
Dark grey, Powder/bars, Odourless



UN Class. 4.1/UN3089/III
Cas No. N/A
EC No. N/A

Danger

H260
P210, P240, P241, P280, P370+P378

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| MA0 80 | 100GM | £16.86 |

Manganese (IV) Oxide Powder

MnO₂
M.W. 86.94
Flashpoint: 93°C



Assay85%
Acid-insoluble matter0.2%
Lead (Pb)0.01%

(Manganese Dioxide)

Black, Powder, Odourless

UN Class. NR
Cas No. 1313-13-9
EC No. 215-202-6

Warning

H373, H302+H332
P260, P261, P264, P271, P304+P340, P312, P314, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA1 25 | 500GM | £8.81 |

Manganese (II) Sulfate-1-Water

MnSO₄·H₂O
M.W. 169.02
Assay98%
Chloride (Cl)0.05%
Iron (Fe)0.002%
Lead (Pb)0.002%
Zinc (Zn)0.05%
Pink, Crystalline, Odourless



UN Class. 9/UN3077/III
Cas No. 10034-96-5
EC No. 232-089-9

Warning

H373, H411
P260, P273, P314, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA1 35 | 1KG | £4.51 |

Manganese (II) Chloride-4-Water

MnCl₂·4H₂O
M.W. 197.9
Assay98%
Iron (Fe)0.01%
Sulfate (SO₄)0.01%
Zinc (Zn)0.01%
Sodium (Na)0.02%
Pink, Crystals, Odourless



UN Class. NR
Cas No. 13446-34-9
EC No. 231-869-6

Warning

H302
P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| MA1 00 | 250GM | £20.92 |

Manganese (IV) Oxide Powder

MnO₂
M.W. 86.94
Assay85%
Acid-insoluble matter0.2%
Lead (Pb)0.01%



Suitable for Oxygen Preparations

Black, Powder, Odourless

UN Class. NR
Cas No. 1313-13-9
EC No. 215-202-6

Warning

H373, H302+H332
P260, P261, P264, P271, P304+P340, P312, P314, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| MA1 30 | 250GM | £6.47 |

Mercury Metal

Hg
M.W. 200.59
Calcium (Ca)0.005%
Magnesium (Mg)0.005%
Potassium (K)0.005%
Sodium (Na)0.005%
Silver, Liquid, Odourless



UN Class. 8+6.1/UN2809/III
Cas No. 7439-97-6
EC No. 231-106-7

Danger

H330, H372, H400, H410, H360D
P201, P271, P280, P304+P340, P308+P313, P310, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| ME0 10 | 500GM | £52.84 |

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Mercury (II) Chloride

HgCl₂
M.W. 271.5

Assay.....98%
Calcium (Ca).....0.005%
Magnesium (Mg).....0.005%
Potassium (K).....0.005%
Sodium (Na) 0.005%



(Mercuric)

White/colourless, Crystals/powder

UN Class. 6.1/UN1624/II
Cas No. 7487-94-7
EC No. 231-299-8

Danger

H300, H341, H361, H372, H400, H410, H314

P201, P280, P301+P310, P301+P330+P331, P304+P340, P305+P351+P338,
P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME0 20 | 50GM | £49.36 |

Methanol

CH₃OH
M.W. 32.04
Flashpoint: 11°C

Assay.....99.5%
Weight per ml at 20°C0.790-0.793g
Refractive index.....1.328-1.331
Aldehydes and ketones [(CH₂)₂CO]0.1%
Water0.25%
Non-volatile matter0.25%



(Methyl Alcohol)

UN Class. 3+6.1/UN1230/II
Cas No. 67-56-1
EC No. 200-659-6

Danger

H225, H301+H311+H331, H370

P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233,
P501

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| ME0 60 | 500ML | £1.49 |
| ME0 62 | 1LTR | £2.38 |
| ME0 65 | Surcharge 2.5LTR | £6.04 |
| ME0 67 | Surcharge 5LTR | £12.29 |
| ME0 70 | Surcharge 25LTR | £43.48 |

Methylated Spirit Blue Mineralised

C₂H₆O
M.W. 46.07
Flashpoint: 12°C

Blue Mineralised

Violet, Liquid

UN Class. 3/UN1170/II
Cas No. 67-56-1
EC No. 200-659-6



Danger

H371, H302, H225

P210, P233, P260, P264, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME0 95 | 500ML | £3.00 |
| ME0 97 | 1LTR | £5.30 |
| ME1 00 | 2.5LTR | £9.54 |

Formaldehyde Solution 37-41% (Methanal)

HCHO
M.W. 30.03
Flashpoint: 69°C

Clear colorless solution with strong pungent odor



UN Class. 8/UN2209/III
Cas No. 67-56-1
EC No. 200-659-6

Danger

H314, H317, H341, H350, H301+H311+H331

P201, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338,
P308+P313, P501

EUH208

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME0 51 | 2.5LTR | £7.46 |

DL-Methionine

CH₃S.(CH₂)₂.CH(NH₂).COOH
M.W. 149.21

Assay.....99%
Loss on drying at 110°C0.5%
Sulfated ash.....0.1%
Iron (Fe).....0.001%
Lead (Pb).....0.001%

White, Powder, Characteristic odour

UN Class.NR
Cas No. 59-51-8
EC No. 200-432-1

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME0 75 | 100GM | £23.74 |

Methyl Acetate

CH₃.COO.CH₃
M.W. 74.08
Flashpoint: -13°C



Assay.....99%
Weight per ml at 20°C0.931-0.933g
Water0.1%
Acidity (CH₃COOH).....0.02%
Non-volatile matter0.01%

Colourless, Liquid, Pleasant sweetish

UN Class. 3/UN1231/II
Cas No. 79-20-9
EC No. 201-185-2

Danger

H225, H336, H319

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233,
P403+P235, P501

EUH066

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME0 80 | 500ML | £23.41 |



Methyl Benzoate

$C_6H_5COO.CH_3$
M.W. 136.15

Assay99%
Weight per ml at 20°C 1.085-1.087g
Refractive index 1.516-1.518
Acidity 1ml N%
Colourless to light yellow, Liquid, Pleasant



UN Class. NR
Cas No. 93-58-3
EC No. 202-259-9

Warning

H302
P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME1 20 | 250ML | £13.82 |

Methyl Butan-ol

$(CH_3)_2CHCH_2CH_2OH$
M.W. 88.15

Flashpoint: 43°C
Assay98%
Weight per ml at 20°C0.810-0.812g
Water0.5%
Non-volatile matter0.01%



(3-Methyl Butan-1-ol)

Clear, Liquid

UN Class. 3/UN1105/III
Cas No. 123-51-3
EC No. 204-633-5

Warning

H226, H332, H335
P210, P271, P280, P304+P340, P370+P378, P403+P233, P403+P235, P501
EUH066

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME1 25 | 500ML | £11.39 |

Methylene Blue Solution

M.W. N/A

Dark blue, Liquid, Odourless

UN Class. NR
Cas No. N/A
EC No.

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 35 | 100ML | £3.10 |

Methyl Blue Stain

N/A
M.W. N/A

Dark blue, Solid powder, None reported



UN Class. NR
Cas No. 28983-56-4
EC No. 249-352-9

Warning

H302, H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME2 10 | 25GM | £12.86 |

Methylene Blue

$C_{16}H_{18}ClN_3S$
M.W. 319.86

Dark green, Powder, Odourless



UN Class. NR
Cas No. 61-73-4
EC No. 200-515-2

Warning

H302
P264, P270, P301+P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 30 | 5GM | £2.72 |

Methylene Blue Solution

N/A

M.W. N/A

Dark blue coloured solution, Odourless

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 41 | 100ML | £4.03 |

Methylene Chloride - see Dichloromethane

Methyl Ethyl Ketone - see Butanone



Methyl Methacrylate

$\text{CH}_2\text{C}(\text{CH}_3)\text{COO.CH}_3$
M.W. 100.12
Flashpoint: 9°C

Colourless, Liquid, Sharp sweetish odour



UN Class. 3/UN1247/II
Cas No. 80-62-6
EC No. 201-297-1

Danger

H225, H315, H317, H335

P210, P280, P302+P352, P304+P340, P370+P378, P403+P233, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME2 15 | 500ML | £28.74 |

Methyl Orange Dry

$(\text{CH}_3)_2\text{N.C}_6\text{H}_4.\text{N.N.C}_6\text{H}_4.\text{SO}_3.\text{Na}$
M.W. 327.34

pH range 2.9-4.6, orange-red to orange-yellow

Orange, Powder, Characteristic odour



UN Class. 6.1/UN3143/III
Cas No. 547-58-0
EC No. 208-925-3

Danger

H301

P264, P270, P301+P310, P330, P405, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 50 | 5GM | £2.87 |
| ME1 51 | 25GM | £5.50 |

Methyl Orange Solution

M.W. N/A
Flashpoint: 27°C

UN Class. 3/UN1993/III
Cas No. N/A
EC No. N/A



Warning

H226

P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 61 | 500ML | £5.50 |

Methyl Orange-Xylene Cyanol

M.W. N/A

(Methyl Orange Screened)

UN Class. N/A
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME1 65 | 100ML | £18.50 |

2-Methylpropan-2-ol

$(\text{CH}_3)_3\text{C.OH}$
M.W. 74.12

Flashpoint: 11°C

Assay.....98%
Weight per ml at 20°C0.78g
Freezing point.....24.5-25.5°C
Water0.3%
Non-volatile matter.....0.003%



(tert Butyl Alcohol)

Clear, Liquid

UN Class. 3/UN1120/II
Cas No. 75-65-0
EC No. 200-889-7

Danger

H225, H332, H335, H319

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME1 80 | 500ML | £11.21 |

2-Methylpropan-1-ol

$(\text{CH}_3)_2\text{CH.CH}_2\text{OH}$
M.W. 74.12

Flashpoint: 24°C

Assay.....99%
Weight per ml at 20°C0.801-0.804g
Boiling range (95%).....105-109°C
Non-volatile matter.....0.005%



(iso Butyl Alcohol)

Clear, Liquid

UN Class. 3/UN1212/III
Cas No. 78-83-1
EC No. 201-148-0

Danger

H226, H315, H318, H335, H336

P210, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 75 | 500ML | £7.46 |



Methyl Red Solution

N/A
M.W. N/A
Flashpoint: 12°C
Dark red solution



UN Class. 3/1219/11
Cas No. N/A
EC No. N/A

Danger

H225, H319, H33E
P210, P233, P260, P264, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 90 | 100ML | £2.88 |

Methyl Red Solution

N/A
M.W. N/A
Flashpoint: 11°C
Dark red solution



UN Class. 3+6.1/1230/11
Cas No. N/A
EC No. N/A

Danger

H225, H301+H311+H331, H370
P210, P233, P260, P264, P280, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ME1 96 | 500ML | £6.50 |

Mineral Wool (Superwool 607)

Superwool 607™ is a high temperature insulation wool which has been developed to have a low biopersistence. It is exonerated from any carcinogenic classification under nota Q of directive 97/69 EC.

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|--------|
| MIO 20 | 500GM | £11.40 |

Murexide

C₈H₄N₅O₆.NH₄
M.W. 284.19

(Ammonium Purpurate)

Dark red, Powder, Characteristic odour

UN Class. NR
Cas No. 3051-09-0
EC No. 221-266-6

| Cat No. | Quantity | Price |
|---------|----------|-------|
| MUO 05 | 5GM | £4.50 |

Methyl Salicylate

C₆H₄(OH).COO.CH₃
M.W. 152.15

Clear/yellow, Liquid, Aromatic odour



UN Class. NR
Cas No. 119-36-8
EC No. 204-317-7

Warning

H302, H315, H319, H335
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ME2 00 | 100ML | £6.48 |
| ME2 02 | 500ML | £14.12 |

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Naphthalene Flake

C₁₀H₈
 M.W. 128.17
 Flashpoint: 80°C
 Assay99%
 Melting point79.5-80.0°C
 White/off white, Crystals/powder



UN Class. 4.1/UN1334/III
 Cas No. 91-20-3
 EC No. 202-049-5

Warning

H228, H302, H351, H400, H410
 P201, P210, P264, P273, P280, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| NAO 05 | 500GM | £22.99 |

Neutral Red Indicator

C₁₅H₁₇N₄Cl
 M.W. 288.78
 pH 6.7 - 8.0 Red to orange Dark green, Crystalline, Odourless

UN Class. NR
 Cas No. 553-24-2
 EC No. 209-035-8

| Cat No. | Quantity | Price |
|---------|----------|-------|
| NEO 10 | 5GM | £3.99 |

Nickel Metal Powder

Ni
 M.W. 58.69
 Grey, Powder, Odourless



UN Class. 4.1/UN3089/II
 Cas No. 7440-02-0
 EC No. 231-111-4

Danger

H317, H351, H372, H412
 P201, P260, P261, P264, P280, P302+P352, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| NI0 15 | 100GM | £48.00 |

Nickel (II) Chloride-6-Water

NiCl₂·6H₂O
 M.W. 237.69
 Assay97%
 Sulfate (SO₄)0.05%
 Cobalt (Co)0.02%
 Iron (Fe)0.02%
 Green, Crystalline, Odourless



UN Class. 6.1/UN3288/III
 Cas No. 7791-20-0
 EC No. 231-743-0

Danger

H301+H331, H315, H334, H317, H341, H350, H372, H400, H410, H360D
 P201, P280, P301+P310, P302+P352, P304+P340, P308+P313, P342+P311,
 P501
 EUH208

| Cat No. | Quantity | Price |
|---------|----------|--------|
| NI0 30 | 250GM | £15.10 |

Naphthalen-2-ol

C₁₀H₇OH
 M.W. 144.17
 Assay98%
 Melting point121-123°C
 Sulfated ash0.05%
 1-Naphthol0.3%
 Colourless/pink, Crystals/powder, Phenol-like



UN Class. 9/UN3077/III
 Cas No. 135-19-3
 EC No. 205-182-7

Warning

H302+H332, H400
 P261, P264, P271, P273, P304+P340, P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| NAO 20 | 100GM | £9.49 |

Nickel Metal Foil

Ni
 M.W. 58.69
 Assay99.9%
 Aluminium (Al)0.005%
 Cobalt (Co)0.005%
 Copper (Cu)0.005%
 Iron (Fe)0.05%
 Magnesium (Mg)0.005%
 Manganese (Mn)0.005%
 Titanium (Ti)0.005%
 White to grey silvery white, Foil, Odourless



UN Class. NR
 Cas No. 7440-02-0
 EC No. 231-111-4

Danger

H317, H351, H372
 P201, P260, P261, P264, P280, P302+P352, P308+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| NI0 05 | 100GM | £31.49 |

Nickel (II) Nitrate-6-Water

NiCl₂·6H₂O
 M.W. 290.79
 Assay98%
 Chloride (Cl)0.005%
 Sulfate (SO₄)0.05%
 Cobalt (Co)0.1%
 Iron (Fe)0.02%
 Green, Crystalline, Characteristic odour



UN Class. 5.1/UN2725/III
 Cas No. 13478-00-7
 EC No. 236-068-5

Danger

H272, H302+H332, H315, H318, H317, H341, H410, H360D, H350i, H372
 P210, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313,
 P370+P378, P501
 EUH208

| Cat No. | Quantity | Price |
|---------|----------|--------|
| NI0 35 | 250GM | £16.34 |



Nickel (II) Sulfate-6-water

NiSO₄.6H₂O
M.W. 262.85
Blue/green, Crystals/powder



UN Class. 9/UN3077/III
Cas No. 10101-97-0
EC No. 232-104-9

Danger

H302+H332, H315, H334, H317, H341, H400, H410, H360D, H350i, H372
P201, P271, P280, P302+P352, P304+P340, P308+P313, P342+P311, P501
EUH208

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| NIO 45 | 250GM | £7.31 |

Ninhydrin Crystals

N/A
M.W. N/A
Crystals



UN Class. NR
Cas No. 485-47-2
EC No. 207-618-1

Warning

H302, H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|--------------------|----------|--------|
| ZFK 060 090 | 25GM | £36.57 |

Nitric Acid 60%

HNO₃
M.W. 63.01
Assay59.5-60.5%
Characteristics
No as HNO₂ 5.0ppm max
No as H₂SO₄ 10.0ppm max
HCL 1.0ppm max
Fe 5.0ppm max
Density @20°C 1.364-1.369
Colourless/Pale Straw, Liquid



UN Class. 8/UN2031/II
Cas No. 7697-37-2
EC No. 231-714-2

Danger

H314, H318
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| NIO 67 | 1LTR | £26.40 |

Ninhydrin

N/A
M.W. N/A
Spray Can



UN Class. 3/UN1993/II
Cas No. 163702-07-6
EC No. N/A

Danger

H225, H315, H319, H350
P201, P210, P280, P302+P352, P305+P351+P338, P308+P313, P370+P378, P501
EUH208

| Cat No. | Quantity | Price |
|--------------------|----------|--------|
| ZFK 060 070 | 237ML | £69.49 |

Nitric Acid SG 1.42 AR

HNO₃
M.W. 63.01
Assay69-71%
Maximum levels of impurities:
Colour
Iron (Fe) 0.2ppm
Chloride (Cl) 0.5ppm
Sulfate (SO₄) 2ppm
Phosphate (PO₄) 0.5ppm
Non volatiles 10ppm
Arsenic (As) 0.01ppm
Manganese (Mn) 0.01ppm
Copper (Cu) 0.02ppm
Aluminium (Al) 0.1ppm
Barium (Ba) 0.05ppm
Cadmium (Cd) 0.02ppm
Calcium (Ca) 1ppm
Silicate (SiO₂) 0.5ppm
Chromium (Cr) 0.05ppm
Cobalt (Co) 0.01ppm
Lead (Pb) 0.05ppm
Magnesium (Mg) 0.02ppm
Molybdenum (Mo) 0.02ppm
Nickel (Ni) 0.05ppm
Potassium (K) 0.02ppm
Sodium (Na) 3ppm
Strontium (Sr) 0.02ppm
Zinc (Zn) 0.1ppm
Clear, Liquid, Corrosive vapour



CANNOT TRAVEL BY PASSENGER AIRCRAFT

UN Class. 8+5.1/UN2031/II
Cas No. 7697-37-2
EC No. 231-714-2

Danger

H272, H318, H314
P210, P220, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P501
EUH071

| Cat No. | Quantity | Price |
|------------------|----------|--------|
| NIO 60/ 1 | 1LTR | £12.62 |
| NIO 60 | 2.5LTR | £11.99 |



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Nitric Acid 2.0M (2.0N)

N/A
M.W. N/A
Contents per litre at 20°C 126.02g

UN Class. 8/UN2031/II
Cas No. 7697-37-2
EC No. 231-714-2



CANNOT TRAVEL BY PASSENGER AIRCRAFT

Danger

H290, H314
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501
EUH071

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS0 53 | 1LTR | £12.31 |
| VS0 55 | 2.5LTR | £14.99 |

Surcharge

Nitric Acid 1.0M (1.0N)

N/A
M.W. N/A
Contents per litre at 20°C 63.01g

UN Class. 8/UN2031/II
Cas No. 7697-37-2
EC No. 231-714-2



CANNOT TRAVEL BY PASSENGER AIRCRAFT

Danger

H290, H314, H318
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501
EUH071

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS0 49 | 1LTR | £5.49 |
| VS0 50 | 2.5LTR | £14.99 |

Surcharge

Oct-1-Ene

CH₂.CH.(CH₂)₅.CH₃
M.W. 112.22
Flashpoint: 8°C

Clear, colourless, Liquid, Petrol like

UN Class. 3/UN3295/II
Cas No. 111-66-0
EC No. 203-893-7



Danger

H225, H304, H400, H410
P210, P233, P273, P280, P301+P310, P370+P378, P403+P235, P501
EUH066

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| OC0 05 | 100ML | £9.26 |

Octadecanoic Acid

CH₃.(CH₂)₁₆.COOH
M.W. 284.48
Assay (mixture of fatty acids)98%
Acid number 195–200
Iodine value Max 4.0%
Sulfated Ash Max 0.1%
Congealing temperature Not lower than 54°C



(Stearic Acid) 98%

White, Flakes/scales, Rancid

UN Class. NR
Cas No. 57-11-4
EC No. 200-313-4

Warning

H315
P264, P280, P302+P352, P332+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| OC0 15 | 500GM | £4.84 |

Octadec-9-Enoic Acid (Oleic Acid)

C₁₇H₃₃.COOH
M.W. 282.47
Assay92%
Weight per ml at 20°C 0.889-0.891g
Congealing point 9°C
Iodine value 86-93
Sulfated ash 0.1%
Light yellow, Liquid, Characteristic odour



UN Class. NR
Cas No. 112-80-1
EC No. 204-007-1

Warning

H315
P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| OC0 10 | 500ML | £5.69 |



Octan-1-ol

CH₃(CH₂)₆CH₂OH

M.W. 130.23

Flashpoint: 82°C

Assay 95%

Weight per ml at 20°C 0.822-0.825g

Refractive index 1.4285-1.4305

Water 0.3%



(n-Octanol)

Colourless, Liquid

UN Class. NR

Cas No. 111-87-5

EC No. 203-917-6

Warning

H319, H412

P264, P273, P280, P305+P351+P338, P337+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| OC0 20 | 500ML | £23.67 |

iso Octane - see 2,2,4-Trimethylpentane

Crude Oil Alternative

N/A

M.W. N/A

Flashpoint: -30°C

CLEAPPS recipe

Wt per ml 0.82-0.87g Black, Oily liquid



UN Class. 3/UN1286/II

Cas No. N/A

EC No. N/A

Danger

H225, H315, H361, H336, H411

P201, P210, P280, P302+P352, P304+P340, P308+P313, P370+P378, P501

EUH066

| Cat No. | Quantity | Price |
|---------|----------|-------|
| OIO 25 | 200ML | £7.49 |

Olive Oil

N/A

M.W. N/A

Wt. per ml at 20°C Approx. 0.91g

Yellow, Oily liquid,

Characteristic odour



UN Class. NR

Cas No. 8001-25-0

EC No. 232-277-0

| Cat No. | Quantity | Price |
|---------|----------|-------|
| OIO 15 | 500ML | £9.02 |

Oleic Acid - see Octadec-9-enoic Acid

n-Octane

CH₃(CH₂)₆CH₃

M.W. 114.23

Flashpoint: 13°C

Assay 99%

Weight per ml at 20°C 0.701-0.702g

Refractive index 1.397-1.398

Non-volatile matter 0.01%

Clear, Liquid



UN Class. 3/UN1262/II

Cas No. 111-65-9

EC No. 203-892-1

Danger

H225, H315, H336, H304, H400, H410

P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| OC0 30 | 100ML | £11.49 |

ONPG solid

C₁₂H₁₅NO₈

M.W. 301.25

o-Nitrophenyl-b-D-galactopyranoside

Purity: Free o-Nitrophenol Off-white, Crystalline powder, Odourless

UN Class. NR

Cas No. 369-07-3

EC No. 206-716-1

| Cat No. | Quantity | Price |
|---------|----------|--------|
| ON0 05 | 1GM | £12.49 |

Orcein Stain - see Aceto Orcein

Oxalic Acid - see Ethanedioic Acid-2-water



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Orthophosphoric Acid SG 1.75

H₃PO₄
 M.W. 98
 H₃PO₄ 85% Standard
 P₂O₅ 61.6%
 S.G. 1.686
 Flourine (F) 10 ppm max
 Iron (Fe) 10 ppm max
 Arsenic (As) 0.5 ppm max
 Mercury (Hg) 0.01 ppm max
 Lead (Pb) 0.5 ppm max
 Cadmium (Cd) 0.2 ppm max
 Copper (Cu) 1.0 ppm max
 Chromium (Cr) 3.0 ppm max
 Nickel (Ni) 1.0 ppm max
 Crystallization pt + 21°C
 Water white, Liquid



UN Class. 8/UN1805/III
 Cas No. 7664-38-2
 EC No. 231-633-2

Danger

H314
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| OR0 05 | 500ML | £10.82 |
| OR0 10 | 2.5LTR | £42.99 |

Paraffin Liquid Medicinal

N/A
 M.W. N/A
 Weight per ml at 20°C: 0.860 - 0.890g



UN Class. NR
 Cas No. 8012-95-1
 EC No. 232-384-2

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PA0 18 | 500ML | £5.49 |

iso-Pentane

(CH₃)₂CH.CH₂.CH₃
 M.W. 72.15
 Flashpoint: -51°C
 Colourless, Liquid, Characteristic odour



UN Class. 3/UN1265/I
 Cas No. 78-78-4
 EC No. 201-142-8

Danger

H224, H336, H304, H411
P210, P280, P301+P310, P304+P340, P370+P378, P403+P233, P403+P235, P501
EUH066

| Cat No. | Quantity | Price |
|---------------|---------------------------|--------|
| PE1 00 | SURCHARGE 250ML | £17.49 |

Paraffin Liquid Light

N/A
 M.W. N/A
 Wt.per ml at 20°C 0.830-0.860g
 Colourless to slightly yellowish,
 Oily liquid, Almost odourless



UN Class. NR
 Cas No. 8012-95-1
 EC No. 232-384-2

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PA0 10 | 500ML | £4.74 |
| PA0 15 | 2.5LTR | £18.05 |

Paraffin Wax

N/A
 M.W. N/A
 White soft waxy pellets

UN Class. NR
 Cas No. 8002-74-2
 EC No. 232-315-6

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PA0 26 | 1KG | €0.00 |

n-Pentane

CH₃(CH₂)₃CH₃
 M.W. 72.15
 Flashpoint: -48°C
 Assay 75%
 Weight per ml at 20°C 0.62g
 Boiling range (95%) 32-37°C
 Non-volatile matter 0.005%
 Clear, colourless, Liquid, Mild petrol like odour



UN Class. 3/UN1265/II
 Cas No. 109-66-0
 EC No. 203-692-4

Danger

H225, H336, H304, H411
P210, P280, P301+P310, P304+P340, P370+P378, P403+P233, P403+P235, P501
EUH066

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PE0 05 | 500ML | £8.49 |



Pentan-1-ol

CH₃(CH₂)₄OH
M.W. 88.15
Flashpoint: 33°C
Colourless, Liquid, Mild sweetish odour



UN Class. 3/UN1105/III
Cas No. 71-41-0
EC No. 200-752-1

Warning

H226, H332, H315, H335
P210, P280, P302+P352, P304+P340, P370+P378, P403+P233, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PE0 11 | 500ML | £20.95 |

Peptone Granular For Microbiology

N/A
M.W. N/A
Obtained from enzymatic digestion of mea,
Yellow to brown colored granules/powder, Odourless

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PE0 26 | 100GM | £12.47 |

Petroleum Ether 80-100°C

N/A
M.W. N/A
Flashpoint: -12°C
Weight per ml at 20°CAbout 0.70g
Acidity 0.01ml N%
Alkalinity 0.01ml N%
Non-volatile matter0.002%



UN Class. 3/UN1268/II
Cas No. 8032-32-4
EC No. 232-453-7

Danger

H315, H336, H411, H304, H225
P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|-----------|------------------|--------|
| PE0 75 | 500ML | £3.40 |
| PE0 75/ 1 | 1LTR | £6.64 |
| PE0 76 | Surcharge 2.5LTR | £14.29 |

Pepsin

N/A
M.W. N/A
From HOG Stomach. Contains lactose as diluent. Store at 0 to 4°C,
Off white to pale yellow coloured powder.

UN Class. NR
Cas No. 9001-75-6
EC No. 232-629-3



Danger

H315, H334, H335, H319
P271, P280, P302+P352, P304+P340, P305+P351+P338, P342+P311, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PE0 16 | 25GM | £11.21 |
| PE0 21 | 100GM | £22.84 |

Petroleum Ether 40-60°C

N/A
M.W. N/A
Flashpoint: -18°C
Weight per ml at 20°CApprox.0.64g
Acidity 0.01ml N%
Alkalinity 0.01ml N%
Non-volatile matter0.002%
Clear, Liquid



UN Class. 3/UN1268/II
Cas No. 8032-32-4
EC No. 265-151-9

Danger

H225, H315, H336, H304, H411
P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|------------------|--------|
| PE0 55 | 500ML | £3.35 |
| PE0 57 | 1LTR | £6.54 |
| PE0 60 | Surcharge 2.5LTR | £14.29 |

Petroleum Ether 100-120°C

N/A
M.W. N/A
Flashpoint: -7°C
Weight per ml at 20°CApprox. 0.73g
Acidity 0.1ml N%
Alkalinity 0.1ml N%
Non-volatile matter0.002%
Clear, Liquid



UN Class. 3/UN1268/II
Cas No. 110-54-3
EC No. 203-777-6

Danger

H315, H336, H411, H373, H361f, H304, H225
P201, P210, P280, P302+P352, P304+P340, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|-----------|------------------|--------|
| PE0 80 | 500ML | £3.35 |
| PE0 80/ 1 | 1LTR | £6.54 |
| PE0 81 | Surcharge 2.5LTR | £14.29 |



Petroleum Jelly White

N/A
M.W. N/A
White translucent, Soft mass

UN Class. NR
Cas No. 8009-03-8
EC No. 232-373-2

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PE0 91 | 400GM | £5.10 |

Petroleum Ether 60-80°C

N/A
M.W. N/A
Flashpoint: -26°C
Weight per ml at 20°CApprox.0.67g
Acidity 0.01ml N%
Alkalinity 0.01ml N%
Non-volatile matter0.002%
Clear, Liquid



UN Class. 3/UN1268/II
Cas No. 64742-49-0
EC No. 265-151-9

Danger

H225, H315, H336, H304, H411
P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|------------------|--------|
| PE0 65 | 500ML | £3.35 |
| PE0 67 | 1LTR | £6.54 |
| PE0 70 | Surcharge 2.5LTR | £14.29 |

Phenolphthalein Solution

N/A
M.W. N/A
Flashpoint: 13°C
A clear colourless solution, Alcohol odour



UN Class. 3/1170/11
Cas No. N/A
EC No. N/A

Danger

H225, H302, H319, H317
P210, P280, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH0 20 | 500ML | £3.50 |

Phenol Crystals

C₆H₅-OH
M.W. 94.11
Flashpoint: 82°C
Freezing point.....39.5-41°C
Non-volatile matter 0.05%
Tarry matter absent



(Carbolic Acid)

Colourless, Crystals

UN Class. 6.1/UN1671/II
Cas No. 108-95-2
EC No. 203-632-7

Danger

H301+H311+H331, H341, H373, H314
P201, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P308+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PH0 05 | 250GM | £19.99 |

Phenolphthalein Dry

C₂₀H₁₄O₄
M.W. 318.32
pH 8.3 - 10.0
White to pale yellow, Powder, Odourless



UN Class. NR
Cas No. 77-09-8
EC No. 201-004-7

Danger

H341, H350, H361f
P201, P202, P280, P308+P313, P405, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH0 10 | 25GM | £2.88 |

Phenol Red Solution

N/A
M.W. N/A
Red, Liquid

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH0 30 | 100ML | £2.49 |



Phenylamine

$C_6H_5NH_2$
M.W. 93.13
Flashpoint: 76°C
Assay98.5%
Weight per ml at 20°C 1.023-1.025g
Boiling range (90%) 182-185°C
Ash 0.02%



(Aniline)

Yellow, Oily liquid, developing a reddish brown colour on storage or when exposed to light, or moist air.

UN Class. 6.1/UN1547/II
Cas No. 62-53-3
EC No. 200-539-3

Danger

H301+H311+H331, H318, H317, H341, H351, H372, H400
P201, P280, P301+P310, P302+P352, P304+P340, P305+P351+P338,
P308+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PH0 40 | 500ML | £20.99 |

Phenylethylenemonomer

$C_6H_5.CH:CH_2$
M.W. 104.15
Flashpoint: 32°C
Assay99.5%
Weight per ml at 20°C 0.904-0.906g
Refractive index 1.5460-1.5475
Free acid 0.2ml N%



(Styrene)

Colourless, Liquid, Characteristic odour
Shelf life 12 months from delivery, unopened, stored in ambient conditions away from direct sunlight. This material however will polymerise and we would suggest usage within six months from delivery

UN Class. 3/UN2055/III
Cas No. 100-42-5
EC No. 202-851-5

Danger

H226, H332, H315, H361, H372, H319
P210, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313,
P370+P378, P501

| Cat No. | Quantity | Price |
|--------------------|----------|-------|
| PH0 60/ 100 | 100ML | £4.49 |

Phenylmethanol

$C_6H_5CH_2OH$
M.W. 108.14
Assay98%
Weight per ml at 20°C 1.043-1.048g
Refractive index 1.538-1.541
Acidity (C_6H_5COOH) 0.1%
Non-volatile matter 0.1%
Benzaldehyde (C_6H_5CHO) 0.3%
Chlorine compounds (Cl) 0.2%



(Benzyl Alcohol)

Clear, Liquid

UN Class. NR
Cas No. 100-51-6
EC No. 202-859-9

Warning

H302+H332
P261, P264, P270, P271, P304+P340, P312, P330, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PH0 80 | 500ML | £12.16 |

Phenyl-2-Hydroxybenzoate

$C_6H_4(OH).COO.C_6H_5$
M.W. 214.22
Assay98%
Melting point 42-43.5°C
Sulfated ash 0.1%
Chloride (Cl) 0.04%
Sulfate (SO_4) 0.15%



(Salol, Phenyl Salicylate)

White, Crystalline, Pleasant aromatic

UN Class. NR
Cas No. 118-55-8
EC No. 204-259-8

Warning

H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233,
P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH0 75 | 100GM | £7.87 |

Potassium Bromate

$KBrO_3$
M.W. 167
Assay99.7%
Bromide (Br) 0.05%
Sulfate (SO_4) 0.01%



White, Crystals or Powder

UN Class. 5.1/UN1484/II
Cas No. 7758-01-2
EC No. 231-829-8

Danger

H271, H301, H350
P201, P210, P220, P280, P308+P313, P370+P378, P371+P380+P375, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO0 15 | 100GM | £6.94 |



Chemicals

N - P

GENERAL

Phosphorus Red

P
M.W. 30.97
Dark red, Powder, Odourless



UN Class. 4.1/UN1338/III
Cas No. 7723-14-0
EC No. 231-768-7

Danger

H228, H412
P210, P240, P241, P273, P280, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH1 00 | 25GM | £8.46 |

Platinum Wire

Pt
M.W. 195.08
Platinum Wire approx. 0.3mm diameter

UN Class. NR
Cas No. 7440-06-4
EC No. 231-116-1

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PL0 20 | 50MM | £11.32 |
| PL0 25 | 100MM | £27.63 |
| PL0 30 | 300MM | £82.74 |

Phloroglucinal Solution 5% Alcoholic

N/A
M.W. N/A
Flashpoint: 13°C
5% Alcoholic
Colourless, Liquid, Alcohol-like



UN Class. 3/UN1170/II
Cas No. N/A
EC No. N/A

Danger

H319, H225
P210, P233, P264, P280, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PH1 45 | 100ML | £3.99 |

Phosphoric Acid - see Orthophosphoric Acid S.G. 1.75

Potassium Metal

K
M.W. 39.1
Silver-white stored under paraffin,
Solid lumps, Odourless



UN Class. 4.3/UN2257/I
Cas No. 7440-09-7
EC No. 231-119-8



Danger

H260, H314
P231+P232, P280, P301+P330+P331, P302+P335+P334, P304+P340, P305+P351+P338, P370+P378, P501
EUH014

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 04 | 10GM | £15.25 |

Potassium Aluminium Sulfate -

see Aluminium Potassium Sulfate-12-Water

Potassium Bicarbonate -

see Potassium Hydrogen Carbonate

Potassium BiSulfate - see Potassium Hydrogen Sulfate

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Potassium Bromide

KBr
M.W. 119
Assay98.5%
Alkalinity 0.3ml N%
Chloride (Cl)0.5%
Sulfate (SO₄)0.05%
Iron (Fe)0.002%
Sodium (Na)0.2%
White/colourless, Crystals



UN Class. NR
Cas No. 7758-02-3
EC No. 231-830-3

Warning

H315, H319, H335
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 20 | 500GM | £21.05 |

Potassium Chlorate

KClO₃
M.W. 122.55
Assay99%
Chloride (Cl)0.01%
Sulfate (SO₄)0.06%
Arsenic (As)0.0001%
Lead (Pb)0.001%
White, Crystals or Powder



UN Class. 5.1/UN1485/II
Cas No. 3811-04-9
EC No. 223-289-7

Danger

H271, H302+H332, H411
P210, P220, P271, P280, P304+P340, P370+P378, P371+P380+P375, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 30 | 500GM | £18.49 |

Potassium Chromate

K₂CrO₄
M.W. 194.19
Assay99%
Chloride (Cl)0.05%
Sulfate (SO₄)0.05%
Sodium (Na)0.5%
Yellow, Crystals or Powder



UN Class. 6.1/UN3288/III
Cas No. 7789-00-6
EC No. 232-140-5

Danger

H315, H317, H340, H335, H400, H410, H350i, H319
P201, P280, P302+P352, P304+P340, P305+P351+P338, P308+P313, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 42 | 500GM | £53.49 |

Potassium Carbonate Anhydrous

K₂CO₃
M.W. 138.21
Assay99%
Moisture3%
Chlorides (Cl)0.03%
Nitrate (NO₃)0.01%
Sulfates (SO₄)0.02%
Iron (Fe)0.001%
Sodium (Na)0.4%
White, Crystals or Powder



UN Class. NR
Cas No. 584-08-7
EC No. 209-529-3

Warning

H302, H315, H335, H319
P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO0 25 | 500GM | £4.92 |

Potassium Chloride

KCl
M.W. 74.55
Assay99%
Moisture1.0%
Sulfate (SO₄)0.03%
Iron (Fe)0.003%
Lead (Pb)0.001%
Sodium (Na)0.2%
White, Crystals or Powder

UN Class. NR
Cas No. 7447-40-7
EC No. 231-211-8

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO0 35 | 500GM | £3.22 |

Potassium Citrate

K₃C₆H₅O₇·H₂O
M.W. 324.41
Assay99%
Acidity or alkalinity 1ml N%
Chloride (Cl)0.02%
Sulfate (SO₄)0.02%
Sodium (Na)0.3%
White, Crystalline, Odourless

UN Class. NR
Cas No. 6100-05-6
EC No. 212-755-5

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 45 | 500GM | £11.99 |



Chemicals

N - P

GENERAL

Potassium Dichromate



M.W. 294.18

Assay99.5%
 Chloride (Cl)0.005%
 Sulfate (SO₄)0.01%
 Sodium (Na)0.05%

Orange/red, Crystals or Powder



UN Class. 5.1+61/3087/11

Cas No. 7778-50-9

EC No. 231-906-6

Danger

H272, H330, H312, H301, H334, H317, H340, H350, H400, H410, H360FD, H372, H314

P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 50 | 500GM | £26.49 |

Potassium Ferrocyanide



M.W. 422.39

Assay99%
 Carbonate (CO₃)0.01%
 Chloride (Cl)0.01%
 Sulfate (SO₄)0.01%

Yellow, Crystals

UN Class. NR

Cas No. 14459-95-1

EC No. 237-722-2

H412

P273, P501

EUH032

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 60 | 250GM | £16.09 |

Potassium Hydrogen Carbonate



M.W. 100.12

Assay99%
 pH of 1% solution8.1-8.6
 Chloride (Cl)0.01%
 Sulfate (SO₄)0.02%
 Lead (Pb)0.0005%
 Sodium (Na)0.5%

White, Crystals or Powder

UN Class. NR

Cas No. 298-14-6

EC No. 206-059-0

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO0 80 | 500GM | £8.49 |

Potassium Dihydrogen Phosphate



M.W. 136.09

Assay99%
 pH of 5% solution4.3-4.5
 Chloride (Cl)0.01%
 Sulfate (SO₄)0.05%
 Sodium (Na)0.2%

White, Crystals or Powder

UN Class. NR

Cas No. 7778-77-0

EC No. 231-913-4

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 55 | 500GM | £12.20 |

Potassium Ferricyanide



M.W. 329.24

Assay99%
 Chloride (Cl)0.2%
 Sulfate (SO₄)0.2%

Red, Crystals

UN Class. NR

Cas No. 13746-66-2

EC No. 237-323-3

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 75 | 500GM | £15.00 |

di-Potassium Hydrogen Phosphate



M.W. 174.18

Assay97.5%
 Chloride (Cl)0.005%
 Sulfate (SO₄)0.02%
 Arsenic (As)0.0001%
 Lead (Pb)0.001%

White, Crystals or Powder

UN Class. NR

Cas No. 7758-11-4

EC No. 231-834-5

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 85 | 500GM | £10.49 |

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Potassium Hydrogen Phthalate

1-KOCOC₆H₄-2-COOH

M.W. 204.22

White, Crystals

UN Class. NR
Cas No. 877-24-7
EC No. 212-889-4

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 84 | 100GM | £13.45 |
| PO1 85 | 500GM | £26.68 |

Potassium Iodate

KIO₃

M.W. 214

Assay99.5%

Bromate, Bromide, Chlorate and Chloride (Cl) 0.1%

Iodide (I)0.005%

Sulfate (SO₄)0.1%

Sodium (Na)0.05%

White, Crystals, Odourless

UN Class. 5.1/UN1479/II
Cas No. 7758-05-6
EC No. 231-831-9

Danger

H272, H315, H335, H319

P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO1 00 | 100GM | £9.79 |

Potassium Iodide

KI

M.W. 166

Assay99%

Iodate (IO₃)0.001%

Sulfate (SO₄)0.01%

Lead (Pb)0.002%

Sodium (Na)0.2%

Colourless, Crystals

UN Class. NR
Cas No. 7681-11-0
EC No. 231-569-4

Warning

H302, H315, H319

P264, P270, P280, P302+P352, P305+P351+P338, P330, P337+P313, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 05 | 100GM | £9.68 |
| PO1 10 | 250GM | £18.17 |
| PO1 15 | 500GM | £29.99 |

Potassium Hydroxide Pellets

KOH

M.W. 56.11

Assay85%

Carbonate (K₂CO₃)2%

Chloride (Cl)0.03%

Sulfate (SO₄)0.02%

White, Pellets

UN Class. 8/UN1813/II
Cas No. 1310-58-3
EC No. 215-181-3

Danger

H302, H314, H290

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO0 95 | 500GM | £16.49 |

Potassium Periodate

KIO₄

M.W. 230

Min Assay99%

Bromate, Bromide

Chlorate and Chloride (Cl)0.03%

Iodide (I)0.005%

Sulfate (SO₄)0.03%

(Potassium Periodate)

White, Crystals or Powder, Characteristic odour

UN Class. 5.1/UN1479/II
Cas No. 7790-21-8
EC No. 232-196-0

Danger

H272, H315, H335, H319

P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 70 | 100GM | £60.36 |



Chemicals

N - P

GENERAL

Potassium (VII) Manganate

KMnO₄
 M.W. 158.03
 Assay99%
 Insoluble matter0.5%
 Chloride (Cl)0.02%
 Nitrate (NO₃)0.2%
 Sulfate (SO₄)0.05%



(Potassium Permanganate)

UN Class. 5.1/UN1490/II
 Cas No. 7722-64-7
 EC No. 231-760-3

Danger

H272, H302, H410

P210, P220, P264, P273, P280, P330, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| PO1 21 | 500GM | £9.26 |

Potassium Manganate 0.2M Ampoules

N/A
 M.W. N/A
 Contents per litre at 20°C31.61g
 UN Class. 9/UN3082/III
 Cas No. N/A
 EC No. N/A



Warning

H410

P273, P391, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VS0 60 | 2.5LTR | £39.86 |

Potassium Nitrate

KNO₃
 M.W. 101.1
 Assay99%
 Chloride (Cl)0.02%
 Sulfate (SO₄)0.02%
 Lead (Pb)0.001%
 Sodium (Na)0.5%
 Colourless, Crystals or Powder



UN Class. 5.1/UN1486/III
 Cas No. 7727-21-1
 EC No. 231-781-8

Warning

H272

P210, P220, P280, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| PO1 30 | 500GM | £5.81 |

Potassium Oxalate

[COOK]₂·H₂O
 M.W. 184.23
 Colourless, Crystals



UN Class. N/A
 Cas No. 6487-48-5
 EC No. 209-506-8

Warning

H302+H312

P264, P270, P280, P301+P312, P302+P352, P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PO1 90 | 100GM | £17.49 |

Potassium Metabisulphite

K₂S₂O₅
 M.W. 222.33
 Assay95%
 Chloride (Cl)0.1%



(di-Potassium Disulphite)

Colourless, Crystals

UN Class. NR
 Cas No. 16731-55-8
 EC No. 240-795-3

Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501
 EUH031

| Cat No. | Quantity | Price |
|---------|----------|-------|
| PO1 25 | 500GM | £9.99 |

Potassium PerSulfate

K₂S₂O₈
 M.W. 270.32
 Assay98%
 Chloride (Cl)0.04%



(di-Potassium PeroxodiSulfate)

White, Crystals or Powder

UN Class. 5.1/UN1492/III
 Cas No. 7727-21-1
 EC No. 231-781-8

Danger

H272, H302, H315, H334, H317, H335, H319

P210, P280, P302+P352, P304+P340, P305+P351+P338, P342+P311, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PO1 35 | 500GM | £18.25 |

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Potassium Sodium Tartrate

$KNaC_4H_4O_6 \cdot 4H_2O$

M.W. 282.22

Assay 98.0%

Acidity or Alkalinity Max 1ml N%

Chloride (Cl) Max 0.005%

Sulfate (SO_4) Max 0.05%

(Rochelle Salts) Colourless, Crystalline Powder

UN Class. NR

Cas No. 6381-59-5


EC No. 205-698-2

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 40 | 500GM | £10.92 |

Potassium Sulfide

$K_2(S)x$

M.W. N/A

Assay 40% 

Sulfide (SO_3) 0.1%

Nitrogen (N) 0.02%

Water-insoluble matter 2%

Yellow/green with red/brown fragments, Solid, Characteristic odour

UN Class. 4.2/UN1382/II

Cas No. 37199-66-9

EC No. 253-390-1

Danger

H314, H400

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310,

P501

EUH031


| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 50 | 100GM | £16.63 |

Propan-1-ol

$CH_3CH_2CH_2OH$

M.W. 60.1

Flashpoint: 15°C

Assay 99.5% 

Weight per ml at 20°C 0.803-0.806g

Refractive index 1.384-1.386

Non-volatile matter 0.05%

Ethanol (C_2H_5OH) 0.003%

Methanol (CH_3OH) 0.01%

(n-Propyl Alcohol)

Clear/colourless, Liquid

UN Class. 3/UN1274/II

Cas No. 71-23-8

EC No. 200-746-9

Danger

H225, H318, H336

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233,

P403+P235, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PRO 25 | 500ML | £6.04 |

Potassium Sulfate

K_2SO_4

M.W. 174.26

Assay (acidimetric) 99%

pH (5% water) 5.0-9.2

Identity Passes test

Appearance of solution Passes test

Acidity or Alkalinity Passes test

Chloride (Cl) Max 0.004%

Heavy metals (as Pb) Max 0.001%

Iron (Fe) Max 0.001%

Arsenic (As) Max 0.0002%

Magnesium (Mg) Max 0.002%

Calcium (Ca) Max 0.02%

Sodium (Na) Max 0.05%

Loss on drying at 105°C Max 1.0%

White, Crystalline Powder

UN Class. NR

Cas No. 7778-80-5

EC No. 231-915-5

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| PO1 45 | 500GM | £5.25 |

Potassium Thiocyanate

KSCN

M.W. 97.18

Assay 97% 

Chloride (Cl) 0.01%

Sulfate (SO_4) 0.05%

Iron (Fe) 0.0005%

Sodium (Na) 0.3%

White/colourless, Crystals

UN Class. NR

Cas No. 333-20-0

EC No. 206-370-1

Warning

H302+H312+H332, H412

P261, P264, P271, P273, P280, P302+P352, P304+P340, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| PO1 60 | 250GM | £16.49 |

Potato Starch - see Starch Potato



Propan-2-ol

CH₃CHOHCH₃
 M.W. 60.1
 Flashpoint: 12°C
 Assay99.5%
 Weight per ml at 20 °C0.783-0.786g
 Water0.5%
 Acidity 0.05ml N%
 Non-volatile matter0.1%
 Aldehydes and Ketones (as C₃H₆O)0.1%



(iso Propyl Alcohol)

Colourless, Liquid, Alcohol-like odour

UN Class. 3/UN1219/II
 Cas No. 67-63-0
 EC No. 200-661-7

Danger

H225, H336, H319

P210, P280, P304+P340, P305+P351+P338, P370+P378, P403+P233,

P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PRO 30 | 500ML | £4.10 |
| PRO 32 | 1LTR | £5.99 |
| PRO 35 | 2.5LTR | £14.41 |

Propane 1 2-Diol (Propylene Glycol)

CH₃.CH(OH).CH₂OH
 M.W. 76.10
 Flashpoint: 103°C
 Assay99%
 Weight per ml at 20°C 1.035-1.037g
 Refractive index 1.4320-1.4330
 Water0.3%
 Copper (Cu)0.0001%
 Iron (Fe)0.0001%
 Lead (Pb)0.0001%

(Propylene Glycol)

Clear/colourless, Liquid

UN Class. NR
 Cas No. 57-55-6
 EC No. 200-338-0

| Cat No. | Quantity | Price |
|---------|----------|-------|
| PRO 10 | 500ML | £5.89 |

Propionic Acid

CH₃CH₂COOH
 M.W. 74.08
 Flashpoint: 49°C



(Propanoic Acid)

UN Class. 3/UN3463/II
 Cas No. 79-09-4
 EC No. 201-176-3

Danger

H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| PRO 40 | 500ML | £9.26 |

Propionaldehyde - see Propanal

n-Propyl Alcohol - see Propan-1-ol

Propanal (Propionaldehyde)

CH₃.CH₂.CHO
 M.W. 58.08
 Flashpoint: -40°C
 Assay95%
 Weight per ml at 20°C 0.805-0.807g



(Propionaldehyde)

Colourless, Liquid, Fruit-like

UN Class. 3/UN1275/II
 Cas No. 123-38-6
 EC No. 204-623-0

Danger

H225, H302, H315, H318, H332, H335

P210, P280, P302+P352, P303+P361+P353, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PRO 05 | 250ML | £16.01 |

Propane 1-2-3-Triol (Glycerol)

CH₂OH.CHOH.CH₂OH
 M.W. 92.09
 Flashpoint: 160°C
 Assay98%
 Weight per ml at 20°C 1.255-1.260g
 Refractive index 1.471-1.474
 Ash0.02%

Clear, Viscous liquid

UN Class. NR
 Cas No. 56-81-5
 EC No. 200-289-5

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PRO 15 | 500ML | £5.99 |
| PRO 20 | 2.5LTR | £20.59 |

Pyridine

C₅H₅N
 M.W. 79.09
 Flashpoint: 17°C
 Assay98%
 Weight per ml at 20°C 0.980-0.983g
 Water0.5%
 Non-volatile matter0.02%



Clear, Liquid

UN Class. 3/UN1282/II
 Cas No. 110-86-1
 EC No. 203-809-9

Danger

H225, H302+H312+H332

P210, P271, P280, P302+P352, P304+P340, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| PY0 05 | 100ML | £12.49 |

Pyrogallol - see Benzene-1,2,3-Triol



Rennet Powder

N/A
M.W. N/A
Solid



UN Class. NR
Cas No. 9001-98-3
EC No. 232-645-0

Danger

H315, H334, H335, H319
P271, P280, P302+P352, P304+P340, P305+P351+P338, P342+P311,
P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| RE0 15 | 25GM | £8.61 |

Ringers Solution 0.25% Strength

N/A
M.W. N/A
White, Tablets or capsules, Odourless



UN Class. NR
Cas No. N/A
EC No. N/A

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------|----------|-------|
| RI0 25 | PK10 | £8.23 |

Resazurin Tablets

N/A
M.W. N/A
Orange red, Solid tablet, Acetic odour

UN Class. NR
Cas No. 5508-82-3
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|--------|
| RE0 10 | PK100 | £29.65 |

Resorcinol - see Benzene-1-3-Diol

Rivets

| Cat No. | Description | Quantity | Price |
|---------|-------------|----------|-------|
| RI0 10 | Aluminium | 100GM | £2.30 |
| RI0 16 | Brass | 100GM | £2.86 |
| RI0 20 | Copper | 100GM | £2.99 |

Safranin O Stain

N/A
M.W. N/A
Dark red, Crystals or Powder, Odourless



UN Class. NR
Cas No. N/A
EC No. N/A

Danger

H318
P280, P305+P351+P338, P310

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SA0 30 | 5GM | £3.49 |

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Safranine Aqueous Solution

N/A
M.W. N/A
Dark red colored solution

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SA0 36 | 100ML | £2.99 |

Salicylic Acid - see 2-Hydroxybenzoic Acid

Salol - see Phenyl-2-Hydroxybenzoate

Seasand Extra Pure

SiO₂
M.W. 60.08

White powder
UN Class. NR
Cas No. 7631-86-9
EC No. 231-545-4

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SA0 11 | 5KG | £13.33 |

Sebacoyl Chloride 5% in Cyclohexane

N/A
M.W. N/A
Flashpoint: -18°C
Liquid

UN Class. 3/UN1145/II
Cas No. N/A
EC No. N/A



Danger

H225, H314, H336, H400
P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SE0 15 | 100ML | £7.49 |

Sand Acid Washed

SiO₂
M.W. 60.08

UN Class. NR
Cas No. 7631-86-9
EC No. 231-545-4

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SA0 05 | 1KG | £3.49 |

Sand Silver

SiO₂
M.W. 60.08

UN Class. NR
Cas No. 7631-86-9
EC No. 231-545-4

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SA0 15 | 5KG | £4.82 |

Sebacoyl Chloride Ampoules

Cl.CO.(CH₂)₈.CO.Cl
M.W. 239.14

UN Class. 8/UN3265/II
Cas No. 111-19-3
EC No. 203-843-4



Danger

H310, H302, H314
P264, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SE0 10 | EACH | £24.49 |

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Silica Gel Self Indicating

N/A
 M.W. N/A
 Silica (SiO₂).....99.8%
 Iron (Fe₂O₃).....0.03%
 Titanium (TiO₂).....0.04%
 Calcium (CaO).....0.04%
 Orange, Crystals

UN Class. NR
 Cas No. 7631-86-9
 EC No. 231-545-4

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| SI0 07 | 500GM | £5.99 |

Silicone Grease

N/A
 M.W. N/A
 Resistant to most chemicals. Stable over temperature range -40 to 200°C. For high vacuum purposes. 50g.
 Must not be used with volumetric glassware because silicone contamination distorts the shape of the meniscus.
 Colourless, Paste, Odourless

UN Class. NR
 Cas No. N/A
 EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| SI0 25 | 50GM | £7.20 |

Silver Nitrate 50% Tech Grade

AgNO₃
 M.W. 169.87
 Colourless, Crystals

UN Class. 5.1/UN1493/II
 Cas No. 7761-88-8
 EC No. 231-853-9



Danger

H272, H318, H400, H410, H314
P210, P220, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| SI0 37 | 25GM | £20.99 |

Silicon (IV) Oxide

SiO₂
 M.W. 60.08

UN Class. NR
 Cas No. 7631-86-9
 EC No. 231-545-4

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| SI0 15 | 250GM | £7.49 |

Silver Nitrate LR

AgNO₃
 M.W. 169.87

Assay.....99.8%
 Chloride (Cl)0.001%
 Sulfate (SO₄).....0.02%



Colourless, Crystals

UN Class. 5.1/UN1493/II
 Cas No. 7761-88-8
 EC No. 231-853-9

Danger

H272, H400, H410, H314
P210, P220, P280, P301+P330+P331, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|----------------|
| SI0 30 | 10GM | £15.44 |
| SI0 40 | 100GM | £113.29 |

Silver Nitrate 0.1M (0.1N)

N/A
 M.W. N/A

Relative density.....1.015g/cm³
 Colourless, Liquid



UN Class. 8/UN3264/III
 Cas No. N/A
 EC No. N/A

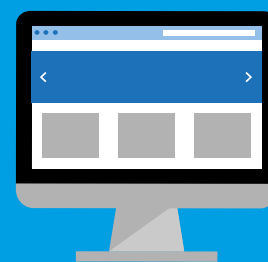
Warning

H315, H400, H410, H319, H290
P264, P273, P280, P302+P352, P305+P351+P338, P337+P313, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| VS0 80 | 1LTR | £18.17 |
| VS0 85 | 2.5LTR | £65.43 |

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Soap Solution Acc To Bourton Boudet

N/A
M.W. N/A
Flashpoint: 22°C
Yellow coloured solution



UN Class. 3/UN1170/II
Cas No. N/A
EC No. N/A

Danger

H225

P210, P233, P240, P241, P280, P370+P378, P403+P235, P501

| Cat No. | Surcharge | Quantity | Price |
|---------------|-----------|----------|--------------|
| SO0 21 | | 2.5LTR | £9.72 |

Soap Solution (Clark's)

M.W. N/A
Flashpoint: 21°C
Colourless or slightly yellow, Liquid, Alcohol-like



UN Class. 3/UN1170/II
Cas No. N/A
EC No. N/A

Danger

H319, H225

P210, P233, P264, P280, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Surcharge | Quantity | Price |
|---------------|-----------|----------|---------------|
| SO0 15 | | 2.5LTR | £16.17 |

Soda Lime Self Indicating

N/A
M.W. N/A
Pink crystals, Colour change Pink to White



UN Class. 8/UN1907/III
Cas No. 1310-58-3
EC No. 215-181-3

Danger

H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| SO0 26 | 500GM | £6.25 |

Sodium Metal in Liquid Paraffin

Na
M.W. 22.99
Silvery/white, Soft metal



UN Class. 4.3/UN1428/I
Cas No. 7440-23-5
EC No. 231-132-9



Danger

H260, H314

P231+P232, P280, P301+P330+P331, P302+P335+P334, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Surcharge | Quantity | Price |
|---------------|-----------|----------|---------------|
| SO0 31 | | 25GM | £10.80 |

Sodium Acetate-3-Water

CH₃COONa.3H₂O
M.W. 136.08
Assay.....99%
Chloride (Cl)0.005%
Sulfate (SO₄).....0.02%
Iron (Fe).....0.002%
Lead (Pb).....0.002%
Potassium (K).....0.1%

(Sodium Ethanoate)

White/colourless, Crystals

UN Class. NR
Cas No. 6131-90-4
EC No. 204-824-8

| Cat No. | Quantity | Price |
|---------------|----------|--------------|
| SO0 35 | 500GM | £5.49 |

Sodium Acetate Anhydrous

CH₃COONa
M.W. 82.03
Assay.....98%
Chloride (Cl)0.02%
Sulfate (SO₄).....0.03%
Iron (Fe).....0.002%
Lead (Pb).....0.002%
Potassium (K).....0.1%

White/off white, Crystals/powder

UN Class. NR
Cas No. 127-09-3
EC No. 204-823-8

| Cat No. | Quantity | Price |
|---------------|----------|---------------|
| SO0 40 | 500GM | £19.41 |



Sodium Alginate

N/A
M.W. N/A
White to light creamy brown, Solid, Odourless

UN Class. NR
Cas No. 9005-38-3
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO3 80 | 25GM | £4.49 |
| SO3 81 | 100GM | £7.20 |

Sodium Bromide

NaBr
M.W. 102.89
Assay99%
Moisture2%
Chloride (Cl)0.6%
Sulfate (SO₄)0.05%
Iron (Fe)0.002%
Lead (Pb)0.002%

White, Crystalline, Odourless

UN Class. NR
Cas No. 7647-15-6
EC No. 231-599-9

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO0 65 | 250GM | £4.80 |

Sodium Carbonate-10-Water

Na₂CO₃·10H₂O
M.W. 286.14
Assay98.5%
Sulfate (SO₄)0.005%
Iron (Fe)0.001%
Lead (Pb)0.002%
Potassium (K)0.04%

Colourless, Crystals

UN Class. NR
Cas No. 6132-02-1
EC No. 207-838-8

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO0 85 | 1KG | £2.37 |
| SO0 90 | 5KG | £8.43 |

Sodium Benzoate

C₆H₅COONa
M.W. 144.11
Assay99%
Loss on drying at 110°C1%
Acidity or alkalinity2.5ml N%
Chloride (Cl)0.1%
Sulfate (SO₄)0.02%
Lead (Pb)0.001%
White, Crystalline powder, Characteristic odour



UN Class. NR
Cas No. 532-32-1
EC No. 208-534-8

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO0 45 | 250GM | £1.99 |

Sodium Carbonate Anhydrous

Na₂CO₃
M.W. 105.99
Assay98%
Water-insoluble matter0.0025%
Water0.35%
Arsenic (As)0.0001%
Lead (Pb)0.003%
Sulfate (SO₄)0.02%
Iron (Fe)0.001%
White, Crystals or Powder



UN Class. NR
Cas No. 497-19-8
EC No. 207-838-8

Warning

H319
P264, P280, P305+P351+P338, P337+P313

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO0 75 | 500GM | £1.68 |
| SO0 80 | 3KG | £5.61 |

Sodium Chlorate

NaClO₃
M.W. 106.44
Assay98%
Chloride (Cl)0.05%
Sulfate (SO₄)0.02%
Lead (Pb)0.001%
White/colourless, Crystals



UN Class. 5.1/UN1495/II
Cas No. 7775-09-9
EC No. 231-887-4

Danger

H271, H302, H411
P210, P220, P264, P273, P280, P370+P378, P371+P380+P375, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO0 95 | 500GM | £4.99 |



Sodium Chloride

NaCl
 M.W. 58.44
 Assay99.5%
 Loss on drying at 105°C 1%
 Sulfate (SO₄)0.02%
 Ammonia (NH₃)0.002%
 Iron (Fe)0.002%
 Lead (Pb)0.0005%
 Potassium (K)0.02%
 White, Crystals

UN Class. NR
 Cas No. 7647-14-5
 EC No. 231-598-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 00 | 250GM | £1.42 |
| SO1 05 | 1KG | £2.14 |
| SO1 10 | 5KG | £6.23 |

Sodium Chromate-4-Water

Na₂CrO₄·4H₂O
 M.W. 234.04
 Assay96%
 Chloride (Cl)0.04%
 Yellow, Powder, Odourless



UN Class. 6.1/UN3288/II
 Cas No. 10034-82-9
 EC No. 231-889-5

Danger

H330, H312, H301, H334, H317, H340, H350, H372, H400, H410, H360FD, H314
P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P308+P313, P342+P311, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO1 25 | 500GM | £20.58 |

Sodium Dichromate-2-Water

Na₂Cr₂O₇·2H₂O
 M.W. 298
 Assay
 Chloride(Cl)0.05%
 Sulfate (SO₄)0.2%
 Potassium (K)0.1%
 Orange to red, Solid, Odourless



UN Class. 5.1+6.1/UN3087/II
 Cas No. 7789-12-0
 EC No. 234-190-3

Danger

H272, H330, H312, H301, H334, H317, H340, H350, H400, H410, H360FD, H372, H314
P210, P280, P301+P330+P331, P304+P340, P305+P351+P338, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO1 41 | 500GM | £61.66 |

Sodium Chloride (Rock Salt)

NaCl
 M.W. 58.44

UN Class. NR
 Cas No. 7647-14-5
 EC No. 231-598-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 15 | 1KG | £2.30 |
| SO1 20 | 5KG | £6.99 |

Sodium Citrate

HOC(COONa)(CH₂COONa)₂·2H₂O
 M.W. 294.10
 Assay (ex Na) Min 98.0%
 Acidity/Alkalinity Max 1ml N%
 Chloride (Cl) Max 0.01%
 Sulfate (SO₄) Max 0.02%
 Lead (Pb) Max 0.001%

(tri-Sodium-2-Hydroxypropane-1,2,3-Tricarboxylate-2-Water)

White, Crystalline Powder

UN Class. NR
 Cas No. 6132-04-3
 EC No. 200-675-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 30 | 500GM | £4.74 |

Sodium Phosphate Monobasic Dihydrate

NaH₂PO₄·2H₂O
 M.W. 156.01

Assay
 Chloride (Cl)
 Sulfate (SO₄)
 Iron (Fe)
 Lead (Pb)

White/colourless, Crystals or Powder

UN Class. NR
 Cas No. 13472-35-0
 EC No. 231-499-2

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO1 45 | 500GM | £11.49 |



Sodium Dithionite

Na₂S₂O₄
M.W. 174.11

Assay85%

(Sodium Hydrosulphite)

White/off white, Crystals or Powder, Weak Sulfurous odour

UN Class. 4.2/UN1384/II

Cas No. 7775-14-6

EC No. 231-890-0



Danger

H251, H302

P264, P270, P280, P330, P407, P413, P420, P501

EUH031

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 50 | 500GM | £6.19 |

Sodium Ethanoate - see Sodium Acetate-3-water

Sodium Ethanedioate - see Sodium Oxalate

Sodium Formate

HCOONa
M.W. 68.01

Assay98%

Chloride (Cl)0.01%

Sulfate (SO₄)0.05%

White, Crystals or Powder

UN Class. NR

Cas No. 141-53-7

EC No. 205-488-0

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 65 | 500GM | £4.19 |

Disodium Hydrogen Phosphate-12-Water

Na₂HPO₄·12H₂O
M.W. 358.14

Assay98%

Chloride (Cl)0.02%

Sulfate (SO₄)0.05%

Iron (Fe)0.005%

Lead (Pb)0.005%

(Sodium Phosphate Dibasic)

Colourless, Crystals

UN Class. NR

Cas No. 10039-32-4

EC No. 231-448-7

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO1 90 | 500GM | £12.96 |

Sodium Fluoride

NaF
M.W. 41.99

Assay97%

Chloride (Cl)0.02%

Sillica (SiO₂)0.5%

Sulfate (SO₄)0.05%

Iron (Fe)0.005%

Lead (Pb)0.005%

Colourless, Crystals or Powder



UN Class. 6.1/UN1690/III

Cas No. 7681-49-4

EC No. 231-667-8

Danger

H301, H315, H319

P264, P280, P301+P310, P302+P352, P305+P351+P338, P330, P337+P313,

P501

EUH032

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO1 61 | 250ML | £11.34 |

Sodium Hydrogen Carbonate

NaHCO₃
M.W. 84.01

Assay99%

pH of 1% solution8.0-8.5

Chloride (Cl)0.01%

Sulfate (SO₄)0.02%

Iron (Fe)0.001%

Lead (Pb)0.001%

(Sodium Bicarbonate)

White, Crystals/Powder

UN Class. NR

Cas No. 144-55-8

EC No. 205-633-8

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 75 | 500GM | £1.63 |
| SO1 80 | 1KG | £2.35 |
| SO1 85 | 3KG | £5.39 |

Sodium Hydrogen Sulfate, Anhydrous

NaHSO₄
M.W. 120.06

Assay99%

Chloride (Cl)0.002%

Ammonia (NH₃)0.004%

Iron (Fe)0.004%



(Sodium Bisulfate)

White, Crystals/powder, Odourless

UN Class. NR

Cas No. 7681-38-1

EC No. 231-665-7

Danger

H318

P280, P305+P351+P338, P310

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO1 95 | 500GM | £3.49 |



Sodium Hydroxide (Pearl)

NaOH
M.W. 40
Assay.....96%
Carbonate (Na₂CO₃)2.0%
Chloride (Cl)0.01%
Silicate (SiO₂).....0.05%
Sulfate (SO₄).....0.1%
Potassium (K).....0.1%
Zinc (Zn)0.01%



White, Pearls

UN Class. 8/UN1823/II
Cas No. 1310-73-2
EC No. 215-185-5

Danger

H314, H290, H318

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO2 00 | 500GM | £7.80 |
| SO2 03 | 1KG | £7.49 |
| SO2 05 | 3KG | £37.80 |

Sodium Hydroxide (Pellets) AR

NaOH
M.W. 40

UN Class. 8/UN1823/II
Cas No. 1310-73-2
EC No. 215-185-5



Danger

H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| SO2 13 | 1KG | £25.65 |

Sodium Hydroxide 1.0M (1.0N)

N/A
M.W. N/A

UN Class. 8/UN1824/II
Cas No. 1310-73-2
EC No. 215-185-5



Danger

H314, H318, H290

P234, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS0 87 | 1LTR | £7.75 |
| VS0 90 | 5LTR | £10.50 |

Surcharge

Sodium Hydroxide (Pellets)

NaOH
M.W. 40
Assay.....96%
Carbonate (Na₂CO₃)2%
Phosphate (PO₄).....0.001%
Chloride (Cl)0.01%
Silicate (SiO₂).....0.02%
Arsenic (As).....0.0001%
Sulfate (SO₄).....0.01%



White, Pellets

Lead (Pb).....0.001%
Potassium (K).....0.1%
Zinc (Zn)0.02%

UN Class. 8/UN1823/II
Cas No. 1310-73-2
EC No. 215-185-5

Danger

H290, H314, H318

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO2 10 | 500GM | £6.49 |

Trypsin

N/A

M.W. N/A

Heating the Trypsin/water mix to 37°C will help to dissolve the Trypsin.

Store in a freezer.

Has a shelf life of 2 years (unopened)



UN Class. N/A
Cas No. 9002-07-7
EC No. 232-650-8

Danger

H315, H334, H335, H319

P271, P280, P302+P352, P304+P340, P305+P351+P338, P342+P311, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TR0 86 | 25GM | £23.00 |

Sodium Hydroxide 0.1M (0.1N)

N/A

M.W. N/A

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS0 92 | 1LTR | £7.26 |
| VS0 95 | 5LTR | £10.50 |



Sodium Hydroxide 2.0M (2.0N)

N/A

M.W. N/A

Contents per litre at 20°C 80.00g

UN Class. 8/UN1824/II

Cas No. 1310-73-2

EC No. 215-185-5



Danger

H314, H318, H290

234, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|---------------------|--------|
| VS1 01 | 1LTR | £8.84 |
| VS1 00 | Surcharge 2.5LTR | £10.99 |

Sodium Hydroxide 1.0M Ampoules

N/A

M.W. N/A

Baker DILUT-IT

Resultant quantity per litre at 20°C 40.00g

The above solution is obtained by diluting the contents of 1 vial to 1 litre

UN Class. 8/UN1824/II

Cas No. 1310-73-2

EC No. 215-185-5



Danger

H314, H318

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VC0 50 | CTN | £58.70 |

Sodium Hypochlorite (10-14%Cl)

NaOCl

M.W. 74.44

Clear, pale yellow coloured solution

UN Class. 8/UN1791/III

Cas No. 7681-52-9

EC No. 231-668-3



Danger

H314, H318, H400

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

EUH031

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SO2 15 | 500ML | £4.96 |
| SO2 21 | 2.5LTR | £5.98 |

Sodium Hydroxide 40%

NaOH

M.W. 40

UN Class. 8/UN1824/II

Cas No. 1310-73-2

EC No. 215-185-5



Danger

H314, H318, H290

P234, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|-------------------|--------|
| VS1 02 | 1LTR | £17.20 |
| VS1 03 | Surcharge 5LTR | £49.54 |

Sodium Hydroxide 0.1M Ampoules

N/A

M.W. N/A

Baker DILUT-IT

Resultant quantity per litre at 20°C 4.000g

The above solution is obtained by diluting the contents of 1 vial to 1 litre

UN Class. 8/UN1824/II

Cas No. 1310-73-2

EC No. 215-185-5



Danger

H314, H318

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| VC0 55 | CTN | £64.24 |

Sodium Iodate

NaIO₃

M.W. 197.89

Assay 99.5%

Chloride and Chlorate (as Cl) 0.04%

Iodide (I) 0.002%

Sulfate (SO₄) 0.03%

UN Class. 5.1/UN1479/II

Cas No. 7681-55-2

EC No. 231-672-5



Danger

H272, H302, H334, H317

P210, P220, P280, P302+P352, P304+P340, P342+P311, P370+P378, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SO2 25 | 100GM | £59.99 |



Sodium Iodide

NaI
M.W. 149.89
Assay.....99%
Moisture.....3%
Sulfate (SO₄).....0.03%
Potassium (K).....0.1%



White, Crystals/powder

UN Class. 9/UN3077/III
Cas No. 7681-82-5
EC No. 231-679-3

Warning

H315, H400, H319

P264, P273, P280, P302+P352, P305+P351+P338, P337+P313, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| S02 30 | 100GM | £15.30 |

Sodium Metabisulphite

Na₂S₂O₅
M.W. 190.11
Assay.....95%
Chloride (Cl)0.1%
Iron (Fe).....0.01%
Lead (Pb).....0.005%



(Sodium Disulphite)

White, Crystals/powder

UN Class. NR
Cas No. 7681-57-4
EC No. 231-673-0

Danger

H302, H318

P264, P270, P280, P301+P312, P305+P351+P338, P310, P330, P501 EUH031

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S02 40 | 500GM | £4.49 |

Sodium Nitrite

NaNO₂
M.W. 69
Assay.....96%
Chloride (Cl)0.02%
Sulfate (SO₄).....0.03%
Iron (Fe).....0.002%
Lead (Pb).....0.002%



White/pale yellow, Crystals

UN Class. 5.1+6.1/UN1500/III
Cas No. 7632-00-0
EC No. 231-555-9

Danger

H272, H301, H400

P210, P220, P264, P273, P280, P301+P310, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S02 55 | 500GM | £5.49 |

Sodium Lauryl Sulfate

CH₃(CH₂)₁₁OSO₃Na
M.W. 288.38
Flashpoint: 150°C



(Sodium Dodecyl Sulfate)

White, Powder, Fatty

UN Class. 4.1+6.1/UN2926/II
Cas No. 151-21-3
EC No. 205-788-1

Danger

H228, H311, H302, H315, H318, H335

P210, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| S02 35 | 250GM | £13.35 |

Sodium Nitrate

NaNO₃
M.W. 84.99
Assay.....98%
Chloride (Cl)0.5%
Sulfate (SO₄).....0.05%
Iron (Fe).....0.003%
Lead (Pb).....0.003%



Colourless, Crystals

UN Class. 5.1/UN1498/III
Cas No. 7631-99-4
EC No. 231-554-2

Warning

H272, H302, H315, H319, H335

P210, P220, P264, P280, P305+P351+P338, P337+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S02 50 | 500GM | £4.76 |



Sodium Ethanedioate

NaOCOCOONa

M.W. 134

Assay.....99%
Chloride (Cl)0.005%
Sulfate (SO₄).....0.05%
Iron (Fe).....0.005%
Heavy metals (Pb).....0.01%

White, Crystalline powder, Odourless

UN Class. N/A
Cas No. 62-76-0
EC No. 200-550-3



Warning

H302+H312

P264, P270, P280, P301+P312, P302+P352, P312, P330, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SO1 53 | 100GM | £18.99 |
| SO1 55 | 500GM | £63.94 |

Sodium Salicylate

2-HOC₆H₄COONa

M.W. 160.1

(Sodium-2-Hydroxybenzoate)

White, Flakes/crystals/powder

UN Class. NR
Cas No. 54-21-7
EC No. 200-198-0



Warning

H302, H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SO3 85 | 250GM | £13.99 |

Sodium Sulfate-10-Water

Na₂SO₄·10H₂O

M.W. 322.2

White, Crystalline powder, Odourless

UN Class. NR
Cas No. 7727-73-3
EC No. 231-820-9

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SO3 15 | 1KG | £45.49 |

Tri-Sodium Phosphate-12-Water

Na₃PO₄·12H₂O

M.W. 380.12

Assay.....97.5%
Chloride (Cl)0.01%
Sulfate (SO₄).....0.01%
Sodium hydroxide (NaOH)2.5%
Copper (Cu).....0.0025%
Iron (Fe).....0.001%
Lead (Pb).....0.001%

Colourless, Crystals/powder

UN Class. NR
Cas No. 10101-89-0
EC No. 231-509-8



Danger

H315, H319, H335

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SO2 85 | 500GM | £13.49 |

Sodium Potassium Tartrate - see

Potassium Sodium Tartrate

Sodium PyroSulphite - see Sodium Metabisulphite

Sodium Sulfate Anhydrous

Na₂SO₄

M.W. 142.04

Assay (Min).....99.0–100.5%
Identity Passes test
Appearance of solution..... Passes test
Acidity or Alkalinity..... Passes test
pH (5% water)..... 5.2–8.0
Chloride (Cl) Max 0.002%
Heavy metals (as Pb) Max 0.001%
Arsenic (As)..... Max 0.0003%
Calcium (Ca)..... Max 0.005%
Iron (Fe)..... Max 0.001%
Magnesium (Mg)..... Max 0.001%
Loss on drying at 130°C Max 0.5%

White, Crystalline powder

UN Class. NR
Cas No. 7727-82-6
EC No. 231-820-9

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SO3 25 | 500GM | £2.40 |



Sodium Sulfide 60%

Na₂S.xH₂O
M.W. 78.04 (anhydrous)
Yellow coloured flakes
UN Class. 8/UN1849/II
Cas No. 27610-45-3
EC No. N/A



Danger

H302, H311, H314, H400
P234, P280, P301+P310, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501
EUH031

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S03 31 | 100GM | £2.34 |

Disodium Tetraborate (III)-10-Water

NaB₄O₇.10H₂O
M.W. 381.37
Assay 99%
Sulfate (SO₄) 0.005%
Arsenic (As) 0.0005%
Calcium (Ca) 0.01%
Heavy metals (Pb) 0.0025%



(Borax Pure)

Colourless/white, Crystals

UN Class. NR
Cas No. 1303-96-4
EC No. 215-540-4

Danger

H360FD
P201, P202, P280, P308+P313, P405, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S03 42 | 1KG | £5.99 |

Sodium Thiosulfate 0.1M (0.1N)

Na₂S₂O₃
M.W. 158.11
Contents per litre at 20°C 24.82g
UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS1 05 | 5LTR | £11.18 |

Sodium Sulfite Anhydrous

Na₂SO₃
M.W. 126.04
Assay (Min) 95-100.5%
SO₂
Identity
Appearance of solution
ThioSulfate (S₂O₃) Max 0.04%
Arsenic (As) Max 0.0002%
Heavy metals (as Pb) Max 0.001%
Iron (Fe) Max 0.001%
Copper (Cu) Max 0.0005%
Selenium (Se) Max 0.001%
Zinc (Zn) Max 0.0025%

(Sodium Sulphite IV)

White, Crystalline powder

UN Class. NR
Cas No. 7757-83-7
EC No. 231-821-4

EUH031

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| S03 35 | 500GM | £3.45 |

Sodium ThioSulfate-5-Water

Na₂S₂O₃.5H₂O
M.W. 248.19
Assay 99%
Sulfate and sulfite (SO₄) 0.1%
Sulfide (S) 0.001%
Iron (Fe) 0.001%
Potassium (K) 0.1%
Colourless, Crystals

UN Class. NR
Cas No. 10102-17-7
EC No. 231-867-5

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| S03 50 | 500GM | £1.99 |
| S03 55 | 1KG | £3.24 |
| S03 60 | 5KG | £12.80 |

Sodium Thiosulfate 0.1M Ampoules

N/A
M.W. N/A
Baker DILUT-IT
The above solution is obtained by diluting the contents of 1 vial to 1 litre

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VC0 60 | CTN | £66.92 |



Solid Fuel Tablets

N/A

M.W. N/A

UN Class. 4.1/UN1328/III
Cas No. N/A
EC No. N/A



Warning

H228, H317

P210, P240, P261, P280, P302+P352, P333+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|--------------------|----------|-------|
| XEC 090 500 | PK20 | £5.14 |

Starch Maize

N/A

M.W. N/A

Loss on drying at 110°C 15%
Acidity 4ml N%
Sulfated ash 0.6%
Lead (Pb) 0.001%

White, Powder

UN Class. NR
Cas No. 9005-25-8
EC No. 232-686-4

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ST0 05 | 500GM | £5.49 |

Starch Soluble

N/A

M.W. N/A

White soft powder

UN Class. NR
Cas No. 9005-25-8
EC No. 232-686-4

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ST0 16 | 500GM | £6.24 |

Stearic Acid - see Octadecanoic Acid

Steel Wool - see Iron (Steel) Wool

Solochrome Black

C₂₀H₁₂N₃NaO₇S

M.W. 461.39

(Eriochrome Black T)

Black, Powder, Odourless

UN Class. NR
Cas No. 1787-61-7
EC No. 217-250-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| SO3 70 | 10GM | £3.01 |

Stannic - see Tin (IV) Oxide

Starch Potato

N/A

M.W. N/A

Loss on drying at 110°C 20%
Sulfated ash 0.3%
Lead (Pb) 0.001%

White, Powder

UN Class. NR
Cas No. 9005-25-8
EC No. 232-686-4

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ST0 10 | 500GM | £6.80 |

Strontium Chloride-6-Water

SrCl₂·6H₂O

M.W. 266.62

Assay 96%
Nitrate (NO₃) 0.005%
Sulfate (SO₄) 0.002%
Iron (Fe) 0.002%



Colourless/white, Crystals/powder, Odourless

UN Class. N/A
Cas No. 10025-70-4
EC No. 233-971-6

Danger

H318

P261, P280, P301+P312, P304+P340

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ST0 25 | 100GM | £4.49 |

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Strontium Nitrate Anhydrous

Sr(NO₃)₂
M.W. 211.63

Assay.....99%
Chloride (Cl)0.005%
Sulfate (SO₄).....0.01%
Barium (Ba)1%
Iron (Fe).....0.001%
Lead (Pb).....0.005%
Potassium (K).....0.05%
Sodium (Na)0.05%



White, Crystals/powder, Odourless

UN Class. 5.1/UN1507/III
Cas No. 10042-76-9
EC No. 233-131-9

Danger

H271, H318

P210, P220, P280, P305+P351+P338, P310, P370+P378, P371+P380+P375, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| ST0 30 | 250GM | £8.99 |

Styrene - see Phenylethylene Monomer

Succinic Acid - see Butanedioic Acid

Sudan III Dry

C₂₂H₁₆N₄O
M.W. 352.4

Dark red to brown, Powder, Characteristic odour

UN Class. NR
Cas No. 85-86-9
EC No. 201-638-4

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SU0 15 | 10GM | £3.77 |

Sulfanilic Acid

4-NH₂C₆H₄SO₃H
M.W. 173.19

White crystals/powder



UN Class. NR
Cas No. 121-57-3
EC No. 204-482-5

Warning

H315, H317, H319

P261, P264, P280, P302+P352, P305+P351+P338, P333+P313, P337+P313, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SU0 50 | 100GM | £14.99 |

Sulfamic Acid - see also Aminosulfonic Acid

Sucrose

C₁₂H₂₂O₁₁
M.W. 342.3

Acidity or alkalinity 0.2ml N%
Sulfated ash.....0.02%
Lead (Pb).....0.0004%
Reducing sugars.....0.02%
Colourless/white crystals/powder

UN Class. NR
Cas No. 57-50-1
EC No. 200-334-9

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SU0 10 | 1KG | £4.74 |

Sudan III Solution Alcoholic 0.5%

N/A

M.W. N/A

Flashpoint: 21°C

Red, Liquid, Ethanolic odour



UN Class. 3/UN1170/11
Cas No. N/A
EC No. N/A

Warning

H319, H225

P210, P233, P264, P280, P305+P351+P338, P370+P378, P403+P235, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SU0 20 | 100ML | £6.42 |

Sulfur Flowers

S

M.W. 32.07

Yellow, Crystalline Powder, Characteristic odour

UN Class. 4.1/UN1350/III
Cas No. 7704-34-9
EC No. 231-722-6



Warning

H315, H228

P264, P280, P302+P352, P332+P313

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SU0 30 | 1KG | £18.05 |

Sulfur Powder

S

M.W. 32.07

Soft yellow/grey powder

UN Class. 4.1/UN1350/III
Cas No. 7704-34-9
EC No. 231-722-6



Danger

H228, H315

P210, P240, P241, P264, P280, P302+P352, P332+P313, P370+P378

| Cat No. | Quantity | Price |
|---------|----------|--------|
| SU0 35 | 500GM | £10.29 |



Sulfuric Acid S.G.1.84 ARH₂SO₄

M.W. 98.08

Clear, oily liquid



UN Class. 8/UN1830/II

Cas No. 7664-93-9

EC No. 231-639-5

Danger**H314****P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501**

| Cat No. | Quantity | Price |
|---------------|---------------------|--------|
| SU0 43 | 1LTR | £13.69 |
| SU0 46 | Surcharge 2.5LTR | £13.70 |

Sulfuric Acid 0.1N (0.05M)

N/A

M.W. N/A

Contents per litre at 20°C.....4.904g

Clear, colourless, Liquid, Characteristic odour

UN Class. NR

Cas No. N/A

EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| VS1 15 | 2.5LTR | £7.99 |

Sulfuric Acid 0.5M Ampoules

N/A

M.W. N/A

Baker DILUT-IT

Resultant quantity per litre at 20°C.....49.04g

The above solution is obtained by diluting the contents of 1 vial to 1 litre

UN Class. 8/UN2796/II

Cas No. 7664-93-9

EC No. 231-639-5

**Danger****H314, H318****P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501**

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VC0 65 | CTN | £49.57 |

Sulfuric Acid 1N (0.5M)

N/A

M.W. N/A

Colourless, Liquid, Odourless



UN Class. 8/UN3264/III

Cas No. N/A

EC No. N/A

H290**P234, P390, P406**

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| VS1 07 | 1LTR | £4.49 |
| VS1 10 | 2.5LTR | £9.92 |
| VS1 12 | 5LTR | £16.99 |

Sulfuric Acid 1.0M (2.0N)

N/A

M.W. N/A

UN Class. 8/UN2796/II

Cas No. 7664-93-9

EC No. 231-639-5

**Warning****H290, H315, H319****P264, P280, P302+P352, P305+P351+P338, P332+P313, P337+P313**

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| VS1 19 | 1LTR | £8.86 |
| VS1 20 | 2.5LTR | £8.00 |

Tannic AcidC₇₆H₅₂O₄₆

M.W. 1701.22

Loss on drying at 105°C.....9%

Sulfated ash.....0.2%

Yellow powder

UN Class. NR

Cas No. 1401-55-4

EC No. 215-753-2

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TA0 15 | 100GM | £11.99 |

Talc (French Chalk)3MgO.4SiO₂.H₂O

M.W. 379.27

(French Chalk Powder)

White, Powder, Odourless

UN Class. NR

Cas No. 14807-96-6

EC No. 238-877-9

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TA0 05 | 1KG | £2.83 |
| TA0 10 | 5KG | £10.74 |



Tartaric Acid

HOOC(CHOH)₂COOH

M.W. 150.09



Assay.....99%
Sulfated ash.....0.1%
Chloride (Cl)0.002%
Sulfate (SO₄).....0.05%
Iron (Fe).....0.002%

(Dihydroxybutane-Dioic-Acid)

Colourless/white crystals/powder

UN Class. NR
Cas No. 87-69-4
EC No. 201-766-0

Warning

H315, H335, H319

P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TA0 20 | 500GM | £18.05 |

Thymol Blue

C₂₇H₃₀O₅S

M.W. 466.6

(pH indicator)

red to yellow pH 1.2-2.8

yellow to blue..... pH 8.0-9.6

Dark brown, Powder, Weak characteristic odour

UN Class. NR
Cas No. 76-61-9
EC No. 200-973-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| TH0 25 | 5GM | £3.69 |

Tin Metal Powder

Sn

M.W. 118.71

Silver white, Solid, Odourless



UN Class. NR
Cas No. 7440-31-5
EC No. 231-141-8

Warning

H319, H335

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TI0 20 | 100GM | £6.52 |
| TI0 22 | 500GM | £36.49 |

Teepol

N/A

M.W. N/A

A liquid detergent

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| TE0 12 | 5LTR | £8.22 |

Thymol

(CH₃)₂.CH.C₆H₃(CH₃).OH

M.W. 150.22

Assay.....99.5%

Acidity.....2ml N%

Non-volatile matter0.03%

Colourless, Crystalline, Characteristic odour



UN Class. 8/UN3261/III
Cas No. 89-83-8
EC No. 201-944-8

Danger

H302, H411, H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TH0 20 | 100GM | £16.99 |

Tin Metal Foil

Sn

M.W. 118.71

UN Class. NR
Cas No. 7440-31-5
EC No. 231-141-8

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TI0 05 | 100GM | £16.49 |

Tin Metal Pellets

Sn

M.W. 118.71

UN Class. NR
Cas No. 7440-31-5
EC No. 231-141-8

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| TI0 11 | 100GM | £5.46 |



Thymol Indicator Solution Blue

N/A
M.W. N/A

UN Class. N/A
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| TH0 35 | 500ML | £5.49 |

Methyl Benzene (Toluene)

$C_6H_5CH_3$
M.W. 92.14

Flashpoint: 4°C

Assay99%

Weight per ml at 20°C0.860-0.866g

Refractive index 1.493-1.497

Water0.04%

Non-volatile matter0.003%

Sulfur compounds (CS_2)0.0005%

(Methyl Benzene)

Clear, Liquid, Low Sulfur odour

UN Class. 3/UN1294/II
Cas No. 108-88-3
EC No. 203-625-9

Danger

H225, H315, H336, H373, H304, H361d

P201, P210, P280, P302+P352, P304+P340, P308+P313, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|------------------|--------|
| ME1 10 | 500ML | £6.49 |
| ME1 13 | 1LTR | £9.99 |
| ME1 15 | Surcharge 2.5LTR | £12.19 |



Tin (II) Chloride-2-Water

$SnCl_2 \cdot 2H_2O$
M.W. 225.65

Assay95%

Sulfate (SO_4)0.02%

Arsenic (As)0.0004%

(Stannous)

Colourless crystals

UN Class. 8/UN3260/III
Cas No. 10025-69-1
EC No. 231-868-0



Danger

H302, H314

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TIO 25 | 100GM | £22.49 |

Toluidine Blue Stain

$C_{15}H_{16}Cl.N_3S$
M.W. 305.83

Dark green, Powder, Characteristic odour

UN Class. NR
Cas No. 92-31-9
EC No. 202-146-2

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| T00 05 | 5GM | £3.49 |

Trichloroacetic Acid

Cl_3CCOOH
M.W. 163.39

Assay98%

Freezing point55.5-58°C

Sulfated ash0.02%

Chloride (Cl)0.02%

Sulfate (SO_4)0.02%

UN Class. 8/UN1839/II
Cas No. 76-03-9
EC No. 200-927-2



Danger

H314, H400, H410

P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| TR0 05 | 100GM | £22.15 |

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2-2-4-Trimethylpentane

$(CH_3)_3CCH_2CH(CH_3)_2$
 M.W. 114.23
 Flashpoint: -12°C
 Assay 99.5%
 Weight per ml at 20°C 0.690-0.693g
 Refractive index 1.390-1.392
 Non-volatile matter 0.005%



(iso-Octane)

UN Class. 3/UN1262/II
 Cas No. 540-84-1
 EC No. 208-759-1

Danger

H225, H315, H336, H304, H400, H410
 P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| TR0 70 | 500ML | £26.29 |

L-Tyrosine

$C_9H_9NO_3$
 M.W. 181.19
 White, Crystalline powder, Odourless



UN Class. NR
 Cas No. 60-18-4
 EC No. 200-460-4

Warning

H315, H335, H319
 P264, P271, P280, P302+P352, P304+P340, P305+P351+P338, P403+P233, P501

| Cat No. | Quantity | Price |
|---------|----------|--------|
| TY0 05 | 25GM | £13.49 |

Trioxoboric (III) Acid Crystal

H_3BO_3
 M.W. 61.83
 Assay 99.5%
 Chloride (Cl) 0.01%
 Sulfate (SO_4) 0.04%
 Lead (Pb) 0.002%



(Boric Acid)

UN Class. NR
 Cas No. 10043-35-3
 EC No. 233-139-2

Danger

H360FD
 P201, P202, P280, P308+P313, P405, P501

| Cat No. | Quantity | Price |
|---------|----------|-------|
| TR0 75 | 500GM | £5.71 |

Urea (Carbamide)

NH_2CONH_2
 M.W. 60.06
 Assay 46%
 Melting point 131-134°C
 Sulfated ash 0.1%
 Chloride (Cl) 0.002%
 Sulfate (SO_4) 0.05%

(Carbamide)

UN Class. NR
 Cas No. 57-13-6
 EC No. 200-315-5

| Cat No. | Quantity | Price |
|---------|----------|-------|
| UR0 20 | 500GM | £5.49 |

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Urine Strips

UN Class. NR
Cas No. N/A
EC No. N/A

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| URO 51 | 100 | £30.89 |

Vacuum Grease - see Silicone Grease

Water HPLC Grade 1

H₂O

M.W. 18.02

For Use in High Performance Liquid Chromatography

Baker HPLC Analyzed

1L = 1.00 kg

Particulate Matter max. 0.0001%

Polarity Index.....9.0

Residue after Evaporation max. 2 ppm

Solvent Group.....9

Ultraviolet absorbance of largest eluted peak

at 220 nm..... max. 0.005 au

at 254 nm..... max. 0.001 au

For Use in High Performance Liquid Chromatography

UN Class. NR
Cas No. 7732-18-5
EC No. 231-791-2

| Cat No. | Quantity | Price |
|-------------------|----------|--------|
| 421 8/2 .5 | 2.5LTR | £11.05 |

Water Analytical

H₂O

M.W. 18.02

UN Class. NR
Cas No. 7732-18-5
EC No. 231-791-2

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| WA0 10 | 5LTR | £6.17 |
| WA0 20 | 25LTR | £24.49 |

Vanadium (V) Oxide

V₂O₅

M.W. 181.88

(Vanadium Pentoxide)

Yellow to reddish green, Solid powder, Odourless



UN Class. 6.1/UN2862/III
Cas No. 1314-62-1
EC No. 215-239-8

Danger

H302+H332, H341, H361, H335, H411, H372

P201, P264, P271, P280, P304+P340, P308+P313, P403+P233, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| VA0 10 | 25GM | £7.30 |

Water Purified (De-Ionised)

H₂O

M.W. 18.02

UN Class. NR
Cas No. 7732-18-5
EC No. 231-791-2

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| WA0 05 | 5LTR | £4.99 |
| WA0 06 | 25LTR | £9.68 |

White Spirit

N/A

M.W. N/A

Flashpoint: 38°C

UN Class. 3/UN1300/III
Cas No. 64742-88-7
EC No. 265-191-7



Danger

H226, H315, H336, H304, H411

P210, P280, P301+P310, P302+P352, P304+P340, P370+P378, P403+P233, P501

EUH066

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| WHO 10 | 1LTR | £2.58 |
| WHO 15 | 2.5LTR | £6.52 |

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Yeast Dried

N/A
M.W. N/A
Light brown, Solid, Characteristic odour

UN Class. NR
Cas No. 8013-01-2
EC No. 232-387-9

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| YE0 15 | 250GM | £4.49 |

Zinc Metal Granules

Zn
M.W. 65.39
Assay99.8%
Arsenic (As)0.00001%
Iron (Fe)0.005%
Grey granules

UN Class. NR
Cas No. 7440-66-6
EC No. 231-175-3

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ZIO 10 | 500GM | £9.99 |

Zinc Acetate-2-Water

Zn(CH₃COO)₂·2H₂O
M.W. 219.51
Assay98.5%
Chloride (Cl)0.002%
Sulfate (SO₄)0.02%
Iron (Fe)0.002%
Lead (Pb)0.004%



Colourless/white crystals

UN Class. 9/UN3077/III
Cas No. 5970-45-6
EC No. 209-170-2

Warning

H302, H400, H410, H319
P264, P273, P280, P305+P351+P338, P330, P337+P313, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| ZIO 25 | 250GM | £4.49 |

Zinc Metal Foil

Zn
M.W. 65.39
Assay99.5%
Lead (Pb)0.05%
Cadmium (Cd)0.005%
Tin (Sn)0.001%
Copper (Cu)0.005%
Iron (Fe)0.005%
Silvery grey, Solid, Odourless

UN Class. NR
Cas No. 7440-66-6
EC No. 231-175-3

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| ZIO 05 | 250GM | £11.49 |

Zinc Metal Powder

Zn
M.W. 65.39
Assay98%
Silvery grey, Powder, Odourless



UN Class. 4.2/UN1436/II
Cas No. 7440-66-6
EC No. 231-175-3



CANNOT TRAVEL BY PASSENGER AIRCRAFT

Danger

H250, H260, H400, H410
P210, P231+P232, P233, P273, P280, P302+P335+P334, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| ZIO 15 | 500GM | £12.57 |

Zinc Bromide

ZnBr₂
M.W. 225.2
Assay98%
Reaction (2% aqueous solution) pH6-7
Sulfate (SO₄)0.02%



UN Class. 8/UN3260/III
Cas No. 7699-45-8
EC No. 231-718-4

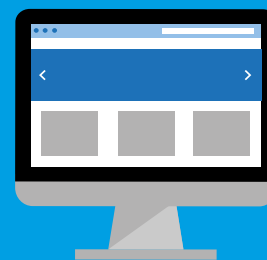
Danger

H302, H317, H411, H314
P264, P280, P301+P330+P331, P302+P352, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| ZIO 30 | 100GM | £13.33 |

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Zinc Carbonate

(ZnCO₃)₂
M.W. 125.4
White powder



UN Class. 9/UN3077/III
Cas No. 51839-25-9
EC No. 257-467-0

Warning

H400
P273, P501

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| Z10 35 | 500GM | £13.37 |

Zinc Nitrate-6-Water

Zn(NO₃)₂·6H₂O
M.W. 297.49

Assay 96%
pH of 10% solution 3-6
Chloride (Cl) 0.005%
Sulfate (SO₄) 0.01%
Iron (Fe) 0.005%



Colourless crystals

UN Class. 5.1/UN1514/II
Cas No. 10196-18-6
EC No. 231-943-8

Danger

H272, H302, H315, H335, H319
P210, P220, P280, P302+P352, P304+P340, P305+P351+P338, P370+P378, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| Z10 45 | 250GM | £9.49 |

Zinc Sulfate-7-Water

ZnSO₄·7H₂O
M.W. 287.56

Assay 99%
Chloride (Cl) 0.002%
Iron (Fe) 0.005%
Lead (Pb) 0.002%



Colourless, Crystals

UN Class. 9/UN3077/III
Cas No. 7446-20-0
EC No. 231-793-3

Danger

H302, H318, H400, H410
P264, P273, P280, P305+P351+P338, P310, P330, P391, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| Z10 55 | 500GM | £5.55 |

Zinc Chloride

ZnCl₂
M.W. 136.3

Assay 97%
Zinc oxide (ZnO) 4%
Iron (Fe) 0.005%
Lead (Pb) 0.005%



UN Class. 8/UN2331/III
Cas No. 7646-85-7
EC No. 231-592-0

Danger

H302, H335, H400, H410, H314
P260, P264, P280, P301+P330+P331, P304+P340, P305+P351+P338, P310, P501

| Cat No. | Quantity | Price |
|---------------|----------|-------|
| Z10 40 | 500GM | £6.12 |

Zinc Oxide

ZnO
M.W. 81.39

Assay 99%
Loss on ignition 1%



White powder

UN Class. 9/UN3077/III
Cas No. 1314-13-2
EC No. 215-222-5

Warning

H400, H410
P273, P391, P501

| Cat No. | Quantity | Price |
|---------------|--------------------|-------|
| Z10 50 | Surcharge 500GM | £7.49 |

Zinc Sulfide

ZnS
M.W. 97.46

White to very slightly yellow, crystals/powder, Characteristic odour

UN Class. NR
Cas No. 1314-98-3
EC No. 215-222-5

| Cat No. | Quantity | Price |
|---------------|----------|--------|
| Z10 60 | 250GM | £10.49 |



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| M - Q | 604 |
| R - S | 620 |
| T - Z | 647 |

Absorption Tubes**U Form**

Plain or with side arms.



| Cat No. | Dimensions | Quantity | Price |
|------------------------------|---------------------|----------|--------------|
| U Form Plain | | | |
| ABT 010 010 | 100 x 12mm Diameter | PK2 | £4.86 |
| ABT 010 020 | 125 x 15mm Diameter | PK2 | £4.82 |
| U Form with Side Arms | | | |
| ABT 020 010 | 100 x 12mm Diameter | PK2 | £7.83 |
| ABT 020 020 | 125 x 15mm Diameter | PK2 | £6.98 |
| ABT 020 030 | 150 x 20mm Diameter | PK2 | £7.99 |

Hot Melt Glue Gun

The Rapid hot melt glue gun provides a trouble-free supply of tough adhesive. The gun has an electronically controlled heating element which melts the solid glue sticks inserted into the back of the gun.

- Smooth flow of adhesive is controlled by the trigger feed mechanism
- Double insulated construction with 25W element rated at 240V
- Suitable for a wide range of materials including most metals, PVC, plastics, glass, etc.
- Fitted with a UK plug fused at 3A
- GS approved



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| ADH 060 012 | Hot Melt Glue Gun | EACH | £11.22 |
| ADH 064 011 | Glue Sticks | PK2 | £2.65 |

Wallpaper Paste

Makes 14 pints.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| ADH 090 010 | Wallpaper Paste | PK1 | £1.99 |

Adhesive

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| ADH 010 010 | Blu Tack | EACH | £1.52 |

**Aluminium Foil****Please Note:** Exact dimensions of the Standard Roll may vary.

| Cat No. | Description | Size | Quantity | Price |
|--------------------|---------------|--------------|----------|---------------|
| CMZ 100 011 | Standard Roll | 300mm x 7.5m | EACH | £1.30 |
| CMZ 100 020 | Catering Pack | 500mm x 75m | EACH | £12.26 |

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PE Aspirators with Tap

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|------------------------------------|----------|---------------|---------------|
| ASP 010 010 | Hexagonal | 5L | EACH | £12.48 |
| ASP 010 020 | Hexagonal | 10L | EACH | £14.98 |
| ASP 010 030 | Jerry Can with Cap | 25L | EACH | £20.97 |
| Accessories | Description | Quantity | £20.97 | |
| ASP 010 050 | Spare Stopcock for 5/10L Aspirator | EACH | £1.90 | |
| ASP 010 040 | Spare Stopcock for 25L Aspirator | EACH | £3.73 | |
| TPE 040 010 | PTFE Sealing Tape | EACH | £1.99 | |

HDPE Aspirators with Tap

Narrow mouth, round aspirators with screw cap, tap and heavy duty carrying handles.



| Cat No. | Capacity | Quantity | Price |
|--------------------|--|----------|---------------|
| ASP 050 010 | 2.5L | EACH | £21.63 |
| ASP 050 020 | 5L | EACH | £22.69 |
| ASP 050 030 | 10L | EACH | £26.84 |
| ASP 060 010 | 20L | EACH | £62.00 |
| Accessories | Description | Quantity | £62.00 |
| ASP 050 040 | Spare Stopcock for 2.5, 5 & 10L Aspirators | PK2 | £5.80 |
| ASP 060 040 | Spare Stopcock for 20 & 25L Aspirators | PK2 | £7.57 |
| TPE 040 010 | PTFE Sealing Tape | EACH | £1.99 |

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HoverCam Solo 8

The HoverCam Solo 8 Plus possibly the World's best Visualiser. It is a stunning Ultra HD A3 document camera. It offers incredible 13MP clarity, crystal clear, lag-free imagery, and the ability to record snapshots and video, including slow motion and time-lapse video footage. The HoverCam Solo 8 Plus connects to your computer through USB 3.0 (USB 3.0 cable is included) and it runs through HoverCam's Flex software. This gives you the ability to capture images and video, adjust resolution, annotate, and control the camera from your interactive whiteboard. Compact and Versatile The camera has a very small footprint on your desk, and is very versatile, able to be positioned exactly where you want it to, using the 5 pivot points on the camera. It can even be positioned to look down a microscope (Adaptors available to purchase separately). It connects to your computer via USB 3.0, and does not need a separate mains cable, meaning it is very portable.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| AUD 110 011 | HoverCam Solo 8 PLUS | EACH | £504.00 |



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Browne Steriliser Control Tubes

- Effective and immediate visual check on sterilisation conditions
 - Integrated 2 criteria control of temperature and time
- Ideal for fluid and dry heat sterilisers Select the Control Tube to match your sterilisation parameters (time/temperature) and distribute them throughout the load prior to sterilisation.

| Cat No. | Description | Criteria | Quantity | Price |
|-------------------------------|-------------|------------------------------|----------|---------------|
| Dry Heat Sterilisation | | | | |
| AUC 160 020 | Green Spot | Working at 160°C for 60 Mins | PK100 | £24.00 |
| Fluid Sterilisation | | | | |
| AUC 160 030 | Black Spot | Working at 121°C for 15 Mins | PK100 | £29.18 |
| Steam Sterilisation | | | | |
| AUC 160 040 | Yellow Spot | Working at 134°C for 3 Mins | PK100 | £29.18 |

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Autoclave Accessories

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Express Range Autoclave

The ST 1528 is made from stainless steel with a polished exterior for easier cleaning. The lid is removable for full width access. Items to be sterilised can be placed in the inner liner provided with the machine. The lid locking device is comprised of six wing nuts and six lid locking lugs. This ensures that the lid cannot be opened while the vessel is under pressure. After the sterilising period, a condensing vacuum is drawn to aid drying. This is particularly useful for dressings and drapes.

The ST 1528 is particularly suitable for destructive sterilisation. The operator is not restricted to a set sterilising period. This can be adjusted to suit the application.

| | |
|--------------------------------|--|
| Capacity | 15L |
| Internal Diameter | 280mm |
| Internal Height (useable) | 245mm |
| Internal Height (total) | 280mm |
| Material | Stainless Steel 316 |
| Heat Source | 2kW Heater with Electronic Thermostatic Controller |
| Design Pressure | 1.3 bar (18 psi) |
| Design Temperature | 0 - 125°C |
| Hydraulic Test Pressure | 2.0 bar (30 psi) |
| Standard Working Pressure | 1.3 bar (18 psi) |
| Maximum Working Temperature | 121°C |
| Standard Working Temperature | 121°C |
| Overall Dimensions (W x D x H) | 370 x 390 x 485mm |
| Net Weight | 19kg |

| Cat No. | Model | Quantity | Price |
|-------------|---------|----------|----------|
| AUC 080 011 | ST 1528 | EACH | £2370.59 |



Autoclave TST Strips

The TST (Time, Steam and Temperature) Steriliser Control is the most sophisticated Chemical device produced, being an integrated control system that registers a Pass only when it has been subjected to the required heat and time ratio in saturated heat steam (when exposed to steam for 3.5 minutes at 134°C or 15 minutes at 121°C). Can be placed throughout the load for thorough checking.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|--------|
| AUC 300 010 | Autoclave TST Strips | BX100 | £30.89 |



Self Seal Autoclave Pouches

Self Seal Autoclave Pouches, peel back, fold over and seal. Colour changing indicator.

| Cat No. | Size | Quantity | Price |
|-------------|-------------|----------|--------|
| AUC 220 010 | 135 x 255mm | PK200 | £21.86 |



Autoclave Bags

Polypropylene bags with Biohazard symbol for autoclaves, ideal for Petri-dishes, tubes and other contaminated products. Thickness: 40 µm +151°C

| Cat No. | Size | Quantity | Price |
|-------------|-------------|----------|--------|
| AUC 150 031 | 413 x 632mm | PK200 | £22.65 |
| AUC 150 035 | 413 x 632mm | PK100 | £15.64 |
| AUC 150 041 | 610 x 810mm | PK200 | £41.19 |



StrateLine™ Autoclave Indicator Tape

Roll of tape approximately 55m in length. The cream strip turns black to indicate proper sterilisation temperature. Excellent adhesive properties, but still easy to remove, without leaving a residue.

| Cat No. | Width x Roll Length | Quantity | Price |
|-------------|---------------------|----------|-------|
| AUC 030 020 | 18mm x 55m | EACH | £4.11 |
| AUC 030 030 | 24mm x 55m | EACH | £5.14 |





Autoclave Indicator Tape

Specifically for use with disposable wraps. Should not be used with linen or muslin. The white strips turn black when autoclaving temperature is reached.

| Cat No. | Width x Roll Length | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| AUC 040 010 | 18mm x 55m | EACH | £4.11 |
| AUC 040 020 | 24mm x 55m | EACH | £5.14 |



Resealable Polythene Bags

Plain bags.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| BAG 020 010 | 75 x 80mm | PK100 | £0.79 |
| BAG 020 020 | 89 x 114mm | PK100 | £1.16 |
| BAG 020 030 | 100 x 140mm | PK100 | £1.58 |
| BAG 020 040 | 125 x 190mm | PK100 | £2.34 |
| BAG 020 050 | 150 x 230mm | PK100 | £3.78 |



Polythene Bags

100 gauge bags.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BAG 010 010 | 150 x 100mm | PK1000 | £4.99 |
| BAG 010 020 | 200 x 150mm | PK1000 | £9.86 |
| BAG 010 030 | 250 x 200mm | PK1000 | £16.41 |
| BAG 010 040 | 300 x 250mm | PK1000 | £24.59 |
| BAG 010 050 | 375 x 250mm | PK1000 | £30.77 |
| BAG 010 060 | 450 x 300mm | PK1000 | £44.26 |



Resealable Polythene Bags

With write on panels. Other sizes are available, please ask for details.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| BAG 030 010 | 75 x 80mm | PK100 | £0.96 |
| BAG 030 020 | 89 x 114mm | PK100 | £1.41 |
| BAG 030 030 | 100 x 140mm | PK100 | £1.65 |
| BAG 030 040 | 125 x 190mm | PK100 | £2.58 |
| BAG 030 050 | 150 x 230mm | PK100 | £4.67 |
| BAG 030 060 | 200 x 280mm | PK100 | £5.97 |

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B Balances

GENERAL

SciChem Pro Balances

The SciChem Pro features easy to use two button operation, a high-contrast LCD display, multiple weighing units, four application modes, and the option of either RS232 or USB connectivity. 2 year warranty.



Features:

- Multiple Application Modes - Including enhanced parts counting, percentage weighing, totalisation and display hold
- USB or RS232 Connectivity - Quickly installed option with integral cable allows data connection to PC or printer
- Easy to Clean - Removable stainless steel weighing platform, sealed front panel and moulded spill ring
- Battery or AC Power - Uses 4 AA batteries with auto shutoff feature for 40 hours of operation, or can be run on the included AC power-pack
- Multiple Weighing Units - Including grams, kilograms, pounds, ounces, a combined pound: ounce display, troy ounces and pennyweights
- Integral Weigh-Below Hook - Critical for density or specific gravity determination



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| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|--------------------------|-------------|----------|----------------|
| BSC 140 010 | 400g | 0.01g | EACH | £245.33 |
| BSC 140 020 | 600g | 0.01g | EACH | £265.93 |
| Accessories | Description | | Quantity | £265.93 |
| BLE 500 500 | Mains Adaptor | | EACH | £265.93 |
| BAT 010 030 | AA Size - 1.5V Batteries | | PK4 | £2.99 |

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Ohaus Compass CR Series

The Compass CR series provides basic weighing functionality and competitive performance at an economical price. Features such as a slim, stackable design, and an enlarged weighing platform, make the CR series perfect for a variety of portable weighing applications. The Compass CR series is specially designed for convenient storage. Its slim, space saving design allows users to stack up to 4 scales, saving valuable storage space when the scale is not in use. With an enlarged weighing platform, the Compass CR series can adequately handle a wide range of sample sizes. You will only need one scale on your counter for basic weighing with the CR series.

| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| BLE 800 020 | 620g | 0.1g | EACH | £45.00 |
| BLE 800 030 | 2200g | 1g | EACH | £39.00 |
| BLE 800 040 | 5200g | 1g | EACH | £45.00 |





Ohaus Compass CX Series

Designed with energy efficiency in mind, the Compass CX series offers a battery life of up to 1,000 continuous hours, allowing for uninterrupted operation. Featuring a slim, stackable and light-weight design, the CX fits ideally in lab, industrial, education, and even household settings. The streamlined two-button operation means that the balance can be operated easily, and large backlit LCD display enables easy viewing of weighing results.

| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| BLE 700 010 | 220g | 0.1g | EACH | £61.00 |
| BLE 700 030 | 1200g | 0.1g | EACH | £69.00 |
| BLE 700 050 | 5200g | 1g | EACH | £66.00 |

Traveler Portable Balances

The Traveler Series was designed for basic routine weighing in laboratory, industrial and education applications. The Weigh-Through draught shield was designed with an easy to remove centre piece that provides protection from rough environments while maintaining weighing speed. The draught shield was designed with storage in mind and allows the balances to be stacked away. It can be removed and converts into a weigh boat when turned upside down.

- Fitted with calibration lockout and calibration mass included with scale (For models below 500g ONLY)
- There is a security loop in the rear and there is a weigh below hook
- An AC adaptor is included

Weighing units/modes: Grams, Newtons

NB: 2 year warranty on all Ohaus balances



| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|---------------------|-------------|----------|----------------|
| BLE 300 010 | 150g | 0.01g | EACH | £179.00 |
| BLE 300 020 | 300g | 0.01g | EACH | £228.00 |
| BLE 300 040 | 500g | 0.1g | EACH | £164.80 |
| BLE 300 045 | 500g | q0.01g | EACH | £257.00 |
| BLE 300 050 | 1500g | 0.1g | EACH | £204.97 |
| BLE 300 060 | 3000g | 0.1g | EACH | £267.80 |
| Accessories | Description | | Quantity | £267.80 |
| BLE 500 500 | Spare Mains Adaptor | | EACH | £29.32 |



Scout Precision Portable Balances

The Next Generation of Portable Balance for your Classroom

- Large LCD display and connectivity options for use with data logging systems
- Superior overload protection and practical stackable design for convenient storage
- High performance with fast stabilisation time



Design Features:

Fast stabilisation time, menu lock switch, security bracket, integral weigh below hook for below balance weighing applications, transportation lock, removable stainless steel weighing platform, stability indicator, overload and underload indicators, low battery indicator, auto shut-off.

- Display: Backlit LCD: 6-digit 7-segment with white LED back
- Operation: AC Adapter (Included), batteries (not included)
- Communication: Optional RS232, USB host, USB device, Bluetooth or Ethernet
- Construction: ABS housing, stainless steel pan, replaceable in-use cover



| Cat No. | Model | Capacity | Readability | Platform | Quantity | Price |
|--------------------|-----------|---------------------------|-------------|---------------|----------|----------------|
| BLE 440 010 | SKX222UK | 220g | 0.01g | Ø120 mm | EACH | £210.00 |
| BLE 440 020 | SKX422UK | 420g | 0.01g | Ø120 mm | EACH | £257.00 |
| BLE 440 030 | SKX622UK | 620g | 0.01g | Ø120 mm | EACH | £284.00 |
| BLE 440 060 | SKX2201UK | 2200g | 0.1g | 170mm x 140mm | EACH | £195.02 |
| BLE 440 070 | SKX6201UK | 6200g | 0.1g | 170mm x 140mm | EACH | £307.97 |
| Accessories | | Description | | | Quantity | £307.97 |
| BLE 450 540 | | Stacking & Storage Cover | | | PK6 | £307.97 |
| BLE 450 550 | | Stacking & Storage Cover | | | EACH | £307.97 |
| BLE 450 580 | | Replacement Power Adaptor | | | EACH | £307.97 |

Ohaus Navigator Balances

The practical space-saving design allows for stackable storage together with the AC adapters.

Integrated overload protection system that can withstand loads up to four times the rated capacity protects the balance in demanding classroom environments.

Advanced software allows you to secure and lock the menu settings and calibration operation, making it easier for teachers to manage the balances during school experiments.



NB: 2 year warranty on all Ohaus balances



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|----------------|
| BLE 460 010 | Portable Precision Balance NVE612UK | EACH | £83.90 |
| BLE 460 020 | Portable Precision Balance NVE2102UK | EACH | £125.00 |





PR Series Precision Balances

Offering accuracy and repeatability in essential weighing applications in laboratory, industrial and education settings, PR Series Analytical and Precision Balances deliver competitive performance at an economical price. Featuring RS232 connectivity for easy communication, and a backlit display and a simple interface for uncomplicated operation, the PR is perfectly designed for your workplace.



| Cat No. | Capacity | Readability | Pan Size | Quantity | Price |
|-------------|----------|-------------|-----------|----------|---------|
| BLG 400 010 | 2200g | 0.01g | 180mm Dia | EACH | £590.00 |
| BLG 400 020 | 4200g | 0.01g | 180mm Dia | EACH | £625.00 |

PR Series Analytical Balances

Offering accuracy and repeatability in essential weighing applications in laboratory, industrial and education settings, PR Series Analytical and Precision Balances deliver competitive performance at an economical price.

Featuring

RS232 connectivity for easy communication, and a backlit display and a simple interface for uncomplicated operation, the PR is perfectly designed for your workplace.



| Cat No. | Capacity | Readability | Pan Size | Quantity | Price |
|-------------|----------|-------------|-----------|----------|---------|
| BLG 500 010 | 220g | 0.001g | 120mm Dia | EACH | £565.00 |
| BLG 500 020 | 420g | 0.001g | 120mm Dia | EACH | £580.00 |
| BLG 500 030 | 220g | 0.0001g | 90mm Dia | EACH | £880.00 |



B

Balances - Scales

GENERAL



Budget Precision Balance

This precision weighing balance is housed in an impact-resistant ABS case with a 115mm stainless steel weighing pan, splash-proof membrane keypad, levelling bubble and adjustable feet. The balance can be either battery or mains powered via an AC/DC Adaptor.

Features:

- Weighs in g, oz, ct and tola
- Splash-proof membrane keypad incorporating 3 function keys
- 26mm Hi-Contrast LCD display with Backlight
- Automatic backlight when weight is placed on the pan
- Zero tracking ensures stable and repeatable readings
- Tare facility over the full range
- Overload protection to 100% over capacity
- Low Battery indication
- Auto Power Off after 3 minutes of no activity - can be user disabled
- Supplied with user guide and batteries
- Mains adaptor not supplied

| | |
|------------|---|
| Capacity | 600g |
| Resolution | 0.01g |
| Accuracy | ±0.02g |
| Power | 4 x 1.5V AA Alkaline Battery (ALR-6-4) or AC/DC Mains Power Adaptor (APW-100) |
| Dimensions | 230 x 180 x 60mm (Unit) 115mmØ (Pan) |
| Weight | 1.5Kg |

| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| BAL 100 010 | 600g | 0.01g | EACH | £99.99 |

Electronic Scale

- Accuracy: 0.1% of full scale
- Capacity: 5000g x 1g / 11lb x 0.1oz
- Construction: ABS plastic injection molded case and platter
- Display: LCD display with 15mm high digits
- Power: 4 AA batteries (included)
- Operator Keys: On/Tare, Off, Units
- Platform Dimension: 149mm diameter



NB: No bowl is supplied with this scale.

| Cat No. | Capacity x Readability | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| BDM 020 041 | 5000g x 1g | EACH | £29.99 |



Dial Scale

- Doctor style platform
- Large platform with generous foot room
- Easy to read speedometer dial
- 150kg x 1kg / 23st 7lb x 1lb

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BDM 060 022 | Dial Scale | EACH | £30.89 |

Chrome Mechanical Scales

- Dishwasher safe bowl - hygienic and easy to clean
- Scale fits inside bowl for neat storage
- Easy to read dial display
- Metric and imperial measures



| Cat No. | Capacity x Readability | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| BDM 040 032 | 5kg x 25g | EACH | £8.19 |

Newton Scales

A set of bathroom scales calibrated in Newtons.
Max 1200N in 10N divisions.
Dimensions: 271 x 243 x 43mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| BDM 050 020 | Newton Scales | EACH | £20.59 |



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Triple Beam Balances

Whatever you want to weigh, from powders to liquids and even animals these balances will do the job. Constructed from plastic with a stainless steel pan they come with notched and tiered beams for easy reading, magnetic damping for quick results and zero adjust compensator to ensure correct zero.

Platform Diameter: 150mm



| Cat No. | Capacity | Readability | Quantity | Price |
|--------------------|----------|-------------|----------|----------------|
| BME 130 010 | 610g | 0.1g | EACH | £123.00 |

Digital Hanging Scale

These Digital Hanging Scales are portable and easy to use, suitable for a wide range of applications including in mail rooms and as angling scales.

- Measures kg/lb & oz
- Easy-to-use push button operation
- Max. weight from previous reading on Power On
- Tare function
- LCD display
- Auto power off after 50 seconds
- Low battery indication
- Supplied with batteries
- Optional Calibration Certificate available



| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|-----------------------|----------|----------|---------------|
| BME 140 010 | Digital Hanging Scale | 25kg | EACH | £30.89 |



Push/Pull Spring Balances

The unique design of the Push/Pull Spring Balances means that they not only weigh suspended objects but in addition, using the extended rod, can also measure the force of pushing or pulling an object. They are colour coded, calibrated in grams and Newtons and have a clear flat area on the rod so you can, using a dry wipe marker, create your own scales. An instruction and ideas sheet is included.

| Cat No. | Newtons / Grams | Colour | Quantity | Price |
|--------------------|-----------------------|--------|----------|---------------|
| BME 120 010 | 2.5N/250g | Blue | EACH | £4.11 |
| BME 120 020 | 5N/500g | Green | EACH | £4.11 |
| BME 120 030 | 10N/1kg | Beige | EACH | £4.11 |
| BME 120 050 | 30N/3kg | White | EACH | £4.11 |
| Accessories | Description | | Quantity | Price |
| BME 120 070 | Set of All 6 Balances | | SET6 | £22.65 |



Newton Meters

A series of six colour coded spring balances which can be used for both force and measurements. Each scale is calibrated in both Newtons and grams. The top is flat sided so that the scale can be used with an inclined plane. The scale incorporates a zero adjustment. Features a clear transparent tube.

| Cat No. | Newtons / Grams | Colour | Quantity | Price |
|--------------------|-----------------------|--------|----------|--------------|
| BME 030 010 | 2.5N/250g | Blue | EACH | £2.11 |
| BME 030 020 | 5N/500g | Green | EACH | £2.11 |
| BME 030 030 | 10N/1kg | Beige | EACH | £1.97 |
| BME 030 050 | 30N/3kg | White | EACH | £1.98 |
| Accessories | Description | | Quantity | Price |
| BME 030 070 | Set of All 4 Balances | | SET4 | £7.64 |



B Balances - Accessories

GENERAL

Calibration Weights



| Cat No. | Weight | Quantity | Price |
|--------------------|--------|----------|---------------|
| BLA 130 010 | 1g | EACH | £6.00 |
| BLA 130 040 | 10g | EACH | £7.00 |
| BLA 130 070 | 100g | EACH | £17.83 |
| BLA 130 080 | 200g | EACH | £19.00 |
| BLA 130 090 | 500g | EACH | £39.48 |
| BLA 130 100 | 1kg | EACH | £54.00 |

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Scale Pan

Plated brass scale pan of 75mm diameter. Supplied with suspension cords and hook.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| BLE 130 010 | Scale Pan | EACH | £2.21 |



PP Measuring Scoops

100ml measuring scoops which are also suitable as weighing scoops. With precisely formed filling edge and comfortable, stable handle.

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| SCP 050 010 | Red | EACH | £1.56 |
| SCP 050 020 | Yellow | EACH | £1.56 |
| SCP 050 030 | Blue | EACH | £1.56 |



Weighing Boats

White polystyrene. Anti Static

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| DWB 100 010 | 30ml | PK500 | £10.20 |
| DWB 100 030 | 100ml | PK250 | £15.10 |
| DWB 100 070 | 100ml | PK1000 | £28.50 |
| DWB 100 090 | 250ml | PK1000 | £71.80 |

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Weighing Bottles

Made from high quality Borosilicate 3.3 glass, these Simax weighing bottles are perfect for the laboratory. These bottles have ground stoppers and are available in many different sizes and forms.



| Cat No. | Capacity | Dimensions (DxH) | Quantity | Price |
|--------------------|----------|------------------|----------|--------------|
| BLA 030 011 | 15ml | 30 x 50mm | EACH | £6.92 |



Crystallising Basins, Spouted

Flat bottomed borosilicate glass crystallising basins, spouted.

| Cat No. | Capacity | Diameter | Quantity | Price |
|--------------------|----------|----------|----------|---------------|
| BGS 030 012 | 40ml | 50mm | PK10 | £21.22 |
| BGS 030 032 | 100ml | 80mm | PK10 | £29.00 |
| BGS 030 042 | 150ml | 80mm | PK10 | £33.17 |

Crystallising Basins, Unspouted

Borosilicate glass crystallising basins with flat bottom, unspouted.



| Cat No. | Capacity | Diameter | Quantity | Price |
|--------------------|----------|----------|----------|---------------|
| BGS 070 022 | 60ml | 60mm | PK10 | £24.72 |
| BGS 070 032 | 100ml | 70mm | PK10 | £27.81 |
| BGS 070 042 | 150ml | 80mm | PK10 | £32.96 |
| BGS 070 052 | 300ml | 95mm | EACH | £3.23 |
| BGS 070 062 | 500ml | 115mm | EACH | £4.57 |
| BGS 070 071 | 900ml | 140mm | EACH | £6.24 |

SIMAX



Evaporating Basins, Glass

Borosilicate glass evaporating basins with flat bottom and spout.

| Cat No. | Capacity | Diameter | Quantity | Price |
|--------------------|----------|----------|----------|---------------|
| BGS 080 010 | 45ml | 60mm | PK5 | £31.62 |
| BGS 080 020 | 90ml | 80mm | PK5 | £41.30 |



Evaporating Basin, Budget

Budget range borosilicate glass evaporating basin, flat bottom, with spout.
Diameter: 90mm.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BGS 090 010 | 90ml | EACH | £2.79 |



Evaporating Basins, Porcelain

Porcelain evaporating basins with round bottom, spouted.

| Cat No. | Capacity | Dia x Height | Quantity | Price |
|--------------------|----------|--------------|----------|--------------|
| BPC 040 010 | 35ml | 60 x 25mm | EACH | £0.84 |
| BPC 040 020 | 50ml | 70 x 28mm | EACH | £0.93 |
| BPC 040 030 | 75ml | 82 x 32mm | EACH | £0.99 |
| BPC 040 040 | 100ml | 90 x 35mm | EACH | £1.42 |
| BPC 040 050 | 125ml | 98 x 38mm | EACH | £1.85 |
| BPC 040 060 | 150ml | 104 x 40mm | EACH | £1.65 |
| BPC 040 070 | 200ml | 110 x 44mm | EACH | £1.83 |
| BPC 040 080 | 270ml | 120 x 49mm | EACH | £2.76 |



B Baths

GENERAL

NE1D Series Unstirred Digital Water Bath

Clifton digital baths are designed for general use and are economically priced without compromising quality. Simple digital controller for setting temperature with 1°C divisions. Designed for immersion of flasks, bottles and racks in a highly stable temperature environment.

High quality build and features

Comprising a high quality corrosion resistant stainless steel tank, with a bright clean finish housed in a durable painted outer case. Painted surfaces feature antibacterial finish with good chemical resistance. Fitted with side lifting handles for easy lifting. Heaters and temperature sensor concealed under the tank provide a clutter free working area which is easy to wipe clean. Supplied with a removable sturdy low height stainless steel perforated shelf, for even heat distribution. The shelf provides a taller volume of water, for standing containers and accessory test tube racks in the bath. Three year warranty and comprehensive customer support. Accessory lids available separately.

Controls and safety

- Temperatures can be easily and rapidly set with the push button, wipe clean control panel
- Temperature setting is retained in memory, even after power off
- Illuminated on/off switch and heater indication lamp
- Factory calibrated controls and water temperature at 45°C for consistent temperature control in use
- Thermal cut out fitted in the heater
- IP rated clear boot on/off mains switch
- Bath fitted with nonslip rubber feet

If using your water bath at temperatures above 60°C, you will require a lid.

NB: These operate up to 100°C but are not designed for continuous boiling.

Clifton Range®



DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BWN 400 010 | 4L | EACH | £350.00 |
| BWN 400 020 | 14L | EACH | £408.33 |
| BWN 400 030 | 22L | EACH | £483.33 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Digital Water Bath

Digital water baths with easy to use temperature control and clear to read LED water temperature. These robust and reliable water baths each have an easy to clean stainless steel tank and sturdy metal outer casing. Incorporated over temperature protection system tracks the set temperature and controls the heater in the event of a fault. The heater is mounted underneath the tank to allow easy cleaning. Includes low level water sensor which cuts power to prevent the bath boiling dry. Built-in drain for easy emptying of the bath. Bath covers are included as standard with each bath to help reduce heat losses and evaporation. The covers are manufactured from robust polycarbonate allowing full visibility of the bath contents.

Features Include:

- Choice of sizes - 6, 15 or 24 Litres
- Digital display and selection of temperature
- Low level water sensor
- Integral drain
- Supplied with robust polycarbonate lid



stuart



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BWN 060 030 | 24L | EACH | £661.26 |



JB Academy Basic Unstirred Water Baths

An ideal choice for schools and colleges requiring a basic simple-to-use quality water bath. Base tray included as standard.

- Ambient +5°C to 95°C
- Unique Set and Forget™ technology - fast heat-up, reliable temperature control
- Stability ±0.5°C
- Simple, intuitive controls - quick and easy to set temperature
- Practical front panel lock - disables front panel controls preventing unintentional temperature changes



| | |
|-------------------|----------------------|
| Temp Range | Ambient +5°C to 95°C |
| Stability | ±0.5°C |
| Resolution | 0.5°C |

| Cat No. | Capacity | External Dims (LxWxH) | Quantity | Price |
|--------------------|----------|-----------------------|----------|----------------|
| BWG 190 010 | 5L | 200 x 335 x 215mm | EACH | £375.00 |
| BWG 190 020 | 12L | 225 x 360 x 380mm | EACH | £425.00 |



Transparent Water Bath

This Transparent Water Bath ensures a rapid heat-up and optimum distribution of heat in the range ambient to 80°C. It has a safety sensor which will cut heating when the water level is below the safety limit. It has a knob for adjusting the temperature. The power switch is indicated by an indicator light. A second LED indicates the temperature rise. It comes with a Transparent Tank and a test tube carrier which can accommodate 12 test tubes of 18mm maximum diameter.

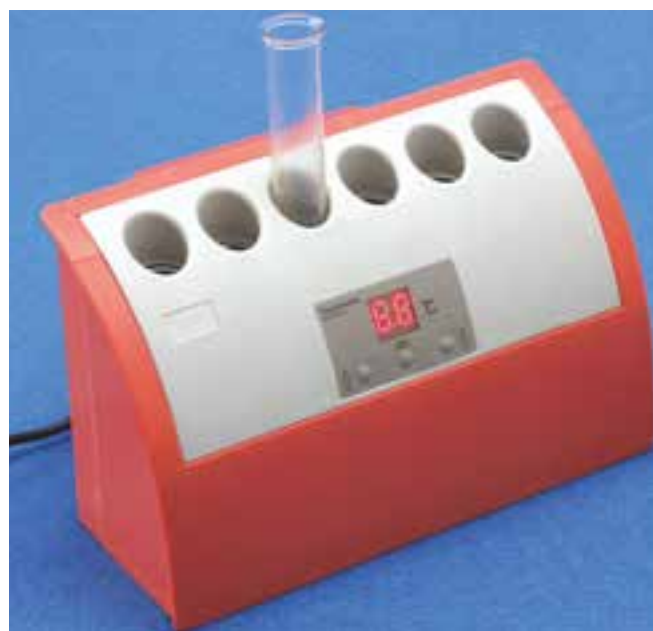
Power Input: 220V - 50Hz

Power: 600W

Tank Dimensions: 160 x 100 x 140mm

Mounted Assembly Dimensions: 230 x 110 x 185mm

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BWN 210 010 | 2L | EACH | £129.99 |



Thermotubes®

This innovative and revolutionary device substitutes the traditional water bath, with plenty of advantages:

- Waterless, safe and portable
- Six test tubes warmed or cooled between 15°C and 70°C (16mm diameter max.)
- Digital temperature display for set point and reached temperature at any time
- Operates at very low voltage for totally safe use

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|----------------|
| BWN 340 010 | Thermotubes® | EACH | £107.55 |



B

Baths - Unstirred

GENERAL

NE2D Series Unstirred Digital Water Bath

Comprising a 304 spec (18/8) stainless steel tank housed in a durable powder coated exterior, chemical resistant and now featuring antibacterial paint finish outer case. This popular range of water baths have PID control featuring adaptive tuning, providing instant control from start up automatically adjusting PID values with actual temperature readings until it achieves set temperature.

Clifton Range



Features Include:

- Removable perforated tray
- Undertank heating provides a broad and even spread of heating for excellent temperature uniformity
- Large bright LED display, actual liquid temperature to 0.1°C resolution
- Auto setting alarms for protection
- Touch pad controls, wipe clean front, chemical resistant
- Large bore drain outlet fitted to 22/28 litre baths for rapid emptying; gated tap may be fitted if required
- 3 year warranty
- Factory calibrated at two temperatures for constant temperature control



If using your water bath at temperatures above 60°C, you will require a lid.

NB: These operate up to 100°C but are not designed for continuous boiling.

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

| | BWN 070 020 | BWN 070 030 | BWN 070 040 | BWN 070 050 |
|---|----------------------|----------------------|----------------------|----------------------|
| Capacity | 8L | 14L | 22L | 28L |
| Internal Dims (WxDxH) | 300 x 240 x 150mm | 325 x 300 x 150mm | 500 x 300 x 150mm | 500 x 300 x 200mm |
| Drain | No | No | Yes | Yes |
| Heater Wattage | 800W | 1000W | 1500W | 1500W |
| Temp. Range | Ambient +5°C to 99°C | Ambient +5°C to 99°C | Ambient +5°C to 99°C | Ambient +5°C to 99°C |
| Temp. Sensitivity (in same tank) | ±0.2°C | ±0.2°C | ±0.2°C | ±0.2°C |
| Temp. Uniformity (in same tank) | ±0.1°C | ±0.1°C | ±0.1°C | ±0.1°C |
| Temp. Resolution | 0.1°C | 0.1°C | 0.1°C | 0.1°C |
| Temp Control | PID Control | PID Control | PID Control | PID Control |
| Temp Alarm | | | | |

ENVIRONMENTAL SCIENCE

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BWN 070 020 | 8L | EACH | £501.00 |
| BWN 070 030 | 14L | EACH | £571.99 |
| BWN 070 040 | 22L | EACH | £609.00 |
| BWN 070 050 | 28L | EACH | £664.00 |

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

JB Nova Digital Unstirred Water Baths

General purpose water baths with stable temperature control, simple controls and fast heatup. Base tray and lid included as standard.

- Unique Set and Forget technology - fast reliable temperature control
- Simple, intuitive controls - quick and easy to set temperature
- Drain tap on 12L, 18L and 26L baths
- Practical front panel lock - disables front panel controls preventing unintentional temperatures changes

Grant
IN THE LABORATORY



| | |
|-------------------|----------------------|
| Temp Range | Ambient +5°C to 95°C |
| Stability | ±0.5°C |
| Resolution | 0.5°C |

SAFETY

| Cat No. | Capacity | External Dims (LxWxH) | Quantity | Price |
|--------------------|----------|-----------------------|----------|----------------|
| BWG 035 042 | 12L | 380 x 360 x 225mm | EACH | £523.00 |



NE1 Series Unstirred Thermostatic Water Bath

Comprising a 304 spec (18/8) stainless steel tank housed in a durable powder coated exterior, chemical resistant and now featuring anti-bacterial paint finish outer case. Heater and safety cut out concealed underneath providing a totally clear 'clutter-free working area. Easy to use thermostatic control, graduated in 5°C increments, with illuminated on/off switch and 'heater on' indicator.

Features Include:

- Thermostatic control
- Stainless steel electro polished interior
- Mild steel stove enamelled exterior, chemical resistant with antibacterial paint finish
- Low height removable stainless steel shelf - water saving feature, reducing energy consumption and increasing working volume
- Side lifting handles for ease of transportation
- Large bore drain outlet fitted to 22/28 litre baths for rapid emptying; gated tap may be fitted if required
- A range of accessories including racks and lids is available
- 3 year warranty
- Factory calibrated at 45°C for constant temperature control



| | BWN 040 005 | BWN 040 010 | BWN 040 020 | BWN 040 030 | BWN 040 040 | BWN 040 050 | BWN 040 060 |
|------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Capacity | 2.5L | 4L | 8L | 14L | 22L | 28L | 9L |
| Internal Dims (WxDxH) | 230 x 130 x 150mm | 300 x 150 x 150mm | 300 x 240 x 150mm | 325 x 300 x 150mm | 500 x 300 x 150mm | 500 x 300 x 200mm | 500 x 300 x 65mm |
| Drain | No | No | No | No | Yes | Yes | No |
| Heater Wattage | 250W | 400W | 800W | 1000W | 1500W | 1500W | 1000W |
| Temp. Range | Ambient +5°C to 100°C | Ambient +5°C to 100°C | Ambient +5°C to 100°C | Ambient +5°C to 100°C | Ambient +5°C to 100°C | Ambient +5°C to 100°C | Ambient +5°C to 100°C |
| Temp. Sensitivity | ±0.25°C | ±0.25°C | ±0.25°C | ±0.25°C | ±0.25°C | ±0.25°C | ±0.25°C |
| Temp. Uniformity | ±0.1°C | ±0.1°C | ±0.1°C | ±0.1°C | ±0.1°C | ±0.1°C | ±0.1°C |
| Temp. Control | Analogue | Analogue | Analogue | Analogue | Analogue | Analogue | Analogue |

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BWN 040 005 | 2.5L | EACH | £282.22 |
| BWN 040 010 | 4L | EACH | £292.82 |
| BWN 040 020 | 8L | EACH | £325.18 |
| BWN 040 030 | 14L | EACH | £349.00 |
| BWN 040 040 | 22L | EACH | £411.41 |
| BWN 040 050 | 28L | EACH | £445.85 |



B

Baths - Unstirred - Accessories

GENERAL

NE1 Unstirred Triplebath™, Analogue & Digital

Triplebath features three independently controlled unstirred water baths in one unit. Triple chambers, 2 Litres each (4 litre chambers on BWN146020). Each tank can be set to a different temperature for denaturing, annealing and elongation. Featuring three stainless steel tanks with individual thermostatic controls, allowing each chamber to have a different temperature and shallow water levels. Each chamber comes complete with a removable Clifton 'low' height stainless steel perforated shelf. The high quality corrosion resistant stainless steel tank has a bright clean finish and is housed in a paint finished outer case. Painted surfaces feature antibacterial coating with good chemical resistance.

Accessory lids are available and are recommended to reduce evaporation above 60°C.

The baths operate up to 100°C but are not designed for continuous boiling.

Clifton Range®

3 YEAR WARRANTY



| Cat No. | Model | Description | Quantity | Price |
|--------------------|------------|----------------|----------|----------------|
| Digital | | | | |
| BWN 146 010 | NE1D-2/2/2 | 3 x 2L Digital | EACH | £810.00 |
| Analogue | | | | |
| BWN 146 020 | NE1D-4/4/4 | 3 x 4L Digital | EACH | £936.44 |

DATA LOGGING

BIOLOGY

Lids for Unstirred Baths

The use of a lid helps reduce evaporation and assists in keeping samples free from contamination.

- Stainless gable lids with a high profile allowing extended use of the bath area, right into edges of the tank
- Insulated handle
- Design ensures that all condensate goes back into bath
- No 'drip' points to contaminate samples



Clifton Range®



BWN 090 500

BWN 090 600

| Cat No. | Description | Quantity | Price |
|------------------------------------|--------------------|----------|----------------|
| Clear Polycarbonate, Hinged | | | |
| BWN 090 500 | For 2.5/4L Baths | EACH | £56.91 |
| BWN 090 890 | For 8L Baths | EACH | £56.91 |
| BWN 090 510 | For 14L Baths | EACH | £56.91 |
| BWN 090 520 | For 9/22/28L Baths | EACH | £56.91 |
| Stainless Steel, Gable | | | |
| BWN 090 610 | For 8L Baths | EACH | £129.60 |
| BWN 090 620 | For 14L Baths | EACH | £134.50 |
| BWN 090 630 | For 22/28L Baths | EACH | £147.47 |

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

Churchill Test Tube Racks for Unstirred Baths

The Churchill Test Tube Racks have been developed in conjunction with a school to allow a classroom of students to each place a test tube into the rack for incubation and other experiments in a water bath. Churchill racks can accommodate the popular 18mm or 25mm diameter test tubes. Manufactured from nylon it offers good resistance to solvents, formaldehyde and alcohols. Limited resistance to dilute acids. Not recommended for use with phenols, alkalis, iodine and acids. Maximum recommended temperature 70°C.

Clifton Range®



| Cat No. | Description | Fits | Quantity | Price |
|--------------------|-----------------------|----------|----------|---------------|
| BWN 050 815 | 44 Holes x 18mm Tubes | 8L Bath | EACH | £28.33 |
| BWN 050 825 | 68 Holes x 18mm Tubes | 14L Bath | EACH | £33.65 |
| BWN 050 845 | 44 Holes x 25mm Tubes | 8L Bath | EACH | £28.41 |

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



NE4 Series Stirred Water Baths

Stirred Clifton water baths are designed for immersion of flasks, bottles and test tube racks in a highly stable and accurate temperature environment. Capacities range from 8 to 28L.

Clifton Range[®]



Digital Stirred Features Include:

- Accurately controlled and set values reproducible every time using advanced adaptive PID control. Actual water bath liquid temperature always displayed for complete assurance
- Indication of heating, over temperature alarm, timer and setting set points
- When a low liquid level is detected a 'FILL' message automatically appears and heating is suspended. Once refilled, heating is restored and temperature control resumes automatically
- Durable stainless steel construction, painted surfaces are powder painted with tough antibacterial finish with good chemical resistance
- Controls are easy to wipe clean and have an Antibacterial finish
- Immersed components are corrosion resistant
- Quiet running in use and excellent water temperature stability
- Time or temperature displayed
- Features menu driven data entry
- Settings retained in memory
- Stainless steel tank, crevice free for convenient cleaning and supplied with removable shelf
- Factory pre-set two-point calibration on every unit

If using your water bath at temperatures above 60°C, you will require a lid.
NB: These operate up to 100°C but are not designed for continuous boiling.



| | BWN 100 030 |
|----------------------------------|-------------------|
| Capacity | 22L |
| Internal Dims (WxDxH) | 395 x 298 x 150mm |
| Heater Wattage | 1250W |
| Temp. Range | |
| Temp. Sensitivity (in same tank) | ±0.05°C |
| Temp. Uniformity (in same tank) | ±0.01°C |
| Temp. Resolution | 0.1°C |

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|---------|
| Digital | | | |
| BWN 100 030 | 22L | EACH | £892.00 |



B Baths - Stirred & Unstirred - Accessories

GENERAL



Gable Lids for Stirred Baths

The use of a lid helps reduce evaporation and assists in keeping samples free from contamination.

- Stainless gable lids with a high profile allowing extended use of the bath area, right into edges of the tank
- Insulated handle
- Design ensures that all condensate goes back into bath
- No 'drip' points to contaminate samples

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| BWN 090 720 | For 22/28L Baths | EACH | £163.43 |

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

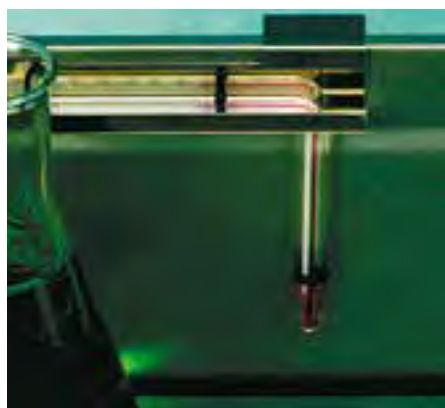
SAFETY



Polypropylene Spheres

Pack of 300 spheres.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| BWN 120 511 | Polypropylene Spheres | PK300 | £74.99 |



Thermometer Clip for Stirred & Unstirred Baths

Thermometer clip with bent stem filled thermometer, lies flush with top edge of the bath to prevent accidental damage.

Scale: 0 - 100°C in 2°C graduations.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| BWN 050 840 | Thermometer Clip | EACH | £82.32 |



Test Tube Racks for Stirred & Unstirred Baths

Made from high grade stainless steel.

Overall dimensions of rack: 270 x 70mm (L x W)

Height to top of lifting handle: 138mm

NE1 & NE2-D Series: Max No of Racks per Bath

| Bath Size | No. of Racks |
|---------------------|--------------|
| 2.5/4 Litres | 1 |
| 8 Litres | 2 |
| 14 Litres | 4 |
| 22/28 Litres | 8 |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| BWN 050 810 | 26 Holes x 17mm Tubes | EACH | £49.44 |
| BWN 050 830 | 16 Holes x 26mm Tubes | EACH | £49.44 |
| BWN 050 850 | 12 Holes x 32mm Tubes | EACH | £49.44 |



XUBA Analogue Ultrasonic Bath

This reliable, high-performance ultrasonic bath offers fast, safe and cost-effective consistent ultrasonics for various applications. It is a compact analogue controlled ultrasonic bath, providing a high standard of reliable and effective ultrasonic technology. This bath represents great value-for-money, with stainless steel basket and ABS plastic lid included as standard.

- Excellent entry level ultrasonic bath
- Fast, effective, efficient, easy and safe cleaning and processing of diverse instruments, components and solutions
- Robust design offers outstanding durability and reliability
- Innovative transducer technology provides outstanding performance and reliability
- Gentle yet effective cleaning ensuring consistent results for rapid and complete removal of contaminants
- Clean finish, high-quality and robust design for long-term reliability and durability



| | |
|---------------------------------|--------------------|
| Working Capacity | 1.5L |
| Dimensions (HxDxW) | 195x180x197mm |
| Max Capacity | 1.75L |
| Ultrasonic Power | 35W |
| Ultrasonic Power | 23.3W per Litre |
| Operating Frequency | 44 kHz |
| Maximum heating capacity | Ambient +5 to 70°C |
| Timer | 0-15 mins |
| Supply voltage | 230V |

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| BUS 160 010 | 1.5L | EACH | £288.40 |

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For a Safer School Environment, SurSol™ is on hand! Alcohol-free Hygiene Range



SurSol hand sanitiser has been tested to EN14476 and passed with a 30 second and 120 second positive log4, which means that it works within 30 seconds killing 99.9% of germs and viruses.

KILLS 99.99% OF GERMS

TESTED & PASSED
EN14476



Tested to and passed:
BS EN 1500: 2013,
BS EN 1276:2009,
EN 14476:2013
and ASTM E2315 standards.

KILLS 99.99% OF GERMS

INCLUDING
CORONAVIRUS

Introducing a safer alternative to killing bacteria in schools. Sursol's non-toxic, non-flammable formula kills 99.9% of bacteria for up to 4 hours, unlike alcohol-based formulas. Sursol products give you the ultimate peace of mind, reducing the fire safety and ingestion risks associated with alcohol-based products. They also prevent skin irritation and dry hands, being perfect for those with sensitive skin.

Why Sursol™ ?

Alcohol-based Sanitisers

- ☒ Alcohol-based hand sanitisers de-fat the skin and dry out hands
- ☒ Prolonged use of alcohol-based hand sanitisers can cause dermatitis
- ☒ Alcohol-based hand sanitisers cause skin irritation
- ☒ Alcohol-based hand sanitisers are 'flash sanitisers' that only last a few minutes, requiring frequent use which results in skin drying out and irritation
- ☒ Alcohol-based hand sanitisers are not ideal for all sectors or individuals, particularly those in education where there is a high flammability risk or risk of ingestion by students
- ☒ Alcohol-based hand sanitisers cannot be left in vehicles—when left in hot vehicles, it can cause damage due to flammability potential

SurSol Alcohol-free Sanitisers

- ☑ SurSol contains natural moisturisers aloe vera and camomile in its formulation
- ☑ SurSol is kind to the skin—it moisturises and sanitises hands
- ☑ SurSol does not dry out skin, does not cause any skin conditions
- ☑ SurSol does not irritate the skin
- ☑ SurSol remains active on the skin for up to 4 hours without reapplication
- ☑ SurSol products are alcohol-free! In testing, they have been proven to be more effective than alcohol-based products
- ☑ SurSol is safe to leave in vehicles due to its non-alcohol ingredients

SurSol™

View the complete Sursol™ range at education.scichem.com

B

Batteries

**Alkaline Batteries**

The 'classic' copper top high powered Duracell batteries. They have an exceptional shelf life and are leak proof.

| Cat No. | Description | Volts | Quantity | Price |
|--------------------|-------------|-------|----------|--------------|
| BAT 010 010 | D Size | 1.5V | PK2 | £3.35 |
| BAT 010 020 | AAA Size | 1.5V | PK4 | £2.99 |
| BAT 010 030 | AA Size | 1.5V | PK4 | £2.99 |
| BAT 010 040 | C Size | 1.5V | PK2 | £3.29 |
| BAT 010 050 | PP3 | 9V | EACH | £3.29 |

Zinc Chloride Batteries

Standard Zinc Chloride batteries. NB: Brand supplied may vary.



| Cat No. | Description | Volts | Quantity | Price |
|--------------------|-------------|-------|----------|--------------|
| BAT 090 010 | AAA Size | 1.5V | PK4 | £0.99 |
| BAT 090 020 | AA Size | 1.5V | PK4 | £0.99 |
| BAT 090 030 | C Size | 1.5V | PK2 | £0.99 |
| BAT 090 040 | D Size | 1.5V | PK2 | £0.99 |
| BAT 090 050 | PP3 Size | 9V | EACH | £1.19 |

Button Cell Batteries

| Cat No. | Description | Volts | Quantity | Price |
|---------------------|-------------|-------|----------|--------|
| Alkaline | | | | |
| BAT 050 010 | LR43 | 1.5V | PK10 | £1.99 |
| BAT 050 020 | LR44 | 1.5V | PK10 | £1.95 |
| BAT 050 031 | CR2016 | 3.0V | PK5 | £1.95 |
| Lithium | | | | |
| BAT 050 041 | CR2025 | 3.0V | PK5 | £1.95 |
| BAT 050 051 | CR2032 | 3.0V | PK5 | £1.95 |
| Silver Oxide | | | | |
| BAT 050 060 | SR44 | 1.55V | PK10 | £10.29 |
| BAT 050 070 | SR41 | 1.55V | PK10 | £6.17 |
| BAT 050 080 | L1131 | 1.5V | PK10 | £1.53 |

Batteries

BAT 030 010

BAT 030 020

| Cat No. | Description | Volts | Quantity | Price |
|--------------------|--------------------|-------|----------|--------------|
| BAT 030 010 | PP9 Size Battery | 9V | EACH | £4.11 |
| BAT 030 020 | PJ996 Size Battery | 6V | EACH | £2.15 |

Zinc Carbon Batteries

High power Zinc Carbon batteries. NB: Brand supplied may vary.



| Cat No. | Description | Volts | Quantity | Price |
|--------------------|-------------|-------|----------|--------------|
| BAT 040 010 | AA Size | 1.5V | PK4 | £0.91 |
| BAT 040 020 | C Size | 1.5V | PK2 | £0.91 |
| BAT 040 030 | D Size | 1.5V | PK2 | £0.99 |
| BAT 040 040 | AAA Size | 1.5V | PK4 | £0.99 |
| BAT 040 050 | 9V Size | 9V | EACH | £0.88 |

Rechargeable Batteries

NIMH, rechargeable 1000 times.



| Cat No. | IEC | Equivalent | Volts | Quantity | Price |
|--------------------|------|------------|-------|----------|--------------|
| BAT 080 010 | RX03 | AAA Size | 1.2V | PK4 | £8.23 |
| BAT 080 020 | RX6 | AA Size | 1.2V | PK4 | £8.23 |
| BAT 080 040 | RX20 | D Size | 1.2V | PK2 | £8.23 |
| BAT 080 050 | RX22 | 9V Size | 8.4V | EACH | £8.23 |



Battery Charger

Charges up to 4 RX6 (AA) batteries. Complete with 4 rechargeable batteries.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| BTC 010 030 | Battery Charger | EACH | £10.29 |

Battery Clips

PP3 Size, heavy duty. 150mm lead.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| ELA 310 150 | Battery Clips | PK5 | £0.99 |

Battery Holders - AA & AAA Size

Please note: We recommend that Zinc Chloride batteries are used with our Battery Holders; we do NOT recommend the use of alkaline or rechargeable batteries.



| Cat No. | Fits | Dimensions | Quantity | Price |
|-------------------------|------------------|------------|----------|--------------|
| Solder Terminals | | | | |
| ELA 310 020 | 2x AAA Batteries | 53x25x13mm | PK5 | £1.25 |
| ELA 310 030 | 1x AA Battery | 57x16x16mm | PK5 | £1.44 |
| ELA 310 050 | 3x AA Batteries | 58x49x17mm | PK5 | £1.88 |
| Snap Terminals | | | | |
| ELA 310 040 | 2x AA Batteries | 59x25x15mm | PK5 | £0.99 |
| ELA 310 060 | 4x AA Batteries | 59x30x29mm | PK5 | £1.65 |
| With 150mm Leads | | | | |
| ELA 310 070 | 1x AA Battery | | PK5 | £0.82 |
| ELA 310 080 | 2x AA Batteries | | PK5 | £1.13 |

**Battery Holders - C Size**

Please note: We recommend that Zinc Chloride batteries are used with our Battery Holders, we do NOT recommend the use of alkaline or rechargeable batteries.

| Cat No. | Fits | Dimensions | Quantity | Price |
|-------------------------|---------------------|----------------|----------|--------------|
| Solder Terminals | | | | |
| ELA 310 090 | 1x C Size Battery | 62 x 30 x 25mm | PK5 | £1.85 |
| Snap Terminals | | | | |
| ELA 310 100 | 2x C Size Batteries | 64 x 56 x 24mm | PK5 | £2.27 |

**Battery Holders - D Size**

Please note: We recommend that Zinc Chloride batteries are used with our Battery Holders, we do NOT recommend the use of alkaline or rechargeable batteries.

| Cat No. | Fits | Dimensions | Quantity | Price |
|-------------------------|---------------------|----------------|----------|--------------|
| Solder Terminals | | | | |
| ELA 310 120 | 1x D Size Battery | 69 x 36 x 27mm | PK5 | £2.27 |
| Snap Terminals | | | | |
| ELA 310 130 | 2x D Size Batteries | 70 x 71 x 27mm | PK5 | £3.59 |



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Squat Form Beakers

Manufactured to ISO 3819 from borosilicate 3.3 glass to ISO 3585. Consistent, even wall thickness. Excellent thermal properties. Excellent resistance to chemical attack.



Squat Form Beakers

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 040 046 | 50ml | PK12 | £34.80 |
| BEA 040 056 | 100ml | PK12 | £38.40 |
| BEA 040 066 | 150ml | PK12 | £40.46 |
| BEA 040 076 | 250ml | PK12 | £42.81 |
| BEA 040 086 | 400ml | PK12 | £51.60 |
| BEA 040 096 | 600ml | EACH | £5.43 |
| BEA 040 106 | 800ml | EACH | £7.54 |
| BEA 040 116 | 1L | EACH | £9.11 |
| BEA 040 126 | 2L | EACH | £15.57 |

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 140 001 | 5ml | PK10 | £25.00 |
| BEA 140 002 | 10ml | PK10 | £25.20 |
| BEA 140 010 | 50ml | PK10 | £11.99 |
| BEA 140 020 | 100ml | PK10 | £9.10 |
| BEA 140 025 | 150ml | PK10 | £19.80 |
| BEA 140 030 | 250ml | PK10 | £10.50 |
| BEA 140 040 | 400ml | PK10 | £14.99 |
| BEA 140 050 | 600ml | PK10 | £18.99 |
| BEA 140 055 | 800ml | PK10 | £49.80 |
| BEA 140 060 | 1L | PK10 | £31.49 |
| BEA 140 070 | 2L | PK4 | £23.49 |



Squat Form Beakers

Borosilicate glass.

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 020 011 | 25ml | | £7.99 |
| BEA 020 021 | 50ml | PK10 | £8.99 |
| BEA 020 031 | 100ml | PK10 | £7.77 |
| BEA 020 041 | 250ml | PK10 | £10.15 |
| BEA 020 051 | 400ml | PK10 | £13.50 |
| BEA 020 061 | 600ml | PK10 | £19.77 |
| BEA 020 071 | 1L | EACH | £2.99 |
| BEA 020 081 | 2L | EACH | £4.99 |



Squat Form Beakers

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 010 010 | 50ml | PK12 | £5.99 |
| BEA 010 020 | 100ml | PK12 | £5.50 |
| BEA 010 030 | 250ml | PK12 | £7.50 |
| BEA 010 040 | 400ml | PK12 | £11.99 |
| BEA 010 050 | 600ml | PK6 | £7.38 |
| BEA 010 060 | 800ml | PK6 | £9.30 |
| BEA 010 070 | 1L | PK6 | £11.70 |
| BEA 010 080 | 2L | PK4 | £23.33 |



B Beakers

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Heavy Duty Squat Form Beakers

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 090 046 | 600ml | PK10 | £93.90 |



Heavy Duty Squat Form Beakers

Economy borosilicate glass with reinforced rim and thick walls.

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 100 010 | 250ml | EACH | £3.34 |
| BEA 100 020 | 400ml | EACH | £5.69 |
| BEA 100 030 | 600ml | EACH | £6.55 |
| BEA 100 040 | 1L | EACH | £8.65 |
| BEA 100 050 | 2L | EACH | £12.24 |

SIMAX



Tall Form Beakers

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| BEA 030 010 | 50ml | PK10 | £12.99 |
| BEA 030 020 | 100ml | PK10 | £15.91 |
| BEA 030 030 | 250ml | PK10 | £17.99 |
| BEA 030 040 | 400ml | PK10 | £19.99 |
| BEA 030 050 | 600ml | PK10 | £25.99 |
| BEA 030 060 | 800ml | PK10 | £29.99 |
| BEA 030 070 | 1L | EACH | £3.99 |
| BEA 030 080 | 2L | EACH | £10.32 |
| BEA 030 090 | 3L | EACH | £18.99 |



Aluminium Squat Form Beakers

With Spout.

| Cat No. | Capacity | Dia. x Height | Quantity | Price |
|-------------|----------|---------------|----------|--------|
| BMT 010 010 | 250ml | 70 x 76mm | EACH | £7.86 |
| BMT 010 020 | 500ml | 84.5 x 103mm | EACH | £8.81 |
| BMT 010 030 | 1L | 102 x 132mm | EACH | £12.99 |
| BMT 010 040 | 2L | 126 x 156mm | EACH | £19.64 |
| BMT 010 050 | 5L | 178 x 206mm | EACH | £32.48 |



Polypropylene Beakers, Moulded Graduations

Transparent graduated beakers made from polypropylene.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BEP 200 010 | 50ml | EACH | £0.52 |
| BEP 200 020 | 100ml | EACH | £0.60 |
| BEP 200 030 | 250ml | EACH | £0.80 |
| BEP 200 040 | 500ml | EACH | £1.32 |
| BEP 200 050 | 1L | EACH | £1.99 |



Polypropylene Beakers

- Easy to read double graduated metric scale
- Meets ISO7056:1981 International standards
- Autoclavable
- Stackable

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BEP 060 036 | 50ml | PK12 | £12.20 |
| BEP 060 046 | 100ml | PK12 | £13.80 |
| BEP 060 056 | 250ml | PK12 | £21.40 |
| BEP 060 086 | 600ml | PK6 | £12.60 |
| BEP 060 096 | 1L | PK4 | £19.80 |
| BEP 060 106 | 2L | EACH | £7.47 |



Polypropylene Beakers

- Polypropylene, giving very high translucency.
- Autoclavable to 121°C for 20 mins, continuous work at 100°C
- Permanent graduations are moulded-in for reproducibility
- Excellent chemical resistance
- 3 and 5L sizes are heavy duty
- Not suitable for stirrer hotplates

Conforms to ISO 7056-1981 (E) and BS5404:Part 1.

| Cat No. | Capacity | Sub Divisions | Quantity | Price |
|--------------------|----------|---------------|----------|---------------|
| BEP 100 010 | 25ml | 1ml | PK10 | £11.60 |
| BEP 100 020 | 50ml | 1ml | PK10 | £11.21 |
| BEP 100 030 | 100ml | 10ml | PK10 | £14.60 |
| BEP 100 040 | 250ml | 10ml | PK10 | £16.80 |
| BEP 100 050 | 500ml | 10ml | PK5 | £14.40 |
| BEP 100 060 | 1L | 20ml | EACH | £5.64 |
| BEP 100 070 | 2L | 50ml | EACH | £7.92 |
| BEP 100 080 | 3L | 500ml | EACH | £13.74 |
| BEP 100 090 | 5L | 500ml | EACH | £21.33 |



Polypropylene Beakers, Tri-Stir

Tri-Stir polypropylene flat bottom beakers with V notched corners for easy pour and less spillage.

| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| BEP 030 030 | 250ml | 20ml | PK10 | £14.99 |
| BEP 030 050 | 800ml | 50ml | PK10 | £21.99 |
| BEP 030 060 | 1L | 50ml | PK10 | £23.99 |

B

Bell Jars

**Glass Bell Jars**

*Diameter does not include flange.

| Cat No. | Height x Dia. | Quantity | Price |
|-----------------------------------|---------------|----------|---------------|
| With B29 Joint and Stopper | | | |
| BLJ 010 010 | 200 x 150mm | EACH | £49.23 |
| BLJ 010 020 | 250 x 150mm | EACH | £57.64 |
| BLJ 010 030 | 300 x 200mm | EACH | £72.79 |
| With Moulded Knob | | | |
| BLJ 020 010 | 200 x 150mm | EACH | £39.18 |
| BLJ 020 020 | 250 x 150mm | EACH | £38.93 |
| BLJ 020 030 | 300 x 200mm | EACH | £68.00 |

**Plastic Bell Jar**

A vacuum system, which includes a transparent polycarbonate jar and a polypropylene gasketed vacuum plate. Vacuum plate comes with a tubing adaptor that will fit 6.4mm (ID) tubing.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|----------------|
| BLJ 030 010 | Plastic Bell Jar with Plate | EACH | £133.95 |

Blender

A general purpose blender for general use with a 800ml capacity. Goblet is graduated and comes with a leak-proof lid with removable cap.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| SPR 220 010 | 800ml | EACH | £25.74 |

Latex Sheet

- 91.4 x 100cm sheet
- 0.25mm thick
- For bell jars and lung experiments



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| EMZ 170 011 | Latex Sheet | EACH | £13.78 |

**Porcelain Combustion Boats**

| Cat No. | Dimensions (LxWxH) | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| BOA 010 010 | 90 x 14 x 8mm | PK10 | £8.86 |



Duran® Square Bottles

A 'Premium' square bottle made from borosilicate glass, graduated with a PP screw cap and pouring ring.

- Square shape allows closer stacking in water baths or on shelves
- Up to 20% space saving compared to round bottles
- Withstands steam sterilisation or dry heat up to 140°C
- Wide neck for easy filling
- DIN thread for cap 45GL (except BRE 130 010 which is GL32 thread)



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BRE 130 010 | 100ml | PK10 | £49.81 |
| BRE 130 030 | 500ml | PK10 | £69.96 |
| BRE 130 040 | 1L | PK10 | £99.20 |

Duran® Coated Laboratory Glass Bottles

The Duran® Protect plastic coating offers effective protection in the lab. If the outside is damaged, the coating holds the glass together so that leakage of the medium is slowed or even stopped completely.

- Without pouring ring
- DIN Thread 45GL
- Autoclavable

Amber coloured bottles are also available in this range. Please contact Customer Services for details and prices.

NB: Caps are not supplied with these bottles, please order separately.



| Cat No. | Capacity | Dia. x Height | Quantity | Price |
|--------------------|----------|---------------|----------|----------------|
| BRE 120 030 | 500ml | 86 x 176mm | PK10 | £128.03 |

Graduated Laboratory Bottles with Cap

With DIN thread 45GL. ISO 4796.

| Cat No. | Code | Capacity | Dia x Height | Quantity | Price |
|--------------------|-------------|----------|--------------|----------|---------------|
| BRE 100 030 | 21 801 24 5 | 100ml | 56 x 105mm | PK10 | £48.02 |
| BRE 100 040 | 21 801 36 5 | 250ml | 70 x 143mm | PK10 | £53.91 |
| BRE 100 050 | 21 801 44 5 | 500ml | 86 x 181mm | PK10 | £67.04 |
| BRE 100 060 | 21 801 54 5 | 1000ml | 101 x 230mm | PK10 | £95.10 |
| BRE 100 080 | 21 801 73 5 | 5000ml | 182 x 335mm | EACH | £97.52 |



Graduated Bottles

Borosilicate glass with screw cap and pouring ring.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BRE 060 020 | 100ml | PK5 | £12.15 |
| BRE 060 030 | 250ml | PK5 | £13.91 |
| BRE 060 040 | 500ml | PK2 | £6.92 |
| BRE 060 050 | 1L | PK2 | £9.68 |



PP Screw Cap

- DIN Thread 45GL
- They are temperature resistant up to 140°C for safe autoclaving
- With lip seal

| Cat No. | Colour | Dia. x Height | Quantity | Price |
|--------------------|--------|---------------|----------|---------------|
| BRE 110 520 | Blue | 54 x 26mm | PK10 | £13.83 |



B

Bottles - Dropping | Reagent

GENERAL

Dropping Bottles

Dropping Bottle
Soda-Lime Glass



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| Clear | | | |
| BDP 200 010 | 30ml | PK10 | £23.50 |
| BDP 200 020 | 50ml | PK10 | £26.50 |
| BDP 200 030 | 100ml | PK10 | £28.00 |
| Amber | | | |
| BDP 200 040 | 50ml | PK10 | £27.00 |

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PE Dropping Bottles

The graduated 40mm long dropper applicators can be cut to suit needs. Snip at the top for single drops and lower down for stream. Captive cover for dust free use. The translucent bottles are graduated for ease of use. Leakproof caps can be wired down if required.



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| BDP 010 010 | 50ml | 10ml | PK10 | £17.40 |
| BDP 010 020 | 100ml | 20ml | PK10 | £19.23 |



Polystop® Interchangeable Bottle Stoppers

BRE 010 551

These Polystop Interchangeable Stoppers are suitable to for used with the 100ml dropper bottles. these can be used with a 19/26 joint and used in conjunction with the other dropper parts.

BRE 010 571

These Polystop Interchangeable Stoppers are suitable to for used with the 30 & 50ml dropper bottles. these can be used with a 14/23 joint and used in conjunction with the other dropper parts.

| Cat No. | Cone Size | Quantity | Price |
|--------------------|-----------|----------|--------------|
| BRE 010 571 | 14/23 | PK20 | £2.83 |
| BRE 010 551 | 19/26 | PK20 | £2.75 |

Dropping Bottle Spares

These spare pipettes are compatible with the 30ml complete dropper parts. These can be changed as and when required. Made from Soda glass.



| Cat No. | Description | Quantity | Price |
|--------------------|---|----------|---------------|
| BDP 050 041 | Spare Teats - All Sizes | PK20 | £8.17 |
| BDP 050 051 | Spare Pipettes, Fit 30 & 50ml Bottles | PK10 | £5.50 |
| BDP 050 061 | Spare Pipettes, 50ml | PK10 | £5.50 |
| BDP 050 071 | Spare Pipettes, 100ml | PK10 | £6.17 |
| BDP 050 091 | 3 Piece Stopper, for 50ml Dropping Bottles | PK5 | £9.97 |
| BDP 050 101 | 3 Piece Stopper, for 100ml Dropping Bottles | PK5 | £10.83 |

Clear Soda-Lime Bottles



| Cat No. | Body Dia. | Capacity | Quantity | Price |
|--------------------|-----------|----------|----------|---------------|
| BRE 230 036 | 69mm | 250ml | PK10 | £43.87 |
| BRE 230 046 | 85mm | 500ml | PK10 | £56.00 |
| BRE 230 056 | 107mm | 1L | PK10 | £60.94 |

Reagent Bottles

Wide mouth reagent bottles with glass stoppers. Clear glass.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BRE 070 010 | 50ml | EACH | £2.99 |
| BRE 070 020 | 100ml | EACH | £4.11 |
| BRE 070 030 | 250ml | EACH | £4.62 |
| BRE 070 040 | 500ml | EACH | £6.68 |





Media Bottles

With aluminium screw cap.

| Cat No. | Capacity | Quantity | Price |
|------------------------------|----------|----------|---------------|
| Bijou, Narrow Neck | | | |
| BMD 010 010 | 7ml | PK20 | £16.93 |
| BMD 010 020 | 14ml | PK20 | £17.98 |
| Universal, Wide Mouth | | | |
| BMD 010 040 | 30ml | PK20 | £19.47 |

Sloping Shoulder Bottles

Sloping shoulder flat bottles. Type III Soda Lime Glass. Black urea plastic screw caps with PVDC faced woodpulp liner.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BGL 041 010 | 100ml | PK20 | £23.80 |
| BGL 041 020 | 150ml | PK20 | £28.84 |
| BGL 041 030 | 200ml | PK20 | £31.35 |
| BGL 041 040 | 300ml | PK20 | £38.22 |
| BGL 041 050 | 500ml | PK20 | £57.45 |

Alpha Sirop Bottles

Glass Alpha Sirop bottles.
Type III Soda Lime Glass
White 28mm PP caps with EPE liner.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| Clear Glass | | | |
| BGL 080 010 | 30ml | PK40 | £23.99 |
| BGL 080 020 | 60ml | PK40 | £22.99 |
| BGL 080 030 | 100ml | PK20 | £14.99 |
| BGL 080 040 | 150ml | PK20 | £15.99 |
| BGL 080 050 | 250ml | PK20 | £19.99 |
| Amber Glass | | | |
| BGL 090 020 | 60ml | PK40 | £22.99 |
| BGL 090 030 | 100ml | PK20 | £10.99 |
| BGL 090 050 | 150ml | PK20 | £11.99 |
| BGL 090 060 | 250ml | PK20 | £14.99 |
| BGL 090 070 | 500ml | PK10 | £9.59 |
| BGL 090 080 | 1L | PK10 | £33.99 |



B Bottles - Soda Lime

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Wide Mouth Glass Bottles

Powder type bottles. Type III Soda Lime Glass. Black urea plastic screw caps with PVDC faced woodpulp liner.



| Cat No. | Capacity | Cap Size | Quantity | Price |
|--------------------|----------|----------|----------|---------------|
| Clear Glass | | | | |
| BGL 010 010 | 15ml | R3/28 | PK40 | £21.52 |
| BGL 010 020 | 30ml | R3/33 | PK40 | £20.60 |
| BGL 010 030 | 60ml | R3/38 | PK40 | £22.43 |
| BGL 010 040 | 125ml | R3/38 | PK40 | £26.00 |
| BGL 010 050 | 250ml | R3/48 | PK20 | £17.40 |
| BGL 010 060 | 500ml | R3/58 | PK20 | £27.92 |
| Amber Glass | | | | |
| BGL 021 010 | 15ml | R3/28 | PK40 | £20.37 |
| BGL 021 020 | 30ml | R3/33 | PK40 | £20.37 |
| BGL 021 030 | 60ml | R3/38 | PK40 | £22.43 |
| BGL 021 050 | 250ml | R3/48 | PK20 | £21.52 |
| BGL 021 060 | 500ml | R3/58 | PK20 | £27.00 |

Winchester Pattern Bottles

Type III Soda Lime Glass. Black urea plastic screw caps with PVDC faced woodpulp liner.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| Clear Glass | | | |
| BGL 061 010 | 30ml | PK40 | £27.49 |
| BGL 061 020 | 100ml | PK20 | £15.49 |
| BGL 061 040 | 500ml | PK10 | £19.49 |
| Amber Glass | | | |
| BGL 071 010 | 30ml | PK40 | £20.59 |
| BGL 071 020 | 100ml | PK20 | £20.59 |
| BGL 071 030 | 150ml | PK20 | £20.59 |
| BGL 071 050 | 500ml | PK10 | £14.19 |
| BGL 071 060 | 1L | PK10 | £27.70 |
| BGL 071 070 | 2.5L | PK12 | £61.52 |
| BGL 071 080 | 2.5L | EACH | £6.70 |



Extra Wide Mouth Glass Bottles

Powder type with screw cap and extra wide mouth. Made from clear glass.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BGL 030 010 | 30ml | PK20 | £11.67 |
| BGL 030 020 | 60ml | PK20 | £15.99 |
| BGL 030 030 | 120ml | PK20 | £18.31 |
| BGL 030 040 | 250ml | PK10 | £15.99 |
| BGL 030 050 | 500ml | PK10 | £32.80 |



Soda Glass Bottles

With wadless polypropylene cap.

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|-------------|----------|----------|---------------|
| BMD 050 010 | Bijou | 7ml | PK245 | £49.56 |
| BMD 050 020 | Universal | 28ml | PK125 | £35.33 |



Narrow Neck HDPE Bottles



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 210 016 | 30ml | PK12 | £5.40 |
| BPL 210 026 | 60ml | PK12 | £6.40 |
| BPL 210 046 | 125ml | PK12 | £8.60 |
| BPL 210 066 | 250ml | PK12 | £13.60 |
| BPL 210 076 | 500ml | PK6 | £8.14 |
| BPL 210 086 | 1L | PK6 | £18.22 |

Narrow Neck HDPE Bottles

With black screw caps.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 240 010 | 50ml | PK50 | £16.48 |
| BPL 240 020 | 100ml | PK50 | £18.93 |
| BPL 240 030 | 250ml | PK50 | £26.00 |
| BPL 240 040 | 500ml | PK25 | £15.27 |
| BPL 240 050 | 1L | PK25 | £26.40 |

Wide Neck HDPE Bottles



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 260 016 | 30ml | PK12 | £8.78 |
| BPL 260 026 | 60ml | PK12 | £10.50 |
| BPL 260 046 | 125ml | PK12 | £11.35 |
| BPL 260 066 | 250ml | PK12 | £18.00 |
| BPL 260 076 | 500ml | PK6 | £13.92 |
| BPL 260 086 | 1L | PK6 | £23.89 |
| BPL 260 096 | 2L | PK6 | £50.03 |

Wide Neck HDPE Bottles

With black screw caps.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 250 010 | 50ml | PK50 | £15.97 |
| BPL 250 020 | 100ml | PK50 | £22.79 |
| BPL 250 030 | 175ml | PK50 | £24.46 |
| BPL 250 040 | 250ml | PK50 | £34.76 |
| BPL 250 050 | 350ml | PK50 | £39.91 |
| BPL 250 060 | 500ml | PK50 | £42.49 |
| BPL 250 090 | 1L | PK25 | £22.54 |



Extra Wide Mouth HDPE Bottles

With black PP screw caps.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BPL 270 010 | 150ml | PK10 | £4.94 |
| BPL 270 020 | 250ml | PK10 | £7.66 |
| BPL 270 030 | 685ml | PK5 | £7.21 |
| BPL 270 040 | 1285ml | PK5 | £9.27 |



B

Bottles - LDPE

GENERAL

Plain Round Bottles

Plain Round Bottles, LDPE

Made from low density natural polyethylene. Cap fitting 22mm R6, suitable for use with caps, nozzles and dispensers.

Plain Round Bottles, HDPE

Made from high density natural polyethylene. Cap fitting 22mm R6, suitable for use with caps, sprays and pumps.

Plain Tall Bottles, HDPE

Made from high density natural polyethylene with neck 28mm R6.

NB: Supplied without caps or fitments, see BPL440/BPL450 series

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| Cat No. | Capacity | Quantity | Price |
|--|--------------|----------|---------------|
| Plain Round Bottles, LDPE | | | |
| BPL 430 010 | 60ml | PK50 | £13.71 |
| BPL 430 020 | 125ml | PK50 | £14.40 |
| Plain Round Bottles, HDPE | | | |
| BPL 440 010 | 60ml | PK50 | £13.98 |
| BPL 440 020 | 125ml | PK50 | £14.54 |
| Plain Tall Bottles, HDPE | | | |
| BPL 450 010 | 500ml | PK25 | £15.42 |
| Accessories | | | |
| | Description | Quantity | £15.42 |
| Dispensing Closure with Flip Up Spout | | | |
| BPL 440 530 | 22mm R6 Neck | PK50 | £12.19 |
| BPL 450 530 | 28mm R6 Neck | PK50 | £13.71 |

LDPE Dispensing Bottles with Pivot Nozzle



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BDP 120 026 | 60ml | PK10 | £14.14 |

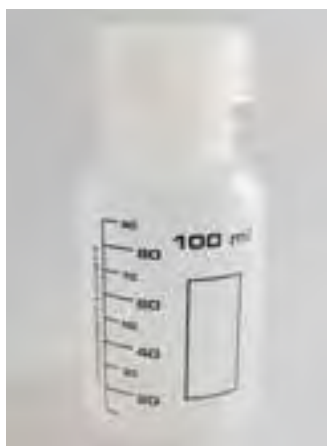


LDPE Dispensing Bottles with Spouted Cap

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BDP 140 016 | 30ml | PK12 | £12.51 |
| BDP 140 026 | 60ml | PK12 | £12.83 |
| BDP 140 046 | 250ml | PK12 | £21.48 |

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Wide Neck PP Bottles, Graduated

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BPL 315 026 | 100ml | EACH | £1.85 |
| BPL 315 036 | 250ml | EACH | £2.45 |

Wide Neck PP Bottles



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 300 016 | 30ml | PK12 | £8.07 |
| BPL 300 026 | 60ml | PK12 | £9.82 |
| BPL 300 066 | 250ml | PK12 | £20.73 |
| BPL 300 076 | 500ml | PK6 | £15.60 |
| BPL 300 086 | 1000ml | PK6 | £25.75 |

Narrow Neck PP Bottles



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BPL 200 076 | 500ml | PK6 | £7.92 |

Wide Neck HDPE Bottles, Amber



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 225 016 | 60ml | PK12 | £10.60 |
| BPL 225 046 | 500ml | PK6 | £15.20 |



Heavy Duty PE Bottles

Heavy duty bottles. Narrow mouth. PE bottles with PE caps.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BPL 290 010 | 250ml | PK10 | £12.25 |
| BPL 290 020 | 500ml | PK10 | £14.30 |



B

Bottles - Reagent

GENERAL

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Guide to Laboratory Plastics

| Abbreviation | PC | PMMA | PS | PVC | LDPE | HDPE | PMP | PP | PTFE |
|-----------------------------|--------------------------------|--------------------------------------|----------------|--------------------|--------------------------|---------------------------|--------------------|-----------------------------|---------------------------|
| Name | Polycarbonate | Polycarbonate methacrylates, Acrylic | Polystyrene | Polyvinyl-chloride | Low Density Polyethylene | High Density Polyethylene | Polymethylpentene | Polypropylene | Polytetrafluoro-ethylene |
| Temp. Range (°C) | -135 to +135 | -60 to +50 | -40 to +90 | -25 to +70 | -50 to +80 | -100 to +120 | -180 to +145 | -20 to +135 | -200 to +260 |
| Autoclavable (121°C) | x | x | x | x | x | x | √ | √ | √ |
| Microwable? | x | x | x | x | √ | x | √ | √ | √ |
| Transparency | Clear | Clear | Clear | Translucent | Translucent | Translucent | Clear | Translucent | Opaque |
| Flexibility | Rigid | Rigid | Rigid | Flexible | Flexible | Rigid | Rigid | Rigid | Rigid |
| Chemical Resistance* | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 4 |
| Typical Lab Uses | Safety shields, safety glasses | Radiation shields, cuvettes | Container ware | Trays, troughs | Wash bottles | Bottles | Beakers, cylinders | Beakers, bottles, cylinders | Bottles, beakers, stirres |



PE Wide Mouth Wash Bottles

Wide mouth for easy and safe filling. Colour coded caps for easy identification. Graduated. Cap designed to alleviate involuntary dripping due to pressure build up in bottle - very important where noxious, toxic or radioactive material is being used. The delivery nozzle is designed to give an accurate fine controlled stream of liquid. Conforms to Food & Ag regulations: EEC 90/128 92/93 and FDA 21 CFR 177.1520

| Cat No. | Colour | Capacity | Quantity | Price |
|--------------------|---------|----------|----------|---------------|
| BWS 030 010 | Neutral | 250ml | PK5 | £8.41 |
| BWS 030 020 | Blue | 250ml | PK5 | £10.50 |
| BWS 030 030 | Yellow | 250ml | PK5 | £10.50 |
| BWS 030 040 | Red | 250ml | PK5 | £10.50 |
| BWS 030 050 | Neutral | 500ml | PK5 | £10.56 |
| BWS 030 060 | Blue | 500ml | PK5 | £17.42 |
| BWS 030 070 | Yellow | 500ml | PK5 | £10.56 |
| BWS 030 080 | Red | 500ml | PK5 | £12.50 |



Wide Neck Wash Bottles Labelled

| Cat No. | Label | Capacity | Quantity | Price |
|--------------------|-------------|----------|----------|---------------|
| BWS 200 016 | Acetone | 250ml | PK10 | £37.38 |
| BWS 200 026 | Acetone | 500ml | EACH | £8.20 |
| BWS 200 046 | Isopropanol | 500ml | EACH | £6.76 |
| BWS 200 076 | Ethanol | 250ml | PK10 | £37.38 |
| BWS 200 086 | Methanol | 500ml | EACH | £7.58 |



LDPE Distilled Water Wash Bottle

Self-venting. Non metallic vent. Closure and spout are moulded together so they will not separate. Bottles are moulded from low-density polyethylene with polypropylene closures. Capacity 500ml



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BWS 230 050 | 500ml | PK5 | £25.40 |



PE Wash Bottles

General purpose.

| Cat No. | Capacity | Quantity | Price |
|--------------------|------------------------|-------------|---------------|
| Oval | | | |
| BWS 050 010 | 250ml | PK5 | £9.47 |
| BWS 050 020 | 400ml | PK5 | £11.78 |
| Round | | | |
| BWS 050 030 | 1L | PK5 | £15.65 |
| Accessories | | Description | Quantity |
| BWS 050 040 | Spare Jets for Bottles | PK5 | £3.55 |



Economy PE Wash Bottle

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BWS 270 010 | 250ml | EACH | £1.09 |



Specific Gravity Bottles

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|-------------|----------|----------|---------------|
| SGB 020 020 | Adjusted | 50ml | EACH | £22.72 |



B Bottles - Carboy | Accessories

GENERAL

PP Carboy without Stopcock



| Cat No. | Capacity | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| BCA 080 016 | Carboy 5ltr, without Stopcock | EACH | £11.80 |

Carrying Bottles

Carboy Bottles, PE with carrying handle.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BCA 030 010 | 2.5L | EACH | £12.62 |
| BCA 030 020 | 5L | EACH | £13.65 |
| BCA 030 030 | 10L | EACH | £19.83 |

DATA LOGGING

Clear Plastic Bottle Rack

Holds up to 6, 30ml or 50ml polystop bottles.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BRK 010 020 | Bottle Rack | EACH | £22.61 |

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Bottle Trays

Polythene, rectangular.

| Cat No. | Size | Quantity | Price |
|--------------------|------------------|----------|---------------|
| BTY 010 010 | 375 x 150 x 22mm | PK5 | £30.28 |

Enclosed Bottle Carriers

For Winchesters. Enclosed type.



| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|---------------|
| BCR 010 010 | Single | EACH | £40.56 |
| BCR 010 020 | Double | EACH | £81.11 |

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Open Bottle Carrier, for 6 x 1L Bottles

LLG Bottle Carrier Wire/ Nylon bot 1000ml



| Cat No. | Description | Size | Quantity | Price |
|--------------------|---------------------|--------|----------|---------------|
| BCR 020 041 | Open Bottle Carrier | 6 x 1L | EACH | £81.11 |

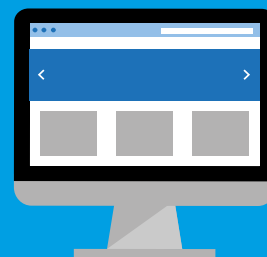
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Safe-Handle Bottle Carrier

Glass bottles are clean, dependable containers for liquid but they can present a serious safety hazard when broken. By containing liquid spills and broken glass, the 'Safe-Handle' protects people and property from glass shards and exposure to flammable or hazardous liquid.

Designed for Safety:

- Prevents breakages and minimises spills
- Meets secondary containment requirements
- Easy-to-use mechanism
- Environmentally responsible
- No effect on product quality, does not contaminate liquids
- Suitable for 2.5L Glass Bottles

Step 1: Disengage Bottom & top of Safe-Handle.

Step 2: Carefully place the bottle in the bottom portion of the Safe-Handle.

Step 3: Lower the Safe-Handle top over the neck of the bottle. Line up the indicator arrows to ensure proper assembly.

Step 4: While holding the bottom handle with one hand, turn the top handle with the other hand in a clockwise direction until the lugs click into place.

Step 5: Lock the top of the container to the bottom by pressing the handle lock mechanism until it snaps together. Ensure that the locking mechanism is engaged before carrying or dispensing liquid.

Step 6: When the bottle is empty, place the Safe-Handle on a flat surface to disengage.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| BCR 050 010 | Safe-Handle Bottle Carrier | EACH | £10.29 |

Plastic Bowls



| Cat No. | Diameter x Depth | Quantity | Price |
|--------------------|------------------|----------|--------------|
| BWL 030 010 | 330 x 125mm | PK3 | £6.75 |



Mixing Bowl

PE bowls are suitable for freezing, steaming or microwaving.

| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|--------------|
| BWL 010 010 | 150mm | PK2 | £2.21 |



Clear Polystyrene Boxes

Clear polystyrene boxes with push fit lids.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| BXS 020 020 | 76 x 54 x 29mm | PK10 | £16.23 |
| BXS 020 030 | 126 x 82 x 22mm | PK3 | £11.49 |
| BXS 020 040 | 139 x 79 x 60mm | PK5 | £27.83 |
| BXS 020 090 | 280 x 160 x 103mm | EACH | £15.55 |



Boxes With Push On Sealable Lid

These polypropylene boxes come complete with a push on sealable lid. Dishwasher, microwave & freezer safe.

| Cat No. | Dimensions (LxWxH) | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| BXS 010 011 | 235 x 140 x 70mm | PK2 | £15.64 |
| BXS 010 030 | 175 x 120 x 60mm | PK3 | £16.03 |
| BXS 010 050 | 115 x 115 x 105mm | PK2 | £13.93 |
| BXS 010 070 | 140 x 140 x 140mm | PK2 | £18.13 |



Storage Boxes

These HDPE storage boxes can be either stacked inside or on top of each other.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| BXS 030 010 | 300 x 250 x 200mm | EACH | £2.93 |
| BXS 030 021 | 480 x 350 x 250mm | EACH | £4.52 |



B Brushes

GENERAL

Flask Brush

Nylon flask brush with swivel head.



| Cat No. | Head Size (L x Dia) | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| BRU 060 010 | 100 x 50mm | EACH | £3.72 |



Borax Brush

Soft hair in quill handle.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| BRU 110 010 | 70 x 6mm Diameter | PK10 | £7.20 |

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Balance Brush

Pencil type, wooden handle.

| Cat No. | Size | Quantity | Price |
|--------------------|-------|----------|--------------|
| BRU 120 010 | No. 8 | PK5 | £8.23 |

Wooden Nail Brush



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| BRU 130 010 | Wooden Nail Brush | PK3 | £2.31 |



Tube Brushes

Nylon.

| Cat No. | Description | Diameter | Quantity | Price |
|--------------------|--------------|----------|----------|--------------|
| BRU 090 010 | Pull Through | 6mm | PK10 | £8.45 |
| BRU 090 020 | Pull Through | 12mm | PK10 | £9.89 |



Beaker Brushes

Nylon beaker brushes with wooden handle.

| Cat No. | Head Size (L x Dia) | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| BRU 010 010 | 140 x 63mm | PK5 | £8.24 |

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Test Tube Brushes

| Cat No. | Size | Quantity | Price |
|--------------------------------|-----------|----------|--------------|
| Bristle With Fan End | | | |
| BRU 070 010 | 10 - 12mm | PK10 | £4.53 |
| BRU 070 030 | 16 - 25mm | PK10 | £6.18 |
| BRU 070 050 | 12 - 16mm | PK10 | £6.26 |
| Nylon With Fan End | | | |
| BRU 070 020 | 10 - 12mm | PK10 | £4.53 |
| BRU 070 040 | 16 - 25mm | PK10 | £5.56 |
| BRU 070 060 | 12 - 16mm | PK10 | £5.87 |
| Bristle With Cotton End | | | |
| BRU 080 010 | 12 - 16mm | PK10 | £5.77 |
| BRU 080 030 | 16 - 25mm | PK10 | £6.80 |
| Nylon With Cotton End | | | |
| BRU 080 020 | 12 - 16mm | PK10 | £5.36 |
| BRU 080 040 | 16 - 25mm | PK10 | £6.18 |



Bottle Brushes

Nylon.

| Cat No. | Head Size (L x Dia) | Overall Length | Quantity | Price |
|---|---------------------|----------------|----------|---------------|
| BRU 020 010 | 50x40mm | 250mm | PK10 | £11.12 |
| BRU 020 020 | 67x45mm | 300mm | PK10 | £11.95 |
| BRU 020 030 | 75x50mm | 350mm | PK10 | £11.51 |
| BRU 020 040 | 100x67mm | 400mm | PK10 | £13.39 |
| BRU 020 050 | 150x70mm | 450mm | PK10 | £17.10 |
| Burette, Bristle, To Fit All Size Burettes | | | | |
| BRU 040 010 | 100 x 19 Diameter | - | PK10 | £9.99 |
| Cylinder, Nylon | | | | |
| BRU 050 010 | 665 x 75 Diameter | - | PK5 | £12.36 |



Bucket with Handle

Lightweight PE bucket with handle.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BUK 010 010 | 9 Litres | PK5 | £8.99 |

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B

Burettes



Glass Burettes

Graduated burettes with interchangeable P.T.F.E. stopcock to BS 846.

| Cat No. | Capacity x Graduations | Class | Quantity | Price |
|--------------------|------------------------|-------|----------|---------------|
| BUR 010 050 | 25 x 0.1ml | B | EACH | £17.10 |
| BUR 010 060 | 50 x 0.1ml | B | EACH | £17.49 |

Single Bore Glass Burettes

BS EN.ISO 385:2005



| Cat No. | Capacity x Graduations | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| BUR 040 010 | 10 x 0.1ml | EACH | £12.35 |
| BUR 040 020 | 25 x 0.1ml | EACH | £12.35 |
| BUR 040 030 | 50 x 0.1ml | EACH | £12.35 |
| BUR 040 040 | 100 x 0.2ml | EACH | £26.48 |

Glass Burette

A 50ml burette with white graduations. Class A.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BUR 150 010 | 50ml | EACH | £27.93 |



Single Bore Burettes

With P.T.F.E. removable stopcock to BS 846.

| Cat No. | Capacity x Graduations | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| BUR 020 020 | 50 x 0.1ml | EACH | £18.10 |

Acrylic Burettes

Transparent body and leakproof stopcock. Not suitable for hydrofluoric acid or ammonium hydroxide. Made from Polymethyl methacrylate.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| BUR 140 010 | 25ml | EACH | £10.25 |
| BUR 140 020 | 50ml | EACH | £10.18 |



Microburette

To measure the gas given off by Aquatic Plants. The plant shoot is inserted in a bulb at the end of a tube, graduated 0-150mm. The gas collected therein is drawn off with the help of a syringe. Supplied with a 5ml syringe, a rubber tube and a Hoffman screw clip.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| BUR 160 010 | Microburette | EACH | £5.67 |

Mohr Clip

Made from nickel-plated steel. Can be used for up to 15mm tubes.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TCL 090 010 | Mohr Clip | EACH | £0.50 |

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Natural Gas Bunsen Burners

All burners are constructed utilising a heavy pressure diecast base painted in a blue chemically resistant acrylic finish. The hottest flame temperature for all natural gas burners is between 900 and 1000°C. The temperature is achieved at the tip of the blue flame cone. Typically the temperature of the airless yellow flame will be between 750 and 800°C.



| Cat No. | Diameter | Height | Quantity | Price |
|--------------------|----------|--------|----------|--------------|
| BRN 010 010 | 11mm | 124mm | EACH | £9.99 |
| BRN 010 020 | 13mm | 145mm | EACH | £9.26 |

Bunsen Burners, Round Base

Nickel plated burner tube with rotatable air regulator and cylindrical connector. Mounted on pressure die cast base.

Base dia: 80mm



| Cat No. | Type | Tube Dia | Height | Quantity | Price |
|--------------------|-------------|----------|--------|----------|--------------|
| BRN 240 010 | Natural Gas | 11mm | 120mm | EACH | £6.17 |
| BRN 240 020 | Natural Gas | 13mm | 142mm | EACH | £6.17 |
| BRN 240 030 | LPG | 11mm | 120mm | EACH | £6.17 |
| BRN 240 040 | LPG | 13mm | 142mm | EACH | £6.17 |

Bunsen Burners, Square Base

Nickel plated brass tube, with rotatable air regulator, fitted with flame stabiliser and mounted on die-cast, non-tipping, square base.



| Cat No. | Type | Tube Dia | Height | Quantity | Price |
|--------------------|-------------|----------|--------|----------|--------------|
| BRN 250 010 | Natural Gas | 11mm | 125mm | EACH | £8.23 |
| BRN 250 020 | Natural Gas | 13mm | 145mm | EACH | £8.23 |
| BRN 250 040 | LPG | 13mm | 145mm | EACH | £8.23 |

Bottled Gas (Propane) Bunsen Burners

These gases generally achieve temperatures slightly lower than those achieved with natural gas, the range being 850 to 950°C.



| Cat No. | Diameter | Height | Quantity | Price |
|--------------------|----------|--------|----------|---------------|
| BRN 010 030 | 11mm | 124mm | EACH | £9.99 |
| BRN 010 040 | 13mm | 145mm | EACH | £10.29 |

Micro Bunsen Burner, Natural Gas

Constructed in brass and nickel plated.



| Cat No. | Height | Quantity | Price |
|--------------------|--------|----------|---------------|
| BRN 030 010 | 88mm | EACH | £15.57 |

Teclu Bunsen Burners

A specially designed conical mixing chamber is incorporated, which allows the nickel plated burner to give off a very hot flame. Suitable for glass work and soldering. Gas and air mixing is regulated by adjusting the knurled wheel below the tube.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| BRN 140 010 | Natural Gas | EACH | £29.99 |



B

Burners - Spirit & Cartridge

GENERAL

Hexagonal Spirit Burner

Angular shape allows it to be used while tilted. Glass with brass cap.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| BRN 210 010 | Hexagonal Spirit Burner | EACH | £2.55 |
| Accessories | | | |
| | Description | Quantity | Price |
| BRN 210 500 | Spare Wicks | PK12 | £1.85 |

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Spirit Burner

Glass spirit burner with screw in metal wick holder. 100ml capacity.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| BRN 070 020 | Glass Spirit Burner | EACH | £3.13 |
| Accessories | | | |
| | Description | Quantity | Price |
| BRN 070 500 | Spare Wick | MTR | £1.96 |



Metal Spirit Burner

An all metal, wick-less spirit burner with lid. Suitable for use with industrial methylated spirit.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| BRN 180 010 | Metal Spirit Burner | EACH | £14.41 |



Refillable Gas Burner

As covered in CLEAPSS guide GL240.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| BRN 080 010 | Refillable Burner | EACH | £46.00 |

Cartridge Burner

Designed for use with butane/propane mix gas cartridges. This burner can achieve temperatures in excess of 1000°C. The design of the gas cartridge enables the burner to be detached and re-attached as often as needed making it easily stored and transported. Constructed entirely in brass with a replaceable plated steel perforated head. When used with the 220g cartridge the burner fits the standard 200mm high tripod. Typical burning time of the 220g cartridge is 2 hours 45 minutes. **Note: Hazardous non-refillable gas cartridge (flammable). Class 2 UN 2037. This item would carry a shipping restriction due to its hazardous nature.**



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| BRN 150 010 | Burner complete with Cartridge | EACH | £45.47 |
| BRN 150 500 | Gas Cartridge | EACH | £8.16 |
| BRN 150 020 | Gas Burner / Tap | EACH | £37.29 |
| Accessories | | | |
| | Description | Quantity | Price |
| BRN 150 500 | Gas Cartridge | EACH | £37.29 |

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Wax Candles

| Cat No. | Description | Quantity | Price | |
|--------------------|-------------------|-------------|--------------|-------|
| BRN 090 013 | Wax Candles | PK6 | £1.99 | |
| BRN 100 011 | Night Lights | PK50 | £4.11 | |
| Accessories | | Description | Quantity | Price |
| BRN 170 010 | Night Light Stand | EACH | £2.51 | |



Calculator Class Set

30 student calculators and 1 teacher calculator supplied in a Grattnell's tray protected in foam. Calculators are 8 digit, have 3 key memory, 4 functions and are battery/solar powered.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| CAL 060 010 | Calculator Class Set | SET | £72.00 |

Scientific Calculator

- Permitted for use in GCSE mathematics exams
- Ideal for KS3, 4 and 5
- 2 line LCD display shows sum & answer
- Algebraic logic for calculations to be entered as they would be written
- 240 functions including 164 scientific functions
- Regression analysis, fractions and reciprocals
- Weight 97g
- Dimensions 78 x 148 x 14mm inc case
- Battery powered 2 x LR44



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| CAL 070 010 | Scientific Calculator | EACH | £4.99 |

Aurora Calculator

- Robust handheld model with durable hard keys
- Large numeric keypad for easy viewing/entry
- Clear 8 digit LCD display
- 3 key memory
- \pm Change sign key
- Constants: Addition, Division, Multiplication & Subtraction
- Percentage key & Square root
- Solar powered with battery backup
- Auto Power Off
- Unit size (WxDxH): 70 x 115 x 15mm
- Unit weight: 50g



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| CAL 010 020 | Aurora HC133 Calculator | EACH | £4.11 |

Casio Scientific FX-83GTX Calculator

- New - GTPLUS Replacement
- Ideal for key stage 3
- Natural display
- Easy to use Classwiz technology
- New menu operation
- Slide on cover



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------------|----------|---------------|
| CAL 030 022 | Casio Scientific FX-83GTX Calculator | EACH | £18.60 |



C Centrifuges

GENERAL

NE 010G Clifton Targa Centrifuge

This Targa Centrifuge is the latest model in the Clifton Range designed specifically for the education market. The high quality product combines all key features from previous Clifton models, ensuring it is the go to product for all your educational centrifugation needs. It is compact and robust, making it ideal for routine low speed centrifugation. Perfect for fractionation of samples and simple separation of biological cells. High quality build and features. Compact and robust construction making this centrifuge durable and hard-wearing. The rotor is removable for easy cleaning and push button control panel is wipe clean. This model is perfect for fractionation of samples, and simple separation of cells. Supplied with 6 place angle rotor, which includes 6 aluminium buckets for 15ml tubes. To prevent debris leaving the rotor area, a rubber seal provides a barrier when the lid is locked in position. The Clifton Targa Centrifuge includes a timer for rotor operation up to 100 minutes or for continuous use. Controls and safety Centrifuge spins at Max 4,000 RPM with acceleration and deceleration of ± 20 seconds. This model is complete with lid lock safety and lid drop protection. The lid automatically releases on completion of spinning down samples and includes a visual/audible end alarm. The rotor can only be energised when the lid is correctly closed and locked. A viewing window in the lid enables the rotor motion to be observed. Fitted with non-slip rubber feet for safety. Built to the latest safety standards and supplied with comprehensive operating instructions with a three year warranty.



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| | |
|--|-------------------------------|
| Rotor Type | Angle rotor |
| Max. Capacity | 6 x 15ml |
| Max. RPM / RCF | 4,000 / 2,075 xg |
| Timer | Yes |
| Time Control | Timed < 100 min or continuous |
| Acceleration/Deceleration (sec) | $\leq 20 / \leq 20$ |
| Noise Level (dB) | ≤ 52 |
| Program Memory | 10 |
| Imbalance Cutout | Yes |
| Lid Lock | Yes |
| Lid Drop Protection | Yes |
| Auto Door Release on Completion | Yes |

PHYSICS

| Cat No. | Model | Quantity | Price |
|--------------------|--------------|----------|----------------|
| CEN 110 010 | NE010G Targa | EACH | £828.94 |

ENVIRONMENTAL SCIENCE

Frontier™ 5306 Mini Centrifuge

- Brushless quiet motor
- Auto shut-off safety switches
- Simple one-step operation

The OHAUS Frontier 5306 is a small but powerful mini centrifuge for simple and quick liquid separation. With an 8 place 1.5/2mL tube rotor as well as a 4 place PCR 8-strip tube rotor, Frontier™ 5306 can accommodate 0.2mL 8 strip tubes or 32 individual PCR tubes. With the included adapter, 0.2mL and 0.5mL tubes can also be accommodated in the 8 place tube rotor. This centrifuge provides quiet, safe, and easy operation for your everyday quick spin-down applications.



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| | |
|---------------------------------|--------------------|
| Speed Range | 0 rpm - 6,000 rpm |
| Maximum RCF | 2000 x g |
| Maximum Capacity (Rotor) | 8 x 1.5 / 2.0 ml |
| Dimensions | 216 x 305 x 194 mm |

SAFETY

| Cat No. | Model | Quantity | Price |
|--------------------|----------|----------|----------------|
| CEN 200 040 | FC200040 | EACH | £161.00 |



Heavy Duty Hand Operated Centrifuge

A single speed hand driven machine consisting of die cast parts and a steel pinion and worm drive. The test tube holders and rings are made of metal. A heavy duty gear drive system makes this unit very durable and long lasting. Screw clamps the machine to bench. Finished in blue colour with removable crank handle.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| CEN 600 010 | Heavy Duty Hand Centrifuge | EACH | £23.68 |



Economy Hand Operated Centrifuge

A single speed hand driven machine consisting of die cast parts and a steel pinion and worm drive. Screw clamps the machine to bench. Finished in grey colour with removable crank handle. Suitable for 4x 15ml polythene tubes.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| CEN 610 010 | Economy Hand Centrifuge | EACH | £15.44 |



Coloured Microcentrifuge Tubes

Coloured 1.5ml Microcentrifuge Tubes in six colours.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| EPE 500 010 | Coloured Microcentrifuge Tubes | PK600 | £21.58 |

Centrifuge Tubes

Conical, Moulded graduations with screw cap. Caps are blue PE.

SAFETY NOTE: Relative centrifugal force (RCF) figures stated are maxima in ideal environmental conditions. The mechanical strength of tube materials can vary with exposure to certain reagents or with temperature changes. Care should be taken when using tubes at or near their operating limit.



| Cat No. | Capacity | Material | RCF (xg) | L x Dia. | Quantity | Price |
|--------------------|----------|----------|----------|------------|----------|---------------|
| DCT 200 500 | 15ml | PS | 1800 | 120 x 20mm | PK25 | £10.56 |
| DCT 220 500 | 50ml | PP | 10000 | 120 x 30mm | PK25 | £9.79 |



Whatman®



Chromatography Paper

Larger width reels available on request, please ask Customer Services for details.

| Cat No. | Grade | Size | Quantity | Price |
|---|---------|-------------|----------|----------------|
| Sheets | | | | |
| CHR 010 010 | 1 Chr | 100 x 300mm | PK100 | £41.73 |
| CHR 010 020 | 1 Chr | 200 x 200mm | PK100 | £47.70 |
| CHR 010 030 | 1 Chr | 250 x 250mm | PK100 | £74.85 |
| CHR 010 040 | 1 Chr | 460 x 570mm | PK100 | £162.14 |
| CHR 020 010 | 3MM Chr | 200 x 200mm | PK100 | £62.57 |
| Reels (100m) | | | | |
| CHR 040 010 | 1 Chr | 10mm | REEL | £17.99 |
| Reels | | | | |
| CHR 040 020 | 1 Chr | 20mm | REEL | £25.84 |
| CHR 040 030 | 1 Chr | 30mm | REEL | £35.52 |
| CHR 040 040 | 1 Chr | 40mm | REEL | £39.62 |
| Slotted Paper, Pre-cut sheets of 12 strips 15mm wide with a 3mm slot between | | | | |
| CHR 080 010 | | 110 x 215mm | PK100 | £78.37 |



Polygram Pre Coated TLC Plates

A general purpose plate which can be used for most separations. Coated with Silica Gel, average pore diameter 60Å layer thickness 0.25mm with fluorescent indicator. Easily cut with scissors forming smaller plates which may be used to facilitate the further development of a given spot. The plates can be rolled to fit into Chromatography cylinders. The carrier sheet is polyester, 0.2mm thick and resistant to all organic solvents commonly used in T.L.C.

| Cat No. | Dimensions | Quantity | Price |
|--------------------|------------|----------|----------------|
| TLC 010 010 | 80 x 40mm | PK50 | £51.49 |
| TLC 010 020 | 200 x 50mm | PK50 | £101.97 |

Virkon Virucidal Disinfectant

An easy-to-use wide spectrum disinfectant which has been proven, in independent tests, to be effective against all 17 virus families affecting man and animals, including AIDS (HIV) and Hepatitis B.

- Excellent bactericide and fungicide
- Can be applied in powder form, direct to spillages of blood and other body fluids
- Easily dissolves to make an inexpensive liquid disinfectant
- Non-corrosive, non-bleaching, biodegradable
- Use 1% solution



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| CLN 140 011 | Sachet | EACH | £2.99 |
| CLN 140 020 | Squeeze Puff Pack | 500GM | £19.99 |
| CLN 140 030 | Drum | 5KG | £129.99 |

D ContaminEx

Concentrated hard surface cleaning agent & radioactive decontaminant:

- Fast Rinsing
 - Biodegradable
 - Non-Flammable
 - Phosphate Free
 - Tap (potable) or demineralised water compatible
 - Safe with warm water and/or ultrasonic bath
 - Dilutable
- For laboratory use.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| CLN 300 010 | D ContaminEx | 5LTR | £30.28 |

Disinfectant & Detergent



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| CLN 090 010 | Pine Disinfectant | 5LTR | £3.48 |
| CLN 100 012 | Bleach | 750ML | £1.50 |
| TE0 05 | Economy Detergent | 5LTR | £5.99 |
| TE0 12 | Teepol Detergent | 5LTR | £8.22 |



Decon 90

Decon 90

The leading surface active cleaning agent / radioactive decontaminant, for laboratory applications. DECON 90 is biodegradable, phosphate-free, non-flammable and totally rinsable. Supplied as a liquid concentrate, for dilution with water, for cleaning by hand or for use in an ultrasonic cleaning bath.

Applications: For the safe and total cleaning and/or decontamination of glassware, ceramics, plastics (NOT polycarbonate), rubbers, stainless steel and ferrous metals.

NB: Being alkaline, DECON 90 is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).



Decon Acid Rinse

A highly effective acid rinse (neutraliser) and/or preliminary cleaner (prewash), for use in automatic glassware washing machines, for laboratory applications. DECON ACID RINSE is biodegradable, nonfoaming, non-flammable and totally rinsable. Supplied as a liquid concentrate, for use in automatic glassware washing machines, in conjunction with a 'main wash detergent' (see DECOMATIC).

Applications: DECON ACID RINSE is safe and effective for use on glassware, ceramics, plastics, rubbers, stainless steel and ferrous metals.

NB: Being acidic, DECON ACID RINSE is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).



Decomatic

A liquid surface active cleaning agent / decontaminant, specially formulated for use in automatic glassware washing machines, for laboratory applications.

DECOMATIC is biodegradable, phosphate-free, non-foaming, non-flammable and totally rinsable. Supplied as a liquid concentrate for use in automatic glassware washing machines. May also be used as a pre-soak solution, prior to machine cleaning.

Applications: DECOMATIC is safe and effective for cleaning/decontaminating glassware, ceramics, plastics (**NOT** polycarbonate), rubbers, stainless steel and ferrous metals.

NB: Being alkaline, DECOMATIC is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).



Decon Neutracon

A specialised surface active cleaning agent / decontaminant, for use on materials which may be corroded, etched, discoloured or weakened by acidic or alkaline cleaning agents. NEUTRACON is biodegradable, phosphate-free, non-corrosive, non-flammable and totally rinsable. Supplied as a viscous liquid concentrate for dilution with water, for cleaning by hand or for use in an ultrasonic cleaning bath.

Applications: NEUTRACON has been specially formulated for cleaning non-ferrous metals such as aluminium, zinc, copper, etc, 'soft' or coated glass, polymers and other sensitive materials. May also be used for cleaning glassware, ceramics, plastics, rubbers, stainless steel and ferrous metals.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| CLN 010 010 | Decon 90 | LTR | £12.89 |
| CLN 010 020 | Decon 90 | 5LTR | £44.00 |
| CLN 030 010 | Decomatic | 5LTR | £26.47 |
| CLN 030 020 | Decomatic | 10LTR | £50.88 |
| CLN 040 010 | Decon Acid Rinse | 5LTR | £54.33 |
| CLN 050 010 | Neutracon | LTR | £8.55 |
| CLN 050 020 | Neutracon | 5LTR | £35.69 |

Clean Up Powder

Super absorbent powder with biocide and deodoriser for body fluid spills. This remarkable powder absorbs up to 400 times its own weight in liquids including blood, urine and vomit. It quickly absorbs and gels the liquids within 1-2 minutes which allows easy clean-up. The powder contains a biocide which is effective against bacteria and viruses, kills odour causing bacteria and leaves a pleasant masking fragrance. Chlorine Bleach Free so suitable for carpets and fabrics. Also suitable for containing spills such as wine but not oil based spills. Can be used on carpets and fabrics as well as non-porous hard surfaces. Can be vacuumed if the spill is not contaminated. If contaminated, dispose of powder according to procedure.

Note: Contents do settle by over half after filling.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|-------|
| SAS 340 010 | Clean Up Powder | 240GM | £5.99 |



C Cleaning

GENERAL

Bactericidal Wipes

For disinfection of surfaces using wipes impregnated with 70% w/v denatured ethanol B and chlorhexidine digluconate. Dispenser tub of 160 wipes.
Size: 200 x 200mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| HYG 030 010 | Bactericidal Wipes | PK160 | £5.99 |

Glass Washer Products



CLN 110 010



CLN 130 020

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| CLN 110 010 | Chlorinated Dishwash | 5LTR | £16.99 |
| CLN 130 020 | Granular Salt | 5KG | £9.28 |

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Kimtech Science Delicate Task Wipes

A range of high-performance wipes, suitable for laboratory environments. Ideal for: cleaning of delicate glassware, instruments and surface/parts; wiping liquids, with multi-ply absorbency and low lint content for intricate dusting. Dispensed from a pop-up box system, giving controlled access to hygienically protected wipes when you're cleaning or wiping on the move. Please note: These are dry (not wet) wipes. Size: 21 x 20cm



| Cat No. | Box Qty | Quantity | Price |
|--------------------|------------|----------|--------------|
| PPR 070 011 | 100 sheets | EACH | £2.86 |

Dust Pan and Brush



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| CLM 140 010 | Dust Pan and Brush | SET | £2.15 |

Neodisher

Neodisher® LaboClean A8 Alkaline cleaning agent in powder form with high dirt suspending power. Extremely good cleaning power for laboratory glassware.

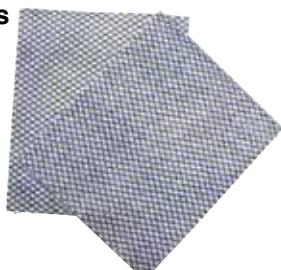
Neodisher® N For neutralising carried over alkali residues and removing lime residues or other acid-soluble residues during automated reprocessing.

Neodisher® FLA Liquid concentrated detergent. High cleaning performance. Removes stubborn residues on oil and other organic contaminants.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| DWH 021 500 | Neodisher® LaboClean A8 | 1KG | £12.99 |
| DWH 021 510 | Neodisher® LaboClean A8 | 10KG | £69.99 |
| DWH 021 520 | Neodisher® N | 5LTR | £49.99 |
| DWH 021 550 | Neodisher® FLA | 5LTR | £44.99 |

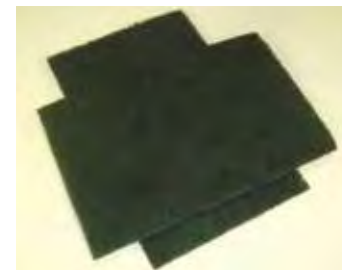
Cleaning Cloths



CLM 030 012



CLM 090 010



CLM 100 010

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| CLM 030 012 | General Purpose J-Cloths | PK50 | £3.84 |
| CLM 090 010 | Open Mesh Swabbing | PK10 | £5.40 |
| CLM 100 010 | Super Scourers | PK5 | £2.19 |



Paper Hand Towels



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| PPR 220 013 | Paper Hand Towels | PACK | £1.99 |
| PPR 220 500 | Paper Towel Dispenser | EACH | £22.15 |

Radio Controlled Clock

Features:

- Accuracy to 1 second in a million years
 - Bold dial markings, designed to be easily read from a distance
 - Set themselves to the correct time after battery is fitted
 - Shatterproof acrylic lens
 - Do not require mains power supply
 - Take AA battery (supplied separately)
 - 24 month guarantee
- Diameter: 25cm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| TCK 040 011 | Radio Controlled Clock | EACH | £23.99 |
| Accessories | Description | Quantity | £23.99 |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |

Wall Clock

25cm Quartz wall clock with shatterproof acrylic lens.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TCK 030 016 | Wall Clock | EACH | £9.40 |

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Colourwave Colorimeter

A modern, simple to use colorimeter incorporating 8 wavelength filters covering 440-680nm. The wavelength is changed by rotating a positive action thumbwheel located on the side of the colorimeter. The instrument can operate in absorption, transmission or kinetic modes. When using the kinetics function, the results are displayed continuously and are output through a choice of analogue and digital ports for connection to a suitable printer or a PC. Both 10mm square cuvettes and 12 or 16mm round tubes can be used.

| Cat No. | Model | Quantity | Price |
|-------------|--------|----------|---------|
| COL 061 010 | CO7500 | EACH | £542.25 |

Mystrica Colorimeter 2.0

Colorimeters are widely used in schools for making accurate measurements of coloured compound concentrations in a variety of experiments.

Includes:

- Wireless connection to iPads and iPhones - Each colorimeter has a unique identity. The app detects all units within range of an iPad or iPhone and allows one to be selected.
- USB connection for PCs
- Useable with test-tubes or cuvettes

The Mystrica Colorimeter can still be used as a stand-alone unit, and features include:

- Small, robust size, while maintaining high performance criteria
- Easy to read LCD display showing absorbance or transmittance
- Three choices of coloured light provided by red (630nm), green (525nm) or blue (465nm) LEDs
- Free software can be used to generate tables and graphs
- Shortened Calibration cycle
- Increased stability of calibration values

Mystrica Colorimeter Apps

Android [requires Bluetooth 4.0] and iOS apps are now available for the Mystrica 2.0 Wireless Colorimeter.



| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------------|----------|---------|
| COL 090 011 | Mystrica Wireless Colorimeter 2.0 | EACH | £126.92 |
| COL 090 500 | Cuvette Caps | PK1000 | £26.78 |



Pocket Conductivity Meters

Microprocessor based pocket testers with auto calibration and temperature compensation. All meters feature a narrow probe for limited access applications. Two versions available.

| Cat No. | Model | Range | Quantity | Price |
|-------------|--------|---------------|----------|--------|
| CON 210 010 | Primo | 0 - 1999ppm | EACH | £45.85 |
| CON 210 030 | Primo5 | 0 - 1999µS/cm | EACH | £45.85 |



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Waterproof Conductivity Meter

Pocket tester with simultaneous display of EC/TDS and temperature on a dual level LCD screen. Automatic calibration and buffer recognition combined with adjustable automatic temperature compensation, for a fast and accurate performance. Waterproofed to IP67, the meter even floats if dropped in water. Ergonomically designed, the rubberised body also has a user replaceable twist & lock probe.



| | |
|--------------|-------------------------|
| | HI-98311 |
| Range | 0 to 3999 μ S/cm |
| | 0 to 2000ppm |
| | 0 to 60°C (32 to 140°F) |

| Cat No. | Model | Quantity | Price |
|--------------------|----------|----------|----------------|
| CON 290 010 | HI-98311 | EACH | £127.25 |

Calibration Sachets

These 20ml calibration sachets are quick and easy, and come in a variety of pH & conductivity values. No need to mix powders or dilute, just tear off the top and insert your electrode or pocket meter for guaranteed measurement.



| Cat No. | Value at 25°C | Size | Quantity | Price |
|--------------------|-------------------|------|----------|---------------|
| CON 170 500 | 12,880 μ S/cm | 20ml | PK25 | £33.60 |
| CON 170 510 | 1,413 μ S/cm | 20ml | PK25 | £33.60 |
| CON 170 520 | 1,382ppm | 20ml | PK25 | £33.60 |

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C Containers

GENERAL



Polypropylene Screw Cap Containers

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| DCN 060 036 | 125ml | PK12 | £6.44 |
| DCN 060 056 | 500ml | PK6 | £8.16 |

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Disposable Shotglasses

50ml disposable plastic shotglasses. Injection moulded. Virgin food-grade crystal styrene gives perfect clarity and extra rigidity. Lined at 20ml and 40ml, maximum capacity 50ml.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| DCN 330 010 | Disposable Shotglasses | PK50 | £1.55 |

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Medicine Cups

Ultra clear polypropylene cup with cover in natural polyethylene, graduated up to 25ml. Dimensions: Neck diameter: 35mm Base diameter: 27mm Height: 40mm



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|----------------|
| DCN 300 010 | Medicine Cups | 60X100 | £153.47 |
| Accessories | Description | Quantity | £153.47 |
| DCN 300 020 | Caps for Medicine Cups | 3X2000 | £107.25 |

SAFETY



Gallipots

Disposable 60ml polypropylene pots with tapered sides. Non-sterile.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| DCN 870 011 | 60ml | PK200 | £9.26 |



Disposable Cups

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| CMZ 010 010 | Polystyrene Cups | PK500 | £15.86 |
| CMZ 010 031 | White Plastic Cups | PK100 | £2.99 |
| CMZ 010 020 | Lids for Polystyrene Cups | PK500 | £9.62 |

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Long Form Cork Stoppers

Long form corks, dimension shown is diameter in mm on the narrow end. Larger sizes available, please ask.

| Cat No. | Size (Narrow End) | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| COR 010 010 | 6mm | PK100 | £8.99 |
| COR 010 020 | 8mm | PK100 | £5.97 |
| COR 010 030 | 10mm | PK100 | £5.99 |
| COR 010 040 | 12mm | PK100 | £7.57 |
| COR 010 050 | 14mm | PK100 | £8.37 |
| COR 010 060 | 16mm | PK100 | £8.82 |
| COR 010 080 | 19mm | PK100 | £13.41 |
| COR 010 090 | 22mm | PK50 | £9.87 |
| COR 010 100 | 25mm | PK25 | £6.52 |
| COR 010 110 | 29mm | PK25 | £7.14 |
| COR 010 120 | 32mm | PK25 | £12.13 |
| COR 010 130 | 35mm | PK20 | £12.99 |

Cork Borer

Nickel plated. Other sizes available, please contact Customer Services for details.



| Cat No. | Size | Quantity | vPrice |
|--------------------|-------|----------|---------------|
| Sets | | | |
| COR 030 010 | 43617 | EACH | £20.60 |
| COR 030 020 | 43800 | EACH | £39.14 |
| COR 030 030 | 43101 | EACH | £51.16 |
| Single Size | | | |
| COR 060 030 | 1 | PK10 | £23.69 |
| COR 060 010 | 3 | PK10 | £22.66 |
| COR 060 050 | 4 | PK10 | £23.00 |
| COR 060 020 | 6 | PK10 | £26.57 |

Cork Rings



| Cat No. | Size, OD x ID | Quantity | Price |
|--------------------|---------------|----------|---------------|
| COR 020 010 | 75 x 45mm | PK2 | £8.86 |
| COR 020 020 | 115 x 85mm | PK2 | £13.98 |



Cork Stoppers, Assorted

An assorted pack of solid natural cork stoppers. Total of 150 stoppers:

- 24 of each of the following sizes: 9, 12, 16, 21 and 22
- 6 of each of the following sizes: 25, 28.5, 29, 32 and 35

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| COR 050 010 | Assorted Cork Stoppers | PK150 | £49.50 |



Cork Borer Sharpener

Used to hone the cutting edge to more easily slice the cork.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| COR 030 040 | Cork Borer Sharpener | EACH | £10.30 |



Cork Borer Cleaning Rods

Nickel rods for cleaning out cork borers.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| COR 060 040 | Cork Borer Cleaning Rods | PK10 | £7.62 |

Cork Sheets



| Cat No. | Size | Thickness | Quantity | Price |
|--------------------|-------------|-----------|----------|--------------|
| COR 040 011 | 455 x 610mm | 1.5mm | PK2 | £6.91 |
| COR 040 020 | 300 x 450mm | 12mm | EACH | £7.16 |



C Crucibles

GENERAL

Porcelain Crucibles

With lids.



| Cat No. | Capacity | Top Dia. x Height | Quantity | Price |
|--------------------|----------|-------------------|----------|---------------|
| Squat Form | | | | |
| CRP 010 011 | 15ml | 43 x 21mm | PK10 | £11.74 |
| CRP 010 021 | 25ml | 47 x 27mm | PK10 | £12.77 |
| CRP 010 031 | 50ml | 57 x 36mm | PK10 | £17.10 |
| Tall Form | | | | |
| CRP 020 011 | 15ml | 37 x 31mm | PK10 | £12.35 |
| CRP 020 021 | 25ml | 40 x 36mm | PK10 | £12.35 |
| CRP 020 031 | 30ml | 42 x 41mm | PK10 | £12.35 |
| CRP 020 041 | 50ml | 43 x 58mm | PK10 | £12.35 |
| CRP 020 051 | 100ml | 60 x 55mm | PK10 | £41.19 |



Porcelain Crucibles

Ceramic Crucibles to ISO 1772

| Cat No. | Capacity | Top Dia. x Height | Quantity | Price |
|--------------------|----------|-------------------|----------|---------------|
| CRP 030 030 | 17ml | 40 x 25mm | PK10 | £20.55 |
| CRP 030 040 | 21ml | 45 x 28mm | PK10 | £23.84 |
| Accessories | | Capacity | Quantity | £23.84 |
| Lids | | | | |
| CRP 060 030 | | 40mm | PK10 | £18.04 |
| CRP 060 040 | | 45mm | PK10 | £22.27 |

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Squat Form Silica Crucibles



| Cat No. | Capacity | Top Dia. x Height | Quantity | Price |
|--------------------|----------|-------------------|----------|---------------|
| CSL 010 071 | 25ml | 47 x 28mm | EACH | £34.88 |
| CSL 010 031 | 150ml | 82 x 51mm | EACH | £59.94 |

Budget Nickel Crucible



| Cat No. | Description | Diameter | Quantity | Price |
|--------------------|--------------|----------|----------|--------------|
| CUM 080 010 | Crucible | 40mm | EACH | £8.94 |
| CUM 080 020 | Crucible Lid | 40mm | EACH | £6.80 |

Metal Crucibles

Nickel Crucibles

For nickel crucibles the following recommendations apply:

- Working temperature range up to 350°C will ensure crucible has a long working life
 - Temperature range 350°C - 600°C will shorten the working life of the crucible due to oxidation
 - Temperature range 600°C - 800°C will show increased levels of oxidation on the crucible and dramatically reduce its life
 - Temperature range 800°C + will lead to severe oxidation and render the crucible unusable
 - The thicker the crucible wall, the longer it lasts at elevated temperatures resisting oxidation process and can extend its life
- Nickel crucibles with 1.0mm and 1.5mm wall thickness are available, details on request.

Stainless Steel Crucibles

For stainless steel crucibles the recommended temperature range is -196 to +550°C.



| Cat No. | Capacity | Top Diameter | Quantity | Price |
|------------------------------------|----------|--------------|----------|---------------|
| Nickel, 0.5mm wall | | | | |
| CUM 010 010 | 30ml | 40mm | EACH | £11.36 |
| CUM 010 020 | 50ml | 45mm | EACH | £13.10 |
| Stainless Steel, 0.7mm wall | | | | |
| CUM 040 010 | 15ml | 30mm | EACH | £7.29 |
| CUM 040 020 | 25ml | 35mm | EACH | £7.29 |
| CUM 040 030 | 30ml | 40mm | EACH | £7.98 |
| Nickel Lids | | | | |
| CUM 020 010 | - | 40mm | EACH | £7.78 |
| CUM 020 020 | - | 45mm | EACH | £9.29 |
| Stainless Steel Lids | | | | |
| CUM 045 010 | - | 30mm | EACH | £5.92 |
| CUM 045 020 | - | 35mm | EACH | £4.79 |
| CUM 045 030 | - | 40mm | EACH | £4.69 |
| CUM 045 040 | - | 50mm | EACH | £5.64 |

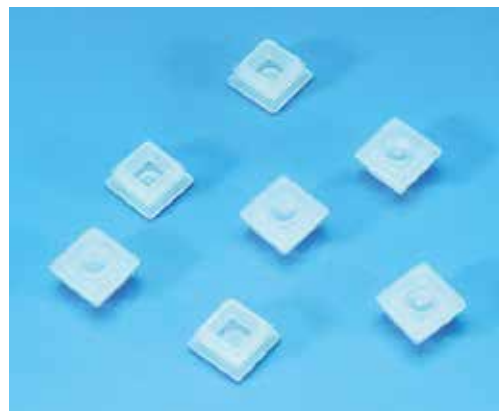




Semi-Micro Volume Cuvettes

Bio-Rad's standard disposable polystyrene cuvettes are ideal for use with the Bio-Rad protein assay. Assays can be mixed directly in the cuvettes.

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|---------------------|----------|----------|---------------|
| CUV 040 010 | Disposable Cuvettes | 1.5ml | PK100 | £27.92 |



Cuvette Caps

Push-in PE stoppers for closing cuvettes with square openings (10 x 10mm). Designed to prevent sample spillage caused by jostling and protection if sample is accidentally overturned.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| COL 090 500 | Cuvette Caps | PK1000 | £26.78 |



Visible Range Fluorimetry Cuvettes

Physical size (H x W): 45 x 12.5mm

NB: Any pair of faces of the CUV 010 010 can be used without affecting performance.

| Cat No. | Type | Capacity | Quantity | Price |
|--------------------|---------------|----------|----------|--------------|
| CUV 010 010 | 4 Clear Sides | 4.5ml | PK100 | £8.71 |
| CUV 010 021 | Standard | 4.5ml | PK100 | £8.55 |
| CUV 010 030 | Semi-Micro | 2.5ml | PK100 | £9.25 |
| CUV 010 040 | Semi-Micro | 1.5ml | PK100 | £9.41 |



U/V Range Cuvettes

PMMA (Optical methacrylate) has better transmission characteristics than optical polystyrene and can therefore be used below 300nm.

NOTE: Any pair of faces of the fluorimetry cuvette CUV 020 020 can be used without affecting performance.

Physical size (H x W): 45 x 12.5mm

Optical path length: 10mm

| Cat No. | Type | Capacity | Quantity | Price |
|--------------------|---------------|----------|----------|---------------|
| CUV 020 020 | 4 Clear Sides | 4.5ml | PK100 | £9.04 |
| CUV 020 030 | Semi-Micro | 2.5ml | PK100 | £13.39 |



PE Cuvette Holder

Polyethylene cuvette holder which can accommodate 12 x 10mm cuvettes vertically in firm recesses for preparation work or 12 x 10mm cuvettes horizontally for storage and protection.

| Cat No. | Size | Quantity | Price |
|--------------------|------------|----------|--------------|
| CUV 020 500 | 170 x 50mm | EACH | £2.74 |



Cylinder Protectors

Made from black Neoprene.

| Cat No. | To Fit | Quantity | Price |
|--------------------|--------|----------|--------------|
| CYG 050 030 | 100ml | PK5 | £7.26 |



C Cylinders

GENERAL

DATA
LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL
SCIENCE

FORENSIC
SCIENCE

CHEMICALS

GENERAL
LABWARE

SAFETY

Glass Cylinders



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| CYG 030 026 | 25ml | PK2 | £13.65 |
| CYG 030 036 | 50ml | PK2 | £13.96 |
| CYG 030 046 | 100ml | EACH | £8.61 |

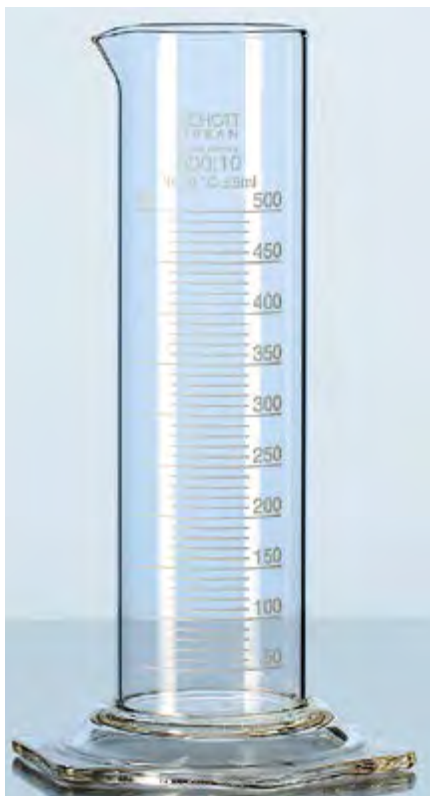
Glass Cylinders



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| CYG 130 011 | 10ml | EACH | £1.85 |
| CYG 130 021 | 25ml | EACH | £1.95 |
| CYG 130 031 | 50ml | EACH | £1.99 |
| CYG 130 041 | 100ml | EACH | £2.40 |
| CYG 130 051 | 250ml | EACH | £4.44 |
| CYG 130 061 | 500ml | EACH | £6.57 |
| CYG 130 071 | 1L | EACH | £10.16 |
| CYG 130 081 | 2L | EACH | £19.92 |

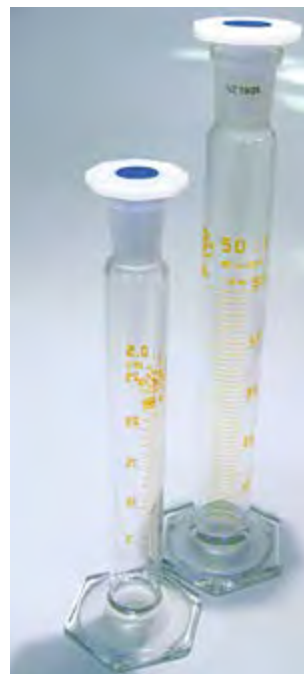
Low Form Glass Cylinders

With a hexagonal base and white enamel graduations.



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYG 160 070 | 1L | 20ml | EACH | £50.57 |

Glass Cylinders with Plastic Stopper



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYG 040 020 | 10ml | 0.2ml | EACH | £5.60 |
| CYG 040 030 | 25ml | 0.5ml | EACH | £7.83 |
| CYG 040 040 | 50ml | 1ml | EACH | £8.10 |
| CYG 040 050 | 100ml | 1ml | EACH | £9.21 |
| CYG 040 060 | 250ml | 2ml | EACH | £14.34 |
| CYG 040 070 | 500ml | 5ml | EACH | £21.71 |
| CYG 040 080 | 1L | 10ml | EACH | £30.88 |
| CYG 040 090 | 2L | 20ml | EACH | £44.34 |



Polypropylene Cylinders with Moulded Graduations



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------------------|-------------|----------|---------------|
| CYP 100 010 | 10ml | 0.2ml | EACH | £0.62 |
| CYP 100 020 | 25ml | 0.5ml | EACH | £0.91 |
| CYP 100 030 | 50ml | 1.0ml | EACH | £1.05 |
| CYP 100 040 | 100ml | 1.0ml | EACH | £1.32 |
| CYP 100 050 | 250ml | 2.0ml | EACH | £2.58 |
| CYP 100 060 | 500ml | 5.0ml | EACH | £3.99 |
| CYP 100 070 | 1L | 10.0ml | EACH | £7.88 |
| CYP 100 081 | Set of Each Size (7) | | SET7 | £17.90 |



Squat Form Polypropylene Cylinders

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| CYP 110 026 | 250ml | EACH | £10.20 |
| CYP 110 036 | 500ml | EACH | £4.99 |

Polypropylene Cylinders with Moulded Graduations

Kartell

Conform to ISO 6706 - 1981 (E) and BS 5404 Part 2 1977. Special polypropylene giving very high translucency. Autoclavable to 121°C for 20 minutes continuous work at 100°C. Permanent graduations are moulded in for reproducibility.

- No wetting
- NO MENISCUS
- Chemically cleaner than glass
- Chemically non-absorbant
- Excellent chemical resistance
- Pentagon base for added stability



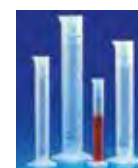
| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYP 010 010 | 10ml | 0.2ml | PK10 | £27.92 |
| CYP 010 020 | 25ml | 0.5ml | PK5 | £15.94 |
| CYP 010 030 | 50ml | 1.0ml | PK5 | £16.64 |
| CYP 010 040 | 100ml | 1.0ml | PK5 | £19.09 |
| CYP 010 050 | 250ml | 2.0ml | EACH | £4.44 |
| CYP 010 060 | 500ml | 5.0ml | EACH | £6.35 |
| CYP 010 070 | 1L | 10.0ml | EACH | £11.22 |
| CYP 010 080 | 2L | 20.0ml | EACH | £21.27 |

Polypropylene Cylinders with Blue Graduations

Kartell

Conform to ISO 6706 - 1981 (E) and BS 5404 Part 2 1977. Special polypropylene giving very high translucency. Blue graduations for optimum readability. Material clearly identified and autoclavable to 121°C for 20 minutes continuous work at 100°C.

- No wetting
- NO MENISCUS
- Chemically cleaner than glass
- Chemically non-absorbant
- Excellent chemical resistance
- Pentagon base for added stability



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYP 020 010 | 10ml | 0.2ml | PK10 | £31.64 |
| CYP 020 020 | 25ml | 0.5ml | PK5 | £18.64 |
| CYP 020 030 | 50ml | 1.0ml | PK5 | £19.55 |
| CYP 020 040 | 100ml | 1.0ml | PK5 | £20.36 |
| CYP 020 050 | 250ml | 2.0ml | EACH | £5.75 |
| CYP 020 060 | 500ml | 5.0ml | EACH | £9.51 |
| CYP 020 070 | 1L | 10.0ml | EACH | £14.18 |
| CYP 020 080 | 2L | 20.0ml | EACH | £22.05 |

Transparent PMP Cylinders with Moulded Graduations

Kartell

Conforms to ISO 6706-1981 (E) and BS 5404 Part 2 1977. Autoclavable. Can be used for liquids up to 170°C. Permanent graduations are moulded in for reproducibility.

- No wetting
- NO MENISCUS
- Chemically cleaner than glass
- Chemically non-absorbant
- Excellent chemical resistance
- Pentagon base for added stability



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYP 030 010 | 10ml | 0.2ml | PK10 | £31.83 |
| CYP 030 020 | 25ml | 0.5ml | PK5 | £22.83 |
| CYP 030 030 | 50ml | 1.0ml | PK5 | £25.50 |
| CYP 030 040 | 100ml | 1.0ml | PK5 | £29.50 |
| CYP 030 050 | 250ml | 2.0ml | EACH | £9.75 |
| CYP 030 060 | 500ml | 5.0ml | EACH | £13.77 |
| CYP 030 070 | 1L | 10.0ml | EACH | £21.00 |
| CYP 030 080 | 2L | 20.0ml | EACH | £43.25 |

PMP Cylinders with Blue Graduations

Kartell

Conforms to ISO 6706-1981 (E) and BS 5404 Part 2 1977. Autoclavable. Can be used for liquids up to 170°C. Clearly defined blue graduations and material identification.

- No wetting
- NO MENISCUS
- Chemically cleaner than glass
- Chemically non-absorbant
- Excellent chemical resistance
- Pentagon base for added stability



| Cat No. | Capacity | Graduations | Quantity | Price |
|--------------------|----------|-------------|----------|---------------|
| CYP 040 010 | 10ml | 0.2ml | PK10 | £34.36 |
| CYP 040 020 | 25ml | 0.5ml | PK5 | £26.00 |
| CYP 040 030 | 50ml | 1.0ml | PK5 | £29.73 |
| CYP 040 040 | 100ml | 1.0ml | PK5 | £30.45 |
| CYP 040 050 | 250ml | 2.0ml | EACH | £11.15 |
| CYP 040 060 | 500ml | 5.0ml | EACH | £14.04 |
| CYP 040 070 | 1L | 10.0ml | EACH | £22.80 |



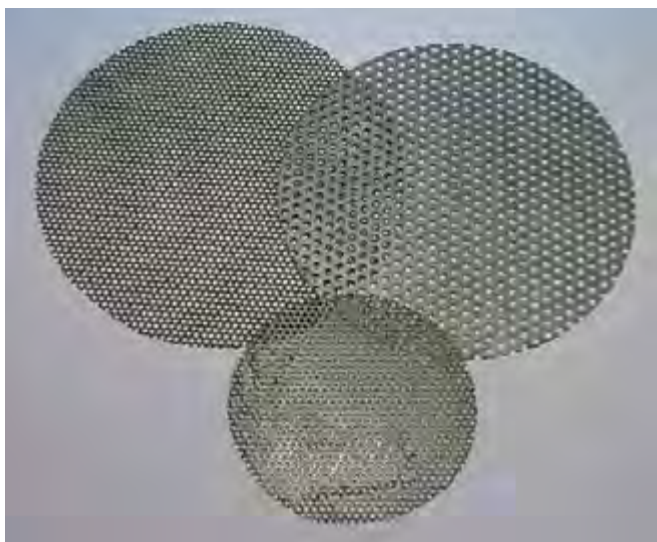
Glass Desiccator
With knob lid and porcelain disc.

| Cat No. | Size (ID) | Quantity | Price |
|--------------------|-----------|----------|---------------|
| DES 010 021 | 150mm | EACH | £18.29 |
| DES 010 031 | 200mm | EACH | £30.55 |



Borosilicate Glass Desiccator
Vacuum pattern complete with stopcock.

| Cat No. | Size (Inside Dia.) | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| DES 020 020 | 200mm | EACH | £126.00 |



Perforated Desiccator Discs
Zinc.

| Cat No. | Fits | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| DES 040 030 | 200mm Desiccators | EACH | £8.45 |



Aluminium Dishes

| Cat No. | Dimensions | Quantity | Price |
|--------------------------------------|-----------------|----------|---------------|
| Rigid Aluminium Sample Dishes | | | |
| DSH 010 030 | 55 x 10 x 0.2mm | PK250 | £64.88 |



Polythene Dispensers



| Cat No. | Capacity | Reservoir | Quantity | Price |
|-------------|------------|-----------|----------|--------|
| PRP 020 010 | Up to 15ml | 500ml | EACH | £8.27 |
| PRP 020 020 | Up to 60ml | 1000ml | EACH | £11.00 |

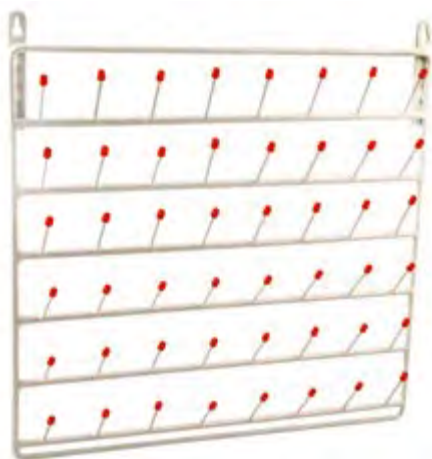
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Draining Rack - Single Panel

- Wall Mounted Laboratory Draining Rack for any wall or flat surface. Rack measures 20 inches long and wide
- Features 48 pins with rubber caps to prevent damages and scratches to test tubes.
- Pins are 2.75 inches long and separated by 3 inches in rows.
- Made from vinyl coated steel
- Sturdy design; great for any science or home laboratory.

This sturdy, 20x20 inch wall mounted laboratory drying rack contains 48 test tube pins. Each pin is 2.75 inches long and pegs are 3 inches apart. The rack is vinyl coated steel and each peg features a rubber cap to prevent damage and scratches to glassware.

Mounting Accessories not included.

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|--------|
| DRN 040 011 | Single Panel | EACH | £27.00 |



Drying Rack

It can be used either desktop or hanged, provided with a lower shelf for dripping water and 55 hangers, ideal for drying different laboratory materials. It is made of plastic coated steel. Dimensions: 640 x 360 x 140mm

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| DRN 100 010 | Drying Rack | EACH | £26.78 |





Drying/Warming Cabinet

The GENLAB Drying/Warming cabinets are suitable for drying a range of items such as glassware and instruments and any general purpose warming applications.

- Maximum temperature 50°C above ambient
- Easy clean powder coated body
- Thermostat control
- Toughened glass doors

Now available as insulated units for improved efficiency plus energy and cost savings.

NB: Large capital items delivered direct from our supplier may have a delivery charge imposed. Please ask at time of ordering.

| Cat No. | Capacity | External Dimensions | No of Shelves | Quantity | Price |
|----------------------|----------|---------------------|---------------|----------|-----------------|
| Non-Insulated | | | | | |
| DRY 010 010 | 125L | 60 x 74 x 42cm | 3 | EACH | £720.00 |
| DRY 010 020 | 250L | 66 x 100 x 50cm | 3 | EACH | £1037.65 |
| Insulated | | | | | |
| DRY 015 010 | 100L | 60 x 75 x 42cm | 3 | EACH | £974.12 |





Lascells Revolution Power Supplies

A precision full specification power supply for the school laboratory with unrivalled advantages in terms of design and electrical specification. Up to 8A DC, switched or variable but, most importantly, constant, regulated DC voltage regardless of load. Combine this with a simple to adjust maximum voltage limiter, automatic overload protection, digital voltage readout and a compact, lightweight case and you have the perfect power supply in a truly space saving package. These revolutionary instruments use the latest PSU technology which sets the latest standard against which all others are judged.

- Regulated DC output. Set the voltage to the value required as displayed on the built-in panel meter and the supply will maintain this no matter what you connect to the terminals.
- Maximum voltage limiter. Use an Allen key through the front panel to set the dial to the highest voltage you want your students to use. The main control will then work as normal up to this value but if a higher voltage is tried there will be no increase.
- Digital panel meter showing the DC output being used at all times
- Automatic over-current protection. If more than 8A is used the output voltage reduces to zero. Normal output is restored once the current is reduced. No resetting required.
- Additional AC 6V and 12V (unregulated) are provided at 1.5A max for AC work such as transformer investigations. This can be used in parallel with the DC output.
- Switched or Variable? The same quality and facilities are available as either continuously variable DC. or switched output. Whichever you prefer.
- Compact design. Easy to store, easy to carry around, more space left on the bench. At only 2.2kg each and measuring only 125 x 175 x 230mm four supplies will fit in a single storage tray - a real space saving solution.
- Robust, powder-coated steel case with integral plastic handle and removable mains lead
- Clear simple controls with illuminated front-panel mains switch

| | Precision Variable | Precision Switched |
|---------------------------|--|---|
| Input | 230/240V AC 50Hz | 230/240V AC 50Hz |
| Output | 0 to 15V DC continuously variable Fully smoothed and regulated to give <2% voltage variation at any load with <300mV ripple. 6V and 12V AC unregulated. Available at same time as DC | Output 0 to 10V DC in 1V steps plus 12V and 15V Fully smoothed and regulated to give <2% voltage variation at any load with <300mV ripple 6V and 12V AC unregulated. Available at same time as DC |
| Output Current | 8A max (6A continuous) DC 1.5A AC | 8A max (6A continuous) DC 1.5A AC |
| Voltage Limiter | Front panel Allen key tamperproof adjustment | Front panel Allen key tamper-proof adjustment |
| Current Protection | Automatic DC. Thermal auto fuse AC | Automatic DC Thermal auto fuse AC |
| Display | Digital output DC voltage | Digital output DC voltage |
| Mass | 2.2kg | 2.2kg |

| Cat No. | Description | Plug | Quantity | Price |
|--------------------|---|------|----------|----------------|
| RVN 020 010 | Revolution Precision Variable | UK | EACH | £154.49 |
| RVN 020 020 | Revolution Precision Switched | UK | EACH | £159.64 |
| Accessories | Description | Plug | Quantity | Price |
| RVN 020 500 | Replacement Mains Lead for Revolution PSU | UK | EACH | £6.17 |



Lascells Revolution Switched Power Supply

A traditional switched power supply in the convenience of the Revolution Case.

- This instrument uses established PSU technology to provide a smoothed power supply suitable for all laboratory applications which require a rugged source of emf. at either AC or DC.
- An internal mechanism disconnects the output when the voltage setting is changed ensuring that the switch contacts are protected from overload and the unit can be locked at any setting by means of an Allen screw located on the front panel.
- Over current protection is by means of a front panel thermal trip.
- As with all Revolution Power Supplies the unit is housed in a robust powder coated case with integral carrying handle and is sized such that 4 can be carried in a single storage tray.



| | |
|---------------------------|--|
| Input | 230/240V AC 50Hz |
| Output | 0 to 12V DC in 2V increments, capacitor smoothed |
| Output | 0 to 12V AC in 2V increments |
| Output Current | 5A max (4A continuous) |
| Voltage Limiter | Front panel Allen key insert |
| Current Protection | Thermal circuit breaker. Manual reset |
| Mass | 3kg |

| Cat No. | Description | Plug | Quantity | Price | |
|--------------------|---|-------------|----------|----------------|-------|
| RVN 020 030 | Revolution Switched | UK | EACH | £119.99 | |
| Accessories | | Description | Plug | Quantity | Price |
| RVN 020 500 | Replacement Mains Lead for Revolution PSU | UK | EACH | £6.17 | |

Irwin Powerbase S5

Irwin Powerbase S5 switched 5A Bench PSU. A heavy duty power supply for powering laboratory experiments.

Specification

- DC Output Voltages 3, 7, 10, 13, 17, 20V (capacitor smoothed)
- AC Output Voltages 3, 6, 8, 11, 13, 15V
- Output Current 5A
- Output limited via Allen key operated voltage lock
- Push button thermal cut-out protection
- Mains Input 230/240V AC, 50Hz

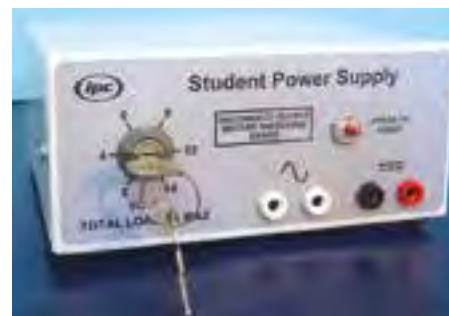


| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|----------------|
| XLE 250 530 | Irwin Powerbase S5 | EACH | £139.99 |

Student Lockable Power Supply

- General purpose power supply
- Lockable output voltage
- Up to 14V AC or DC at currents up to 5A
- Overload protected

Voltage 2, 4, 6, 9, 12 or 14V AC or unsmoothed DC at 4A continuously, or up to 5A for periods of 1 hour. Voltage ranges are selected and locked by means of a removable key. In any incidence of overload, including direct short, a current sensing circuit breaker mounted on the front panel will operate and disconnect the output voltage. Outputs are taken from colour coded 4mm sockets mounted on the front panel. An illuminated on/off switch is mounted on the rear panel adjacent to a fused appliance inlet. Housed in a robust metal case with a durable powder coated finish. Supplied with key and instructions.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|----------------|
| XPU 010 010 | Student Lockable Power Supply | EACH | £125.32 |
| Accessories | Description | Quantity | £125.32 |
| XPU 010 500 | Spare Key | EACH | £5.33 |

| | |
|--------------------------|---|
| Output | 2, 4, 6, 9, 12 or 14V (up to 4A AC or DC) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 179 x 190 x 85mm overall |
| Mass | 3.2kg |

LoVolt Power Supply

- General purpose power supply
- Switched output voltage
- Up to 14V AC or DC at currents up to 5A
- Overload protected

Voltage 2, 4, 6, 9, 12 or 14V AC or unsmoothed DC at 4A continuously, or up to 5A for periods of 1 hour. Voltages are selected by means of a rotating switch on the front panel. In any incidence of overload, including direct short, a current sensing circuit breaker mounted on the front panel will operate and disconnect the output voltage. Outputs are taken from colour coded 4mm sockets mounted on the front panel. An illuminated on/off switch is mounted on the rear panel adjacent to a fused appliance inlet. Housed in a robust metal case with a durable powder coated finish. Supplied with mains lead and instructions.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| XPU 040 010 | LoVolt Power Supply | EACH | £128.75 |

| | |
|---------------------------|---------------------------------------|
| Input | 230/240V AC 50Hz |
| Output | 0 to 12V DC in 2V increments |
| Output | 0 to 12V AC in 2V increments |
| Output Current | 5A max (4A continuous) |
| Voltage Limiter | Front panel Allen key insert |
| Current Protection | Thermal circuit breaker. Manual reset |
| Mass | 3kg |

DC Regulated Power Supply

Our most popular School Power supply range have been updated and are now packed full of even more great features whilst still retaining everything that made them the most popular power supplies for Schools and Lab settings. The Power Supplies have been given a new modern slim casing to help improve storage when not in use as well as a new coloured case to help you identify the correct one. Both are fully compliant with all relevant CE certification. Available in both 1.5 & 3 Amp versions.

Features & Specifications

- Satz Power Supply fully compliant with CE: EN61010 – 2010
- Selectable voltage options 3V, 4.5V, 6V, 7.5V, 9V, 12V DC.
- An output current of 1.5 or 3 Amps depending on model
- Smoothed and regulated output current

- With an internal short circuit and overload protection with auto reset function.
- External fuse for AC input surge protection and also ease of changing
- Slim design for easy storage
- Fits in Gratnells Trays
- Red case for 3Amp, Blue case for 1.5Amp
- Overall dimensions of 138x115x60mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| XPU 260 006 | 1.5A | EACH | £29.70 |
| XPU 260 011 | 3.0A | EACH | £51.00 |

E

Electrical - Power Supplies

GENERAL

Spider Regulated Power Supply

The 'Spider' power supply provides a smoothed and regulated output at 1.5, 3, 4.5 and 6V DC. Output is provided by 4 pairs of 4mm socket terminals which is ideal for group work. Full overload and short circuit protection is provided and any problems are indicated by the Spider's 'eyes'. One eye indicates that the power is on, the other eye indicates voltage output. If either eye is out, the pupil should notify the teacher.



| | |
|---------------------------|------------------------------------|
| Input | 240V 50Hz moulded plug fitted |
| Output | 1.5, 3, 4.5 or 6V DC, max 1.5 Amps |
| Regulated | ±0.1 volt between 10mA and 1.5A |
| Dimensions (WxHxL) | 150 x 90 x 195mm |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| XPU 020 010 | Regulated Power Supply | EACH | £69.99 |

DATA LOGGING

BIOLOGY

Low Voltage Power Supply

- For use with electromagnetic kits
 - 1V DC and 1V or 2V AC at currents up to 8A
 - Designed to provide 1V full-wave rectified DC and 1V or 2V AC
 - Current approximately 8A at voltages stated
- With clearly labelled 4mm socket terminals; red/black for DC and white for AC. Housed in a robust ABS plastic case with illuminated mains switch and fused IEC mains inlet.



| | |
|--------------------------|----------------------------------|
| Output | 1V DC and 1V or 2V AC (up to 8A) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 150 x 100 x 80mm overall |
| Mass | 1.2kg |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| XPU 060 010 | Low Voltage Power Supply | EACH | £94.99 |

CHEMISTRY

PHYSICS

High Tension Power Supply

- For use with some Teltron tubes, valves and capacitor experiments
 - Two independent outputs of 0 - 30V and 0 - 300V DC at currents up to 60mA
 - Each output continuously variable
 - Separate 6.3V AC output for filament heaters
 - Output overload protected
- Voltages of 0 to 30V and 0 to 300V DC at up to 60mA. Outputs are fully floating to provide negative voltages if required and are taken from pairs of colour coded 4mm sockets on the front panel. Each output has a continuously variable voltage control, with electronic current limiting circuitry. An indication of the output voltage is given by a graduated scale on each voltage control. A pair of 4mm sockets on the front panel provide 6.3V AC at up to 2A for filament heating. An illuminated on/off switch is mounted on the rear panel adjacent to a fused appliance inlet. Housed in a robust metal case with a durable powder coated finish.



| | |
|--------------------------|--------------------------------------|
| Output | 0 - 30V and 0 - 300V DC (up to 60mA) |
| | 6.3V AC (up to 2A) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 179 x 190 x 85mm overall |
| Mass | 2.4kg |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|----------------|
| XPU 050 010 | High Tension Power Supply | EACH | £187.12 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

Fixed Power Supply

This power supply is the right choice for small electrical circuits. Test confidently with clean, precise DC power that's well specified.

| | |
|---------------------|--------------------------------|
| DC Voltage | 3-12V (3-4 / 5- 6-7 / 5-9-12V) |
| DC | 2A |
| Power Supply | 230 V AC +/- 10% - 50 Hz |
| Dimensions | 116 x 146 x 77mm |



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| XPU 400 010 | Fixed Power Supply | EACH | £50.99 |

GENERAL LABWARE

SAFETY

5kV EHT Power Supply

- For use with Teltron tubes, electrostatics apparatus, electric field experiments and spark detector
- 100 - 5000V DC output at currents up to 3mA
- Separate 6.3V AC output for filament heaters
- Output overload protected

Separate earthing terminal Continuously variable output from 100V to 5kV. Output voltage is indicated on a 14mm 2 digit LED display. The EHT circuits are fully floating so that for certain applications the positive or negative terminal may be safely connected to earth. The EHT outputs are taken from 4mm shrouded sockets and provide 100V to 5kV DC at up to a maximum of 3mA or current limited to 60 μ A. A centre tapped socket is provided to give \pm 2.5kV output. An additional pair of 4mm shrouded sockets at 19mm spacing are provided giving 6.3V AC at 2A for filament supplies. There is also a separate earthing terminal. An illuminated on/off switch is mounted on the rear panel adjacent to a fused IEC mains inlet. Enclosed in a robust metal case with a durable powder coated finish. Supplied with instructions and detachable mains lead.



| | |
|--------------------------|---|
| Output | 100 - 5000V DC up to 3mA |
| | 100 - 5000V DC up to 60 μ A (current limited) |
| | \pm 2.5kV centre tap |
| | 6.3V AC (up to 2A) |
| Electrical Supply | 220 - 240V AC 50-60Hz |
| Dimensions | 255 x 220 x 110mm overall |
| Mass | 3.6kg |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|----------------|
| XPU 080 010 | 5kV EHT Power Supply | EACH | £363.93 |
| 5kV Lead | | | |
| XPU 080 500 | Black | EACH | £5.99 |
| XPU 080 510 | Red | EACH | £5.99 |

Replacement Case for Irwin Power Supplies

Irwin Power Supplies are renowned for their toughness and reliability. Unfortunately, after about 25 years the cases become brittle and prone to cracking. The actual power supply still works but is unusable because of the danger of electric shock. This repair kit has been designed to overcome this problem. The kit comprises a brand new plastic case - in Original Irwin Blue (B) - three "mushrooms", which fit on the back of the case and act as a cable tidy, a new strain relief clamp, an alternative cable gland and complete fitting instructions.

Fitting Tool

Some people have difficulties getting the old cable clamp and cable out so we also sell a specially designed tool, which makes the job much easier.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------------|----------|---------------|
| XPU 300 500 | Replacement Case for Irwin PSU | EACH | £29.99 |
| XPU 300 510 | Fitting Tool | EACH | £14.99 |



Moving Coil Galvanometer

A moving coil galvanometer with 100 μ A sensitivity. Range: 30 - 0 - 30

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| EMM 330 010 | Moving Coil Galvanometer | EACH | £9.22 |



Edspot Galvanometer

The movement enclosed in a plastic case has a pre-twisted suspension with oil damping anti-vibration stops. It is overload protected. Read out is given by a bright circle of light on a 180mm scale marked 0-18 and 9-0-9 for left hand or centre zero operation.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| EMM 050 010 | Edspot Galvanometer | EACH | £320.18 |

Digital Ammeters

Injection moulded in a robust plastic case, featuring inherent strength and resilience. The unit is designed to withstand rigorous use and will survive impact should it be accidentally knocked off a desk. The LCD has 13mm high digits, low battery indication and a wide field of view unobscured by trailing leads. The unit is exceptionally easy to read. Two colour coded 4mm sockets are located on the front for maximum convenience and anti-slip feet are fitted to the base. Battery life is of the order of 2000 hours of continuous operation. Supplied with battery.



| | EMA 020 010 | EMA 020 030 | EMA 020 040 |
|-------------------------|-------------------------------|-------------------------------|----------------|
| Range | 0-10.00A DC | 0-199.9mA DC | 0-199.9µA DC |
| Resolution | 0.01A | 0.1mA | 0.1µA |
| Input Resistance | 0.01 ohm | 1 ohm | 1000 ohm |
| Overload | 1x full scale | 1x full scale* | 10x full scale |
| Accuracy | ±1 digit, ±0.1% of full scale | ±1 digit, ±0.1% of full scale | |

*protected by automatically resetting fuse

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------------|----------|--------|
| EMA 020 010 | 10A DC Ammeter | EACH | £33.48 |
| EMA 020 030 | Digital Milliammeter, 199.9mA DC | EACH | £33.48 |
| EMA 020 040 | Digital Microammeter, 199.9µA DC | EACH | £33.48 |

Digital Voltmeter

Injection moulded in a robust plastic case, featuring inherent strength and resilience. The unit is designed to withstand rigorous use and will survive impact should it be accidentally knocked off a desk. The LCD has 13mm high digits, low battery indication and a wide field of view unobscured by trailing leads. The unit is exceptionally easy to read. Two colour coded 4mm sockets are located on the front for maximum convenience and anti-slip feet are fitted to the base. Battery life is of the order of 2000 hours of continuous operation. Supplied with battery.



| | |
|-------------------------|-------------------------------|
| Range | 0-19.99V DC |
| Resolution | 0.01V |
| Input Resistance | 10M ohm |
| Overload | 10x full scale |
| Accuracy | ±1 digit, ±0.1% of full scale |

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| EMV 020 010 | 20V DC Voltmeter | EACH | £33.48 |

Dual Scale Bench Meters

This voltmeter and ammeter have been specially designed to incorporate features requested by educational laboratories.

- Negative scale to clearly demonstrate reverse polarity
- Zero adjustment

Dual Scale:

Voltmeter -1.5V to 0 to +5V, -5V to 0 to +15V
 Ammeter - 0.2A to 0 to +1A, -1A to 0 to +5A



EMA 050 011



EMV 040 011

| | EMA200010 | EMV200010 |
|---------------------------|------------------|------------------|
| Range | 0 to ± 10A DC | 0 to ± 20V DC |
| Resolution | 0.01A | 0.01V |
| Accuracy | ± 2% | ± 2% |
| Input Impedance | 0.01Ω Approx. | 10MΩ Approx. |
| Input Voltage | 9V PP3 Battery | 9V PP3 Battery |
| Dimensions (LxWxH) | 110 x 110 x 65mm | 110 x 110 x 65mm |
| Weight | 250g | 205g |

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|--------|
| EMA 050 011 | Ammeter | EACH | £29.99 |
| EMV 040 011 | Voltmeter | EACH | £29.99 |



Large Scale Demonstration Meter

Moving coil type meter with accuracy of 2.5%. The basic sensitivity of the meter is 5mA, 100mV f.s.d. The meter can be used to demonstrate the working principle of AC and DC ammeters or voltmeters with interchangeable plastic scales (not included - please see accessories).

Accessories: Various scales are available for use with the demonstration meter. These comprise of a laminated plastic panel 315 x 115mm with a sealed moulded box at one end which contains the shunt or voltage multiplier appropriate to the scale.

| Cat No. | Description | Quantity | Price |
|--------------------------|---------------------|----------|--------|
| ELA 400 011 | Demonstration Meter | EACH | £70.81 |
| AC Current Scales | | | |
| ELA 400 681 | 0-100mA | EACH | £9.92 |



Dual Purpose Ammeter/Voltmeter

This dual purpose meter offers an analogue quadruple range and is therefore one of the most versatile bench meters available today. The sturdy moving coil meter is housed in a strong, scratch resistant, stylish case and provides a clear large scale display. A slide selector for amps/volts automatically selects internal shunting, indicates whether on amps or volts reading and secures the input sockets from the possibility of incorrect connection. The input is made via a dual 4mm or terminal type connection and zeroing is achieved by screw adjustment on the front of the meter.

| | |
|-------------------------|----------------------------------|
| Dimensions | 160x114x60mm |
| Scale Dimensions | 80x80mm |
| Analogue Range | |
| DC Amps | Dual Scale 100µA, 100mA, 1A & 5A |
| DC Volts | Dual Scale 100mV, 1V, 10V & 50V |

| Cat No. | Description | Quantity | Price |
|-------------|------------------------------------|----------|--------|
| EMA 040 011 | Dual Purpose Ammeter/ Voltmeter | EACH | £28.83 |



EMA 200 010



EMV 200 010

Digital Bench Meters

- Low power consumption
- Auto Off
- Fewer flat batteries

Spend less time changing batteries with the new Lascells bench meters. These digital bench meters are housed in robust ABS and PVC cases. Both feature ~50 minute 'auto off' circuitry to conserve battery life and an LED indicator prompting battery change when necessary. Supplied with 9V PP3 Battery and full instructions.

| | EMA200010 | EMV200010 |
|---------------------------|------------------|------------------|
| Range | 0 to ± 10A DC | 0 to ± 20V DC |
| Resolution | 0.01A | 0.01V |
| Accuracy | ± 2% | ± 2% |
| Input Impedance | 0.01Ω Approx. | 10MΩ Approx. |
| Input Voltage | 9V PP3 Battery | 9V PP3 Battery |
| Dimensions (LxWxH) | 110 x 110 x 65mm | 110 x 110 x 65mm |
| Weight | 250g | 205g |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| EMA 200 010 | Digital Ammeter | EACH | £26.65 |
| EMV 200 010 | Digital Voltmeter | EACH | £26.65 |
| Accessories | | | £26.65 |
| BAT 090 050 | PP3 Size - 9V Battery | EACH | £1.19 |



Digital Multimeters

- Impact resistant ABS plastic case
- High-Contrast 15mm LCD display with large digits and function indicators
- Manual ranging via single positive click action rotary switch
- Auto polarity indication
- Fast blow fuse for overload protection

Both models supplied with 2 test leads, battery and instructions for use.

In addition, EMM 040 020 comes with thermocouple wire probe.

| | |
|-----------------------|----------------------------------|
| DC Voltage | 200mV, 2000mV, 20V, 200V, 1000V |
| AC Voltage | 200mV, 750V |
| DC Current | 200µA, 2000µA, 20mA, 200mA, 10A |
| Resistance - Ω | 200Ω, 2000Ω, 20kΩ, 200kΩ, 2000kΩ |
| Battery | 1x 9V (supplied) |

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| EMM 040 010 | Digital Multimeter | EACH | £9.60 |
| EMM 040 020 | Digital Temp-Multimeter | EACH | £15.44 |

E

Electrical - Oscilloscopes | Testers | Plugs

GENERAL



Digital Storage Oscilloscope with VGA Port

The Owon SDS5032E-V is a 30 MHz, two-channel digital oscilloscope.

| | |
|--------------------------------|---|
| Model | SDS 5032EV |
| Bandwidth | 30MHz |
| Sample Rate (Real time) | 250mS/s per channel when using single channel, 125Ms/s per channel when using two channels simultaneously. |
| Display Channel | 8" Colour TFT LCD, 800x600 pixels |
| Sampling Mode | Two, external trigger |
| Trigger Mode | Normal sample, Peak detect and Average Edge, Video (Line, Field, Odd Field, Even Field, Line Number) with holdoff function. |
| PC Interface | USB 2.0, LAN, VGA output for projection use. |
| Dimensions | 350 x 157 x 80mm (LxHxW) |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|----------------|
| EMS 090 011 | Owon SDS5032E-V Oscilloscope | EACH | £308.99 |

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY

Socket Tester

A plug-in tester for 13A sockets. Fault indications are instantly identified by a bank of three neon lamps on the face of the plug.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| ELA 360 010 | Socket Tester | EACH | £17.30 |

3 Way Adaptor

13A, 250V AC BS5733.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| ELA 220 020 | 3 Way Adaptor | EACH | £1.99 |

Cable Extension Reel

Double socket 10 metre extension cable. 240V.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| ELA 240 010 | Cable Extension Reel | EACH | £15.44 |

Surge Protected Extension Leads

Specification:

- Cable 2 metres PVC 1.25mm² 3 core cable to BS 6500
- Sockets 4 way or 6 way to BS1363
- Plug, fused at 13A, approved to BS1363
- Capacity 3.12kW



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| ELA 480 010 | 4 Way | EACH | £7.20 |
| ELA 480 020 | 6 Way | EACH | £11.32 |

13A Plug

13A 250V 50Hz BS1363.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| ELA 210 011 | 13A Plug | EACH | £0.99 |

24 Hour Time Switch

With integral 13A, 3-pin plug and socket fitting for connecting respectively directly to the mains supply and to equipment being controlled. Large dial with simple time setting by switch pins.

Dimensions: 70 x 70 x 33mm
 Min. setting interval: 15 minutes
 Min. time period: 30 minutes
 Max. rating: 13Amp For 210-250V 50Hz single phase supplies.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| TMR 150 010 | 24 Hour Time Switch | EACH | £5.61 |

3 Core Cable

For mains use to BS6500. Brown, blue and green/yellow cores in white PVC round outer sheath. Supplied in 5m and 50m lengths.



| Cat No. | Nom. Conductor Area | Max. Current | Length | Quantity | Price |
|--------------------|---------------------|--------------|--------|----------|--------------|
| ELA 080 020 | 0.5mm | 3A | 5m | 5MTR | £5.48 |
| ELA 080 060 | 1.25mm | 13A | 5m | 5MTR | £9.60 |

Copper Wire

Bare Copper wire. Approx. 125g reels.

NB: All dimensions are nominal and the nearest approximate Standard Wire Gauge (SWG) is given.

| Cat No. | SWG | Diameter | Weight | Quantity | Price |
|--------------------|-----|----------|--------|----------|--------------|
| EWR 020 010 | 14 | 2.032mm | 125g | EACH | £5.91 |
| EWR 020 020 | 16 | 1.626mm | 125g | EACH | £5.97 |
| EWR 020 030 | 18 | 1.219mm | 125g | EACH | £5.99 |
| EWR 020 040 | 20 | 0.914mm | 125g | EACH | £6.12 |
| EWR 020 050 | 22 | 0.712mm | 125g | EACH | £6.20 |
| EWR 020 060 | 24 | 0.559mm | 125g | EACH | £6.30 |
| EWR 020 070 | 26 | 0.457mm | 125g | EACH | £6.43 |
| EWR 020 080 | 28 | 0.376mm | 125g | EACH | £6.55 |
| EWR 020 090 | 30 | 0.315mm | 125g | EACH | £6.65 |
| EWR 020 100 | 32 | 0.274mm | 125g | EACH | £6.82 |
| EWR 020 110 | 34 | 0.234mm | 125g | EACH | £6.99 |
| EWR 020 120 | 36 | 0.193mm | 125g | EACH | £7.25 |

**Connecting Wire**

A very flexible wire ideal for test leads and as interconnecting wires which are frequently being moved. The wire consists of 55 x 0.1mm copper strands.

Overall Diameter: 2.8mm

Max. Current Rating: 6A

| Cat No. | Colour | Reel Length | Quantity | Price |
|--------------------|--------|-------------|----------|--------------|
| EWR 060 010 | Red | 25m | 25MTR | £5.14 |
| EWR 060 020 | Black | 25m | EACH | £5.14 |
| EWR 060 030 | Blue | 25m | 25MTR | £5.14 |
| EWR 060 040 | Green | 25m | 25MTR | £5.14 |
| EWR 060 050 | Yellow | 25m | 25MTR | £5.14 |

Constantan/Eureka Wire

Copper/Nickel Alloy. Suitable for resistance wire. Bare wire. Approx. 125g reels.

NB: All dimensions are nominal and the nearest approximate Standard Wire Gauge (SWG) is given.



| Cat No. | SWG | Diameter | Weight | Quantity | Price |
|--------------------|-----|----------|--------|----------|---------------|
| EWR 030 010 | 14 | 2.032mm | 125g | EACH | £15.24 |
| EWR 030 020 | 16 | 1.626mm | 125g | EACH | £15.29 |
| EWR 030 030 | 18 | 1.219mm | 125g | EACH | £15.35 |
| EWR 030 040 | 20 | 0.914mm | 125g | EACH | £15.41 |
| EWR 030 050 | 22 | 0.712mm | 125g | EACH | £15.55 |
| EWR 030 060 | 24 | 0.559mm | 125g | EACH | £15.70 |
| EWR 030 070 | 26 | 0.457mm | 125g | EACH | £15.78 |
| EWR 030 080 | 28 | 0.376mm | 125g | EACH | £15.88 |
| EWR 030 090 | 30 | 0.315mm | 125g | EACH | £15.99 |
| EWR 030 100 | 32 | 0.274mm | 125g | EACH | £16.21 |
| EWR 030 110 | 34 | 0.234mm | 125g | EACH | £16.40 |
| EWR 030 120 | 36 | 0.193mm | 125g | EACH | £16.73 |

Enamelled Copper Wire, Polyurethane Coated

For winding coils BS4520. Max. temperature 120°C. Approx. 125g reels

NB: All dimensions are nominal and the nearest approximate Standard Wire Gauge (SWG) is given.



| Cat No. | SWG | Diameter | Weight | Quantity | Price |
|--------------------|-----|----------|--------|----------|--------------|
| EWR 070 010 | 14 | 2.032mm | 125g | EACH | £5.58 |
| EWR 070 020 | 16 | 1.626mm | 125g | EACH | £5.62 |
| EWR 070 030 | 18 | 1.219mm | 125g | EACH | £5.71 |
| EWR 070 040 | 20 | 0.914mm | 125g | EACH | £5.75 |
| EWR 070 050 | 22 | 0.712mm | 125g | EACH | £5.26 |
| EWR 070 060 | 24 | 0.559mm | 125g | EACH | £5.93 |
| EWR 070 070 | 26 | 0.457mm | 125g | EACH | £5.99 |
| EWR 070 080 | 28 | 0.376mm | 125g | EACH | £6.20 |
| EWR 070 090 | 30 | 0.315mm | 125g | EACH | £6.30 |
| EWR 070 100 | 32 | 0.274mm | 125g | EACH | £6.43 |
| EWR 070 110 | 34 | 0.234mm | 125g | EACH | £6.65 |
| EWR 070 120 | 36 | 0.193mm | 125g | EACH | £6.84 |
| EWR 070 130 | 40 | 0.121mm | 125g | EACH | £7.48 |

Nichrome Wire

Nickel/Chrome Alloy. Bare wire. Approx 125g reels.

NB: All dimensions are nominal and the nearest approximate Standard Wire Gauge (SWG) is given.



| Cat No. | SWG | Diameter | Weight | Quantity | Price |
|--------------------|-----|----------|--------|----------|---------------|
| EWR 050 010 | 14 | 2.032mm | 125g | EACH | £17.65 |
| EWR 050 020 | 16 | 1.626mm | 125g | EACH | £17.72 |
| EWR 050 030 | 18 | 1.219mm | 125g | EACH | £17.76 |
| EWR 050 040 | 20 | 0.914mm | 125g | EACH | £17.92 |
| EWR 050 050 | 22 | 0.712mm | 125g | EACH | £17.99 |
| EWR 050 060 | 24 | 0.559mm | 125g | EACH | £18.27 |
| EWR 050 070 | 26 | 0.457mm | 125g | EACH | £18.35 |
| EWR 050 080 | 28 | 0.376mm | 125g | EACH | £18.54 |
| EWR 050 090 | 30 | 0.315mm | 125g | EACH | £18.70 |
| EWR 050 100 | 32 | 0.274mm | 125g | EACH | £18.83 |
| EWR 050 110 | 34 | 0.234mm | 125g | EACH | £18.97 |
| EWR 050 120 | 36 | 0.193mm | 125g | EACH | £19.14 |
| EWR 050 130 | 38 | 0.152mm | 125g | EACH | £19.49 |

Crocodile Clips



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| ELA 070 010 | Crocodile Clips 10A | PK25 | £1.99 |

Crocodile / Crocodile Leads

Assembled 300mm lead with extra flexible cable and 42mm crocodile clips at each end.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| ELA 190 010 | Black | PK5 | £9.26 |
| ELA 190 020 | Red | PK5 | £9.26 |

Crocodile / 4mm Plug Leads

Assembled 300mm lead with extra flexible cable and 42mm crocodile clip at one end and a 4mm banana plug at the other.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|---------------|
| ELA 200 010 | Black | PK5 | £10.29 |
| ELA 200 020 | Red | PK5 | £10.29 |

Miniature Crocodile Leads

Assembled 450mm lead with extra flexible cable and 33mm crocodile clips at each end. Each crocodile clip has a vinyl cover. Maximum current 2A.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| ELA 130 011 | Miniature Crocodile Leads | PK10 | £2.50 |

Fuses

Quick blow glass fuses. Length: 20mm



| Cat No. | Rating at 250V AC | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| EFU 020 010 | 100mA | PK10 | £1.49 |
| EFU 020 030 | 500mA | PK10 | £1.49 |
| EFU 020 040 | 1A | PK10 | £1.49 |
| EFU 020 060 | 2A | PK10 | £1.49 |
| EFU 020 070 | 3.15A | PK10 | £1.49 |
| EFU 020 080 | 5A | PK10 | £1.49 |
| EFU 020 100 | Assortment* | PK | £8.42 |

* 2x 50mA, 15x 1.0A, 10x 5.0A, 5x 100mA, 5x 1.6A, 5x 6.3A, 5x 250mA, 10x 2.0A, 10x 500mA, 10x 3.15A

Fuses

For plugs to BS1363. Size: 1" x 0.25" (Length x Diameter)



| Cat No. | Rating at 250V AC | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| EFU 010 020 | 3A | PK10 | £2.26 |
| EFU 010 030 | 5A | PK10 | £2.26 |
| EFU 010 040 | 13A | PK10 | £2.26 |

Magleads

Make working electrical circuits instantly with these ingenious leads fitted with a tiny powerful magnet at either end. Place near to a battery case and it connects by itself or place next to a batten bulb holder connector and you have your first working circuit.

The magnets, which protrude from the ends of the leads, are 4mm in diameter so will work in all of the places that standard banana plugs work, such as power supplies, test meters and crocodile clips but has the advantage of making instant connections when near to steel connectors.

Children no longer have to strip, cut or make mechanical fixes and leads can be daisy chained together to extend their length with ease.



| Cat No. | Colour | Length | Quantity | Price |
|--------------------|------------------|--------|----------|--------------|
| ELA 430 030 | Assorted Colours | 150mm | PK10 | £7.20 |
| ELA 430 040 | Red | 300mm | PK10 | £7.71 |
| ELA 430 050 | Black | 300mm | PK10 | £7.71 |
| ELA 430 060 | Assorted Colours | 300mm | PK10 | £7.67 |



Stackable 4mm Plug Leads

A range of ready assembled 500mm connecting leads with extra flexible cable terminated at each end with an in-line stackable 4mm plug. Maximum working voltage 50V. Fully moulded construction.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| ELA 130 020 | Black | PK5 | £5.14 |
| ELA 130 030 | Blue | PK5 | £4.25 |
| ELA 130 040 | Green | PK5 | £6.17 |
| ELA 130 050 | Red | PK5 | £5.14 |
| ELA 130 060 | Yellow | PK5 | £6.17 |

Stackable 4mm Plugs

With 4mm socket for in-line stacking, screw connection for wire. 10A rating.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| ELA 140 010 | Black | PK10 | £4.11 |
| ELA 140 020 | Blue | PK10 | £4.11 |
| ELA 140 030 | Green | PK10 | £4.12 |
| ELA 140 040 | Red | PK10 | £4.11 |
| ELA 140 050 | White | PK10 | £5.99 |
| ELA 140 060 | Yellow | PK10 | £4.11 |

4mm Banana Plug

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| ELA 150 020 | Black | PK10 | £5.32 |

Terminal Socket Plugs
4mm, 10 amps.

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| ELA 170 010 | Red | PK10 | £2.99 |
| ELA 170 020 | Black | PK10 | £2.99 |

BNC Plug to 4mm Plug Test Lead

Fully insulated BNC test lead. BNC plug to 2x 4mm stackable plugs in red and black.

- Lead length: 1m
- Voltage Rating: 500V
- Current Rating: 3A



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| ELA 350 020 | BNC Plug to 4mm Plugs | EACH | £9.96 |

BNC Plug to 4mm Terminal Adaptor

Useful adaptor comprising a BNC plug terminated to twin 4mm terminals in red and black with 4mm sockets.

- Signal is connected to red terminal
- 19mm centres



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|--------------|
| ELA 350 010 | BNC Plug to Terminal Adaptor | EACH | £3.35 |

Electric Motors

Miniature DC motors for use with 1.5 to 3 Volt DC supply. Solder tag connections and 2mm diameter shafts.

| Cat No. | Torque | Dimensions | Length (excl Shaft) | Shaft Length | Quantity | Price |
|--------------------|----------|-------------------|---------------------|--------------|----------|--------------|
| ELA 260 010 | 11.9g-cm | 20 x 15.1mm (WxH) | 25mm | 8.1mm | PK10 | £6.17 |
| ELA 260 020 | 19.9g-cm | 24mm Diameter | 30.5mm | 10mm | PK10 | £8.23 |

**Electric Bell**

For a range of basic experiments such as electric doorbell experiments in the science lab. Works on 3V dry cells. Coils are enclosed under a removable plastic cover with 4mm socket terminals. Made of plated pressed steel. Bell diameter: 6.8mm. Total length: 15.5cm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| ELA 530 011 | Electric Bell | EACH | £18.69 |

Miniature Pulleys

Manufactured from high impact polystyrene with a 2mm push-fit bore.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|--------------|
| ELA 260 500 | 8mm | PK10 | £2.23 |
| ELA 260 520 | 25mm | PK10 | £4.71 |



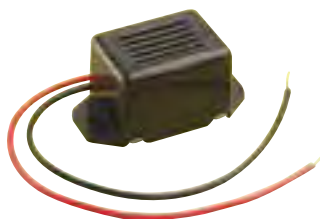
E

Electrical - Buzzers | Switches | Tape | Ties | Bulbs

GENERAL

Morse Buzzers

- Panel mounting buzzers.
- Single tone output
- Frequency: 400±100Hz
- Sound output: 70-75dB@30cm
- Nickel plated brass barrel
- 100mm wire leads



| Cat No. | Nominal Voltage | Operating Range | Quantity | Price |
|--------------------|-----------------|-----------------|----------|--------------|
| ELA 090 010 | 3V | 2-4V | PK5 | £5.88 |
| ELA 090 020 | 6V | 4-8V | PK5 | £5.88 |
| ELA 090 030 | 12V | 9-20V DC | PK5 | £4.99 |

Knife Switch

Low voltage, single or double pole; double throw, moulded base with plated spring metal contacts and screw connectors.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| ELA 420 011 | Single Pole, Double Throw | EACH | £1.68 |
| ELA 420 021 | Double Pole, Double Throw | EACH | £2.21 |

DATA LOGGING

Toggle Switch

- Standard size SPST toggle switch
- Panel mounting with solder tag terminals
- Supplied with On/Off indicator plate
- Metal lever and bushing are nickel plated brass
- Phenolic base
- Panel cut-out 12mm
- Rated 1.5A 250VAC
- SPST: 25 x 14 x 14mm (L x H x W)



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| ELA 340 010 | Toggle Switch | EACH | £1.13 |

BIOLOGY



PVC Insulating Tape

PVC adhesive insulating tape, 19mm wide x 20 metres long.

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|---------------|
| ELA 250 010 | Red | PK10 | £10.29 |
| ELA 250 020 | Black | PK10 | £10.29 |
| ELA 250 030 | Blue | PK10 | £10.29 |

CHEMISTRY

Nylon Cable Ties

Non-releasable.
Size: 300mm x 4.8mm



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|---------------|
| ADH 200 010 | Black | PK100 | £12.49 |

PHYSICS

High Efficiency LEDs



| Cat No. | Colour | Size | Quantity | Price |
|--------------------|--------|------|----------|--------------|
| ELA 515 010 | Red | 5mm | PK10 | £0.85 |
| ELA 515 020 | Green | 5mm | PK10 | £0.99 |
| ELA 515 030 | Yellow | 5mm | PK10 | £1.17 |
| ELA 515 040 | Red | 8mm | PK10 | £1.92 |
| ELA 515 050 | Green | 8mm | PK10 | £1.92 |
| ELA 515 060 | Yellow | 8mm | PK10 | £1.92 |

ENVIRONMENTAL SCIENCE

Flashing LEDs

Built-in IC produces continuous flashing at a frequency of 3.0Hz. Supply voltage 9-12V.



| Cat No. | Colour | Size | Quantity | Price |
|--------------------|--------|------|----------|--------------|
| ELA 525 010 | Red | 5mm | PK10 | £3.25 |
| ELA 525 020 | Green | 5mm | PK10 | £3.53 |
| ELA 525 030 | Yellow | 5mm | PK10 | £3.53 |

FORENSIC SCIENCE

Flashlamp Bulbs

Type K15 round bulb 15 x 28mm MES cap.



| Cat No. | Voltage | Current | Power | Quantity | Price |
|--------------------|---------|---------|-------|----------|--------------|
| ELA 580 010 | 12V | 410mA | 5W | PK10 | £6.44 |

CHEMICALS

Bulb for Ray Boxes

For use in Ray boxes.
Fitting SBC.



| Cat No. | Voltage | Power | Quantity | Price |
|--------------------|---------|-------|----------|--------------|
| ELA 020 020 | 12V | 21W | EACH | £0.93 |

GENERAL LABWARE

Projector Bulbs

A range of tungsten halogen projector bulbs.



| Cat No. | Ref | Voltage | Power | To Fit | Quantity | Price |
|--------------------|--------|---------|-------|--------|----------|--------------|
| ELA 050 020 | A1/220 | 12V | 50W | G6.35 | EACH | £3.84 |

SAFETY



Festoon Bulbs

12V festoon bulbs.



| Cat No. | Size | Power | Quantity | Price |
|--------------------|-----------|-------|----------|--------------|
| ELA 330 010 | 8 x 38mm | 3W | PK10 | £6.87 |
| ELA 330 020 | 11 x 44mm | 10W | PK10 | £9.61 |

Round Bulb

Type K18 round bulbs 18 x 35mm double contact SBC cap.



| Cat No. | Voltage | Current | Power | Quantity | Price |
|--------------------|---------|---------|-------|----------|--------------|
| ELA 550 010 | 12V | 420mA | 5W | EACH | £0.65 |

Headlamp Type Bulbs

38 x 56mm with straight axial filament and SBC cap.



| Cat No. | Voltage | Power | Quantity | Price |
|--------------------|---------|-------|----------|--------------|
| ELA 560 010 | 12V | 24W | EACH | £1.94 |
| ELA 560 020 | 12V | 36W | EACH | £2.34 |

Torch Bulbs

Type K11 bulbs, 11 x 23mm cap E10 (MES).



| Cat No. | Voltage | Current | Quantity | Price |
|--------------------|---------|---------|----------|--------------|
| ELA 010 011 | 1.5V | 200mA | PK50 | £6.62 |
| ELA 010 021 | 2.5V | 200mA | PK50 | £6.62 |
| ELA 010 060 | 2.5V | 300 | PK10 | £6.44 |
| ELA 010 031 | 3.5V | 200mA | PK50 | £6.62 |
| ELA 010 041 | 6.0V | 60mA | PK50 | £6.99 |
| ELA 010 051 | 12V | 150mA | PK50 | £9.27 |

Round Bulbs

Type R10 round bulb 11 x 23mm MES cap.



| Cat No. | Voltage | Current | Quantity | Price |
|--------------------|---------|---------|----------|---------------|
| ELA 570 010 | 4.5V | 300mA | PK10 | £11.77 |

Plastic Lampholders

Batten style holders.



| Cat No. | Voltage | Fitting | Material | Quantity | Price |
|--------------------|--------------------------|---------|----------|----------|--------------|
| ELA 060 030 | For Low Voltage Use Only | MES | Batten | PK10 | £3.53 |

Energy Saving Bulbs

LED Bulbs with B22 Bayonet Cap.



| Cat No. | Power | Equivalent To | Quantity | Price |
|--------------------|-------|---------------|----------|--------------|
| Globe | | | | |
| ELA 600 010 | 5W | 50W | EACH | £2.99 |
| ELA 600 020 | 7W | 65W | EACH | £2.99 |

SBC Lampholder with Base

A Brass SBC (B15D) lampholder mounted onto a steel base fitted with 2x 4mm sockets.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| ELA 060 090 | SBC Lampholder with Base | EACH | £10.50 |



E

Electrical - Lamps | Light Panels

GENERAL

DATA LOGGING

BIOLOGY

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Bench Lamp

- Versatile flexible neck
- Max height: 34cm (approx)
- On/off switch on the base
- Bulb: 40W E14 candle (not supplied)

| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|--------------|
| MIA 020 012 | Black | EACH | £7.20 |
| MIA 020 032 | White | EACH | £7.20 |
| MIA 020 511 | Halogen Incandescent Bulb, 28W, E14 Holder. Clear SES. | EACH | £1.25 |



Light Panels

These ultra bright Light Panels use the latest low energy LED strip technology to provide a clean bright illuminated background. Perfect for lighting items from beneath and works well with transparent and translucent objects; these portable panels are great to investigate and explore pattern, shape, colour, opacity and transparency. Aesthetically pleasing with their sleek appearance and rounded edges, these panels are tough, easily cleaned and supplied with a low voltage power supply.

- The typical life span for the LED light source is an amazing 50,000 hours
- Illuminated area: 410 x 285mm

| Cat No. | Overall Size | Quantity | Price |
|--------------------|------------------|----------|---------------|
| LAP 040 011 | 480 x 352 x 10mm | EACH | £87.54 |

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Grade 1 Qualitative Filter Papers

Medium retention & flow rate filter for routine lab applications. Thickness: 11µm



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| FTP 030 010 | 42.5mm | PK100 | £5.93 |
| FTP 030 020 | 55mm | PK100 | £5.93 |
| FTP 030 030 | 70mm | PK100 | £6.46 |
| FTP 030 040 | 90mm | PK100 | £7.64 |
| FTP 030 050 | 110mm | PK100 | £9.50 |
| FTP 030 060 | 125mm | PK100 | £9.75 |
| FTP 030 070 | 150mm | PK100 | £13.94 |
| FTP 030 080 | 185mm | PK100 | £20.73 |
| FTP 030 090 | 240mm | PK100 | £33.56 |
| FTP 030 100 | 270mm | PK100 | £41.35 |
| FTP 030 110 | 320mm | PK100 | £55.39 |

High Rate Filter Papers

General purpose filter paper, high wet strength, fast filter rate.

- Suitable for coarse filtration only
- Filter speed per 100ml 25 secs
- Retention 15µm
- Packed in boxes of 100 circles.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| FTE 010 010 | 55mm | 5PK100 | £7.42 |
| FTE 010 020 | 70mm | 5PK100 | £7.83 |
| FTE 010 030 | 90mm | 5PK100 | £9.48 |
| FTE 010 040 | 110mm | 5PK100 | £10.71 |
| FTE 010 050 | 125mm | 2PK100 | £4.99 |
| FTE 010 060 | 150mm | 2PK100 | £6.96 |
| FTE 010 070 | 185mm | PK100 | £4.41 |
| FTE 010 080 | 240mm | PK100 | £8.99 |

Student Grade Qualitative Filter Papers

Used to determine and identify materials rather than quantify them.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| FTP 190 010 | 110mm | PK100 | £6.95 |
| FTP 190 020 | 125mm | PK100 | £7.60 |
| FTP 190 030 | 150mm | PK1000 | £97.53 |

Medium Rate Filter Papers

Popular medium flow rate paper, excellent wet strength properties.

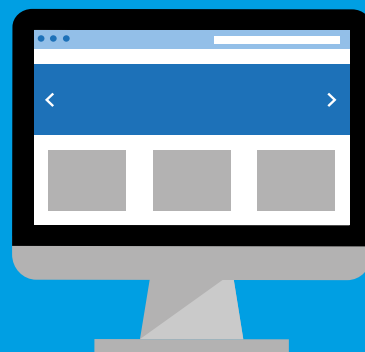
- Ideal for general chemical filtration
- Filter speed per 100ml 40 seconds
- Retention 5µm Packed in boxes of 100 circles.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| FTE 040 010 | 70mm | 5PK100 | £7.42 |
| FTE 040 020 | 90mm | 5PK100 | £8.99 |
| FTE 040 030 | 110mm | 5PK100 | £11.54 |
| FTE 040 040 | 125mm | 2PK100 | £5.60 |
| FTE 040 050 | 150mm | 2PK100 | £6.99 |
| FTE 040 060 | 185mm | PK100 | £4.57 |

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F Flasks - Conical

GENERAL

Narrow Neck Conical Flasks

Erlenmeyer narrow Mouth Flasks for economy and versatility. Reinforced beaded top, with capacity scale. These flasks are the choice for general laboratory usage.

Body is thick walled to minimize chipping when struck or rubbed together.

Designed from ASTM specification E1404, Type I, Class 1 requirements.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| FCN 010 026 | 125ml | PK2 | £8.00 |
| FCN 010 046 | 250ml | PK2 | £9.30 |

DATA LOGGING

BIOLOGY

Wide Neck Conical Flasks

Erlenmeyer Wide Mouth Flasks for economy and versatility. Reinforced beaded top, with capacity scale. These flasks are the choice for general laboratory usage. Body is thick walled to minimize chipping when struck or rubbed together.

Designed from ASTM specification E1404, Type I, Class 1 requirements



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| FCW 010 026 | 125ml | EACH | £4.46 |
| FCW 010 056 | 250ml | EACH | £5.27 |

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

Narrow Neck Conical Flasks

Borosilicate, Narrow Neck, (Erlenmeyer). Manufactured to ISO 1773 from borosilicate 3.3 glass to ISO 3585.

- Consistent, even wall thickness
- Excellent thermal properties
- Excellent resistance to chemical attack

SIMAX



| Cat No. | Capacity | Neck Size | Quantity | Price |
|--------------------|----------|-----------|----------|---------------|
| FCN 030 010 | 25ml | 22mm | PK10 | £32.83 |
| FCN 030 020 | 50ml | 22mm | PK10 | £29.50 |
| FCN 030 030 | 100ml | 22mm | PK10 | £15.67 |
| FCN 030 040 | 250ml | 34mm | PK10 | £17.00 |
| FCN 030 050 | 500ml | 34mm | PK10 | £22.33 |
| FCN 030 060 | 1L | 42mm | EACH | £5.75 |

Wide Neck Conical Flasks

Borosilicate, Wide Neck, (Erlenmeyer) Manufactured to ISO 1773 from borosilicate 3.3 glass to ISO 3585.

- Consistent, even wall thickness
- Excellent thermal properties
- Excellent resistance to chemical attack.

SIMAX



| Cat No. | Capacity | Neck Size | Quantity | Price |
|--------------------|----------|-----------|----------|---------------|
| FCW 020 010 | 50ml | 34mm | PK3 | £11.75 |
| FCW 020 020 | 100ml | 34mm | PK3 | £5.00 |
| FCW 020 030 | 250ml | 50mm | PK3 | £5.55 |
| FCW 020 040 | 500ml | 50mm | PK3 | £8.50 |

FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

Conical Flasks

Academy Conical Narrow Neck Flask. Made from Borosilicate glass. White Graduations.



| Cat No. | Capacity | Neck Size | Quantity | Price |
|--------------------|----------|-----------|----------|---------------|
| FCN 020 012 | 50ml | 26mm | PK12 | £10.70 |
| FCN 020 022 | 100ml | 32mm | PK12 | £10.99 |
| FCN 020 032 | 250ml | 34mm | PK12 | £12.99 |
| FCN 020 042 | 500ml | 38mm | PK6 | £8.80 |
| FCN 020 052 | 1L | 45mm | PK6 | £18.99 |

Budget Conical Flasks

Budget wide neck, borosilicate glass conical flasks.

N.B. Recommended for hand wash only.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| FCW 060 010 | 100ml | PK3 | £3.70 |
| FCW 060 020 | 250ml | PK3 | £5.55 |

SAFETY

Flat Bottom Boiling Flasks

Made from borosilicate 3.3 Simax glass.
Flat bottom design for general laboratory use.
Unbadged.
Long narrow neck with rim for easy pour.

Made To ISO Standard 1773.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FGN 030 011 | 100ml | PK10 | £26.99 |
| FGN 030 031 | 500ml | PK10 | £40.99 |

Flat Bottom Boiling Flasks

- Flat base for standing on benches and hotplates
- Excellent chemical durability for contamination-free performance
- Complies with ISO 1773



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FGN 040 010 | 100ml | PK12 | £17.28 |
| FGN 040 020 | 250ml | PK6 | £12.48 |
| FGN 040 030 | 500ml | PK6 | £15.59 |

Round Bottom Boiling Flasks

Borosilicate, Round Bottom, Narrow Neck.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FGN 050 010 | 100ml | PK12 | £17.52 |
| FGN 050 020 | 250ml | PK6 | £12.12 |
| FGN 050 030 | 500ml | PK6 | £17.04 |
| FGN 050 040 | 1L | PK6 | £29.16 |

Round Bottom Boiling Flasks

Made from borosilicate 3.3 Simax glass.
Roundbottom design for general laboratory use.
Unbadged
Long narrow neck with rim for easy pour

Made To ISO Standard 1773.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FGN 070 030 | 250ml | PK10 | £48.11 |
| FGN 070 041 | 500ml | PK10 | £62.84 |

Heavy Duty Buchner Filter Flasks

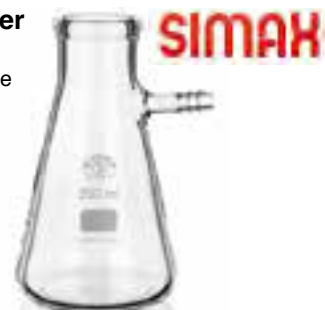
Heavy Duty Buchner Filter Flask, made from borosilicate glass.
Side hose connection for rubber tubing.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FLF 040 010 | 250ml | EACH | £6.70 |
| FLF 040 020 | 500ml | EACH | £9.64 |
| FLF 040 030 | 1L | EACH | £12.57 |

Heavy Wall Buchner Filter Flasks

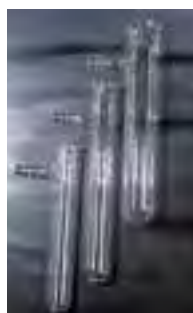
Simax filtering flask with glass side arm, made from borosilicate 3.3 Simax glass.
Thick wall type.
Filtering flask allows the use of vacuums for accelerated filtering.
Typically used for the filtering of liquids.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FLF 010 016 | 100ml | EACH | £13.31 |
| FLF 010 026 | 250ml | EACH | £16.41 |
| FLF 010 056 | 2L | EACH | £36.39 |

Filter Tubes with Side Arm

Filter tubes are ideal for small scale filtration requirements where Buchner flasks may prove too large or lead to loss of filtrate volume. Side arm 8mm diameter.
Manufactured from borosilicate glass.



| Cat No. | Size | Quantity | Price |
|--------------------|------------|----------|--------------|
| FFG 050 010 | 125 x 16mm | EACH | £2.47 |
| FFG 050 020 | 150 x 18mm | EACH | £3.59 |
| FFG 050 030 | 150 x 24mm | EACH | £3.66 |

Buchner Filter Flasks

Borosilicate glass, with plastic side arm.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FLF 070 020 | 250ml | EACH | £18.25 |

F Flasks - Filter

GENERAL

Distillation Flasks

Borosilicate Glass. Side arm set at 75° to vertical axis and positioned to suit a condenser.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FLD 010 010 | 100ml | EACH | £7.29 |
| FLD 010 020 | 250ml | EACH | £13.00 |
| FLD 010 030 | 500ml | EACH | £14.48 |

Flask Stand

Polypropylene stand suitable for holding round bottom flasks up to 10 litres.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| FLM 080 010 | Flask Stand | EACH | £4.89 |

DATA LOGGING

Flask Adaptors

Set of six cones manufactured from natural rubber. For mounting filter funnels into Buchner flasks and also Gooch crucibles onto adaptors. Inner diameters at lower end: 7mm, 10mm, 15mm, 16mm, 22mm and 26mm.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| FLM 050 010 | Flask Adaptors | SET | £27.76 |

Filter Flask Adaptors

Sponge rubber adaptors with circular hole with central hole. Will adapt any size funnel or crucible to any size filter flask.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| FLF 030 010 | Filter Flask Adaptors | PK5 | £6.17 |

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F

Flasks - Volumetric

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Volumetric Flasks

Graduated at one mark, Class 'A'. Stopper included.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FVL 010 010 | 5ml | EACH | £3.17 |
| FVL 010 020 | 10ml | EACH | £3.40 |
| FVL 010 030 | 25ml | EACH | £3.91 |
| FVL 010 040 | 50ml | EACH | £4.35 |
| FVL 010 050 | 100ml | EACH | £5.60 |
| FVL 010 060 | 200ml | EACH | £7.17 |
| FVL 010 070 | 250ml | EACH | £7.29 |
| FVL 010 080 | 500ml | EACH | £9.29 |
| FVL 010 090 | 1L | EACH | £15.99 |
| FVL 010 100 | 2L | EACH | £28.63 |
| FVL 010 110 | 5L | EACH | £99.91 |

PP Volumetric Flasks

Calibrated gravimetrically at 20°C to Class B standards. Stoppers included.

- No wetting
- NO MENISCUS so final readings are easy
- Thick walls eliminate distortion
- Thin necks make final measurement precise
- Translucency of polypropylene enhanced when in contact with liquids
- Chemically cleaner than glass
- Chemically non-absorbant

| Cat No. | Capacity | Height | Quantity | Price |
|--------------------|----------|--------|----------|---------------|
| FVP 060 030 | 100ml | 174mm | EACH | £9.41 |
| FVP 060 050 | 500ml | 265mm | EACH | £12.62 |
| FVP 060 060 | 1000ml | 325mm | EACH | £15.74 |

Kartell



PMP Volumetric Flasks

Individually calibrated gravimetrically at 20°C to Class B standards. Stoppers included.

- No wetting
- NO MENISCUS so final readings are easy
- Thick walls eliminate distortion
- Thin necks make final measurement precise
- Chemically cleaner than glass
- Chemically non-absorbant
- Autoclavable to 170°C

| Cat No. | Capacity | Height | Quantity | Price |
|--------------------|----------|--------|----------|---------------|
| FVP 050 020 | 100ml | 174mm | EACH | £13.80 |
| FVP 050 030 | 250ml | 225mm | EACH | £18.74 |
| FVP 050 040 | 500ml | 265mm | EACH | £19.74 |
| FVP 050 050 | 1L | 325mm | EACH | £26.44 |

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Short Stem Filter Funnels

This Kimble funnel is constructed with heavy uniform walls, molded rims and fire-polished stems to give a long service life. Funnels have a high resistance to chemical attack and mechanical and thermal shock. Designed from ASTM Specification E1095, Type I, Class A requirements



| Cat No. | Top Diameter | Quantity | Price |
|--------------------|--------------|----------|---------------|
| FFG 090 016 | 35mm | EACH | £10.35 |
| FFG 090 026 | 45mm | EACH | £8.83 |
| FFG 090 046 | 75mm | EACH | £10.62 |

Plain Stem Filter Funnels

Short stem. Borosilicate glass.



| Cat No. | Top Diameter | Quantity | Price |
|--------------------|--------------|----------|---------------|
| FFG 010 021 | 45mm | PK10 | £30.64 |
| FFG 010 031 | 55mm | PK10 | £38.11 |
| FFG 010 041 | 75mm | PK10 | £36.00 |
| FFG 010 050 | 100mm | EACH | £4.89 |
| FFG 010 060 | 150mm | EACH | £15.35 |

Soda Glass Filter Funnels



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| FFG 080 010 | 50mm | PK12 | £26.57 |
| FFG 080 020 | 75mm | PK12 | £33.00 |
| FFG 080 030 | 100mm | PK8 | £27.60 |

Polypropylene Conical Funnels

60° cone. Autoclavable. With internal and external ribs to avoid pressure lock. Transparent.

Kartell



| Cat No. | Top Diameter | Stem Length | Quantity | Price |
|--------------------|--------------|-------------|----------|---------------|
| FFP 040 010 | 25mm | 38mm | PK20 | £25.75 |
| FFP 040 020 | 35mm | 38mm | PK20 | £29.36 |
| FFP 040 030 | 45mm | 45mm | PK20 | £34.51 |
| FFP 040 040 | 65mm | 64mm | PK20 | £56.14 |
| FFP 040 050 | 80mm | 69mm | PK10 | £34.25 |
| FFP 040 060 | 100mm | 84mm | EACH | £4.20 |
| FFP 040 070 | 120mm | 86mm | EACH | £4.48 |
| FFP 040 080 | 150mm | 114mm | EACH | £6.42 |
| FFP 040 090 | 180mm | 142mm | EACH | £10.30 |



Polypropylene Filter Funnels

| Cat No. | Top Diameter | Quantity | Price |
|--------------------|--------------|----------|---------------|
| FFP 050 010 | 50mm | PK10 | £2.99 |
| FFP 050 020 | 62mm | PK10 | £3.76 |
| FFP 050 030 | 75mm | PK10 | £4.36 |
| FFP 050 040 | 100mm | PK5 | £3.91 |
| FFP 050 050 | 150mm | PK5 | £11.38 |

General Purpose HDPE Funnels

Tough, robust, general purpose conical funnels suitable for a wide range of liquids. Upstand on rim to reduce possible overflow. Ribbed on outside to eliminate back pressure. Hanging eye for storage.

Kartell



| Cat No. | Top Diameter | Quantity | Price |
|--------------------|--------------|----------|---------------|
| FFP 030 010 | 80mm | PK5 | £7.73 |
| FFP 030 020 | 100mm | PK5 | £9.79 |
| FFP 030 030 | 120mm | PK5 | £11.46 |
| FFP 030 040 | 140mm | PK5 | £18.16 |
| FFP 030 050 | 180mm | EACH | £6.39 |
| FFP 030 060 | 220mm | EACH | £7.96 |



F

Funnels

GENERAL

Glass Thistle Funnels



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| Plain Stem | | | |
| FFG 070 010 | 200mm | PK3 | £8.58 |
| FFG 070 020 | 300mm | PK3 | £6.73 |
| Short Stem | | | |
| FFG 070 030 | 75mm | EACH | £4.48 |

Polypropylene Powder Funnels

Kartell

60° angle, autoclavable funnels. Large bore avoids bridging of powders during transfer. Ribbed on the outside to avoid pressure lock. Can be used with liquids. Excellent chemical resistance.



| Cat No. | Top Diameter | Stem Length | Quantity | Price |
|--------------------|--------------|-------------|----------|---------------|
| FFP 060 010 | 60mm | 18mm | PK5 | £8.63 |
| FFP 060 020 | 80mm | 22mm | PK5 | £18.16 |
| FFP 060 030 | 100mm | 23mm | PK5 | £20.22 |
| FFP 060 040 | 120mm | 27mm | EACH | £4.72 |

DATA LOGGING

BIOLOGY

Separating Funnels

| Cat No. | Capacity | Quantity | Price |
|--|----------|----------|---------------|
| Cylindrical with Glass Stopcock | | | |
| FDC 020 010 | 50ml | EACH | £22.35 |
| FDC 020 020 | 100ml | EACH | £31.56 |
| FDC 020 030 | 250ml | EACH | £20.86 |
| Cylindrical with PTFE Stopcock | | | |
| FDC 030 010 | 50ml | EACH | £31.15 |
| FDC 030 020 | 100ml | EACH | £36.57 |
| FDC 030 030 | 250ml | EACH | £32.60 |
| FDC 030 040 | 500ml | EACH | £48.52 |
| FDC 030 050 | 1000ml | EACH | £60.81 |
| Conical with Glass Stopcock | | | |
| FDC 040 010 | 50ml | EACH | £13.80 |
| FDC 040 020 | 100ml | EACH | £14.68 |
| FDC 040 030 | 250ml | EACH | £16.97 |
| FDC 040 040 | 500ml | EACH | £23.98 |
| Conical with PTFE Stopcock | | | |
| FDC 050 010 | 50ml | EACH | £13.99 |
| FDC 050 020 | 100ml | EACH | £15.45 |
| FDC 050 030 | 250ml | EACH | £17.46 |
| FDC 050 040 | 500ml | EACH | £25.96 |
| FDC 050 050 | 1000ml | EACH | £35.26 |



FDC 020 010



FDC 030 010



FDC 040 010



FDC 050 010

CHEMISTRY

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

Open Top Dropping Funnels

Cylindrical. Borosilicate glass.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FDC 010 010 | 25ml | EACH | £20.23 |
| FDC 010 020 | 50ml | EACH | £17.46 |
| FDC 010 030 | 100ml | EACH | £18.69 |



CHEMICALS

GENERAL LABWARE

SAFETY



Dropping Funnels, Graduated

Cylindrical Dropping Funnel, Made from Borosilicate 3.3 Glass
Chemical Resistant with White Printed Graduations
Solid glass stopcock and PE Stopper
Complies with Iso 4800 Standards



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| FDC 060 046 | 500ml | EACH | £26.12 |
| FDC 060 056 | 1000ml | EACH | £35.67 |

Porcelain Buchner Funnels



| Cat No. | Paper Diameter | Funnel Depth | Stem Length | Diameter | Quantity | Price |
|--------------------------|----------------|--------------|-------------|----------|----------|---------------|
| 1mm Diameter Hole | | | | | | |
| FPF 020 010 | 45mm | 24mm | 43mm | 48mm | EACH | £11.70 |
| FPF 020 020 | 55mm | 30mm | 64mm | 62mm | EACH | £13.74 |
| FPF 020 030 | 70mm | 35mm | 64mm | 77mm | EACH | £16.40 |

Porcelain Buchner Funnels

Budget range.



| Cat No. | Internal Diameter | Funnel Depth | Stem Length | Quantity | Price |
|--------------------|-------------------|--------------|-------------|----------|---------------|
| FPF 010 010 | 70mm | 40mm | 60mm | EACH | £3.50 |
| FPF 010 020 | 90mm | 45mm | 70mm | EACH | £6.18 |
| FPF 010 030 | 110mm | 57mm | 85mm | EACH | £9.27 |
| FPF 010 040 | 150mm | 70mm | 100mm | EACH | £17.72 |

Polypropylene Buchner Funnels

Robust, lightweight and inexpensive. Unbreakable and resistant to corrosion and heat (max 120°C). Two piece construction. Top and bottom can be separated for easy and total cleaning. Autoclavable. Excellent chemical resistance.

Kartell



| Cat No. | Stem Diameter | Paper Size | Diaphragm Hole Dia. | Volume | Quantity | Price |
|--------------------|---------------|------------|---------------------|--------|----------|---------------|
| FFP 070 010 | 13-Oct | 45mm | 1.2mm | 40ml | EACH | £10.30 |
| FFP 070 020 | 16-Nov | 55mm | 1.1mm | 70ml | EACH | £11.57 |
| FFP 070 030 | 16-Nov | 70mm | 2.0mm | 180ml | EACH | £11.82 |



F Furniture

GENERAL

Traditional Lab Stools

35mm solid beech frame, finished with natural lacquer. 325mm square seat, 30mm thick.



| Cat No. | Stool Height | Quantity | Price |
|--------------------|--------------|----------|---------------|
| FRN 150 010 | 610mm | EACH | £63.58 |
| FRN 150 020 | 685mm | EACH | £65.46 |

DATA LOGGING

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GENERAL LABWARE

SAFETY

Gas Taps

These gas valves are specifically designed for education and commercial applications. Each assembly has a high visibility yellow drop lever or push-turn operation. Drop lever valves have optional non-return valves & restrictors. An integral bench mounted anti-rotation device is fitted as standard. All options are suitable for natural gas or LPG services. All gas fittings are manufactured to BS1552.

Must be installed by a competent person.



FGT 030 011



FGT 030 021

| Cat No. | Description | Fitting | Tap Angle | Quantity | Price |
|--------------------|-------------|---------------|-----------|----------|---------------|
| FGT 030 011 | Single | Bench Mounted | n/a | EACH | £31.99 |
| FGT 030 021 | Two Way | Bench Mounted | 90 | EACH | £45.71 |

Water Taps

These UK standard water fittings feature non-raising spindles and rubber seated valves. Lever action and quarter turn options available. Integral bench mounted anti-rotation device fitted as standard. Outlets can be supplied with fixed serrated nozzle, removable serrated nozzle or full bore anti-splash nozzle - please contact Customer Services for details.



FWT 020 011



FWT 020 061

| Cat No. | Water | Style | Nozle | Quantity | Price |
|--------------------|-------|-------------------------------|-------------------|----------|----------------|
| FWT 020 011 | Cold | Fixed Swan Neck | Fixed Nozzle | EACH | £69.99 |
| FWT 020 031 | Cold | Swivel Swan Neck | Fixed Nozzle | EACH | £73.99 |
| FWT 020 041 | Cold | Swivel Swan Neck | Detachable Nozzle | EACH | £76.99 |
| FWT 020 061 | Cold | Fixed Pillar Bib, Twin Outlet | Fixed Nozzle | EACH | £119.99 |
| FWT 020 081 | Mixer | Swivel Swan Neck | Fixed Nozzle | EACH | £138.49 |



Precision Gases in Non-Refillable Cylinders

Precision gas mixtures are supplied in a variety of lightweight, non-refillable cylinders. Ideal for applications where portability is paramount. A range of accessories are also available including a two cylinder carrying case and a range of pressure regulators and control valves. It is impossible to list all products in this catalogue as there are literally thousands of gases and mixtures available. Examples of pure gases are Oxygen, Nitrogen, Hydrogen, Carbon Dioxide and Carbon Monoxide.

Features:

- No rental payments
- Compliant with all current standards and legislation
- Very cost effective
- Packaged in lightweight, non-refillable, recycable containers
- Portable, convenient and easy to use, eliminates any manual handling potential hazards
- Often used for checking and calibrating the function of detectors and instruments but also ideal to support science experiments in schools and universities where the quantity of gas needed is low (but not suitable for use with gas jar experiments)

Recycler Tool

Recycling of disposable gas cylinders has become an important environmental issue. In the UK, all non-refillable cylinders are accepted, without notification, into the normal waste stream, i.e. landfill site, although we recommend and support recycling.

Before disposal, all cylinders need to be empty and vented and then the Recycler Tool can be used to safely puncture the cylinder.

Please Note: These cylinders DO NOT WORK with the 'Snowpack' Dry Ice Maker. Please ask for details on liquid CO₂ cylinders.V



| | | |
|-------------------|-------------------|-------------------|
| Capacity | 34L | 110L |
| Pressure | 500psi | 1000psi |
| Height | 27cm | 36cm |
| Weight | 0.5kg | 1kg |
| Valve Type | 5/8" 18 UNF (C10) | 5/8" 18 UNF (C10) |

| Cat No. | Heading 1 | Quantity | Price |
|--------------------|---------------------|----------|----------------|
| GCA 020 020 | 100% Hydrogen | EACH | £84.44 |
| GCA 020 030 | 100% Hydrogen | EACH | £152.99 |
| GCA 030 020 | 100% Carbon Dioxide | EACH | £91.99 |

Sulfur Dioxide Lecture Bottle

This SO₂ cylinder is suitable for testing fume cupboard filters for the filter saturation test. Supplied in a lecture bottle containing 450g and requiring a stainless steel control valve. The bottles are non-refillable and will require proper chemical disposal.

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|----------------|
| GFT 090 010 | Sulfur Dioxide Lecture Bottle | EACH | £305.15 |
| Accessories | Description | Quantity | £305.15 |
| GFT 090 500 | Stainless Steel LB Control Valve | EACH | £300.00 |

Gas Jars

Glass.



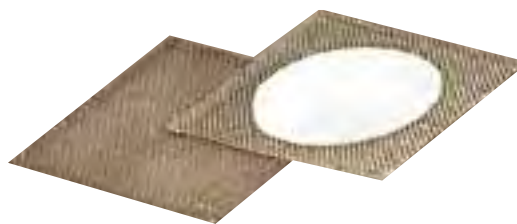
| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| GJR 010 010 | 150 x 50mm | EACH | £5.56 |
| GJR 010 020 | 200 x 50mm | EACH | £6.57 |
| GJR 010 030 | 250 x 50mm | EACH | £6.90 |
| Accessories | Description | Quantity | £6.90 |
| GJR 020 020 | 75mm Covers | PK5 | £3.91 |



Gauzes



| Cat No. | Size | Quantity | Price |
|--|-------------|----------|---------------|
| Iron Wire Gauzes, Plain Mesh | | | |
| GAU 010 010 | 125 x 125mm | PK10 | £7.99 |
| GAU 010 020 | 150 x 150mm | PK10 | £8.99 |
| Iron Wire Gauzes, Ceramic Mesh Centre | | | |
| GAU 020 010 | 125 x 125mm | PK10 | £12.10 |
| GAU 020 020 | 150 x 150mm | PK10 | £13.99 |



Budget Range Gauzes

Available with either plain gauze or with a ceramic centre. Individually packed so that you can order the quantity you require.

| Cat No. | Size | Quantity | Price |
|----------------------------|-------------|----------|--------------|
| Plain Mesh | | | |
| GAU 050 010 | 130 x 130mm | EACH | £0.75 |
| GAU 050 020 | 160 x 160mm | EACH | £0.76 |
| Ceramic Mesh Centre | | | |
| GAU 060 010 | 130 x 130mm | EACH | £0.82 |
| GAU 060 020 | 160 x 160mm | EACH | £0.99 |

PG 8504 Glass Washer

Designed to excel in professional laboratories and educational establishments, the PG8504 commercial glassware washer integrates a number of features to guarantee you optimum results, on every wash. Setting a new standard in clean, this glassware washer boasts an improved capacity, allowing you to clean large numbers of utensils and equipment quickly. Suitable as a freestanding or under counter unit, the stainless steel PG8504 has been specially constructed to reduce heat and noise emissions, and the interior has been welded together using lasers, meaning that there are no cracks or crevices for dirt to build up in. As well as outstanding results, the PG8504 has also been designed with convenience in mind, utilising our patented door salt container, which is incredibly simple to load. The door also integrates a TouchControl display, allowing for a quick and simple selection of 6 different programs, and is built in to the handle for ease.

- Simple to use controls: 3 programmes
- Built in water softener
- Connection for external deionised or reverse osmosis water
- Powder detergent dispenser
- Built in acid neutraliser dispenser
- DOS G80/1 Liquid detergent dispenser pump available
- Patented water proof leak system
- Cat 5 , Class A air gap system - can be plumbed directly to mains water supply
- WRAS approved
- 13 Amp single phase supply - connection to a standard electrical outlet

Features:

- High capacity wash chamber on two levels
- Modular flexible docking system for internal and external cleaning of all types of glassware
- Can be used on both upper and lower carrier
- Larger glassware capacity - up to 128 injector nozzles
- Baskets available for funnels, beakers and wide necked glassware
- Intuitive 3 level display indicating cycle selection, time, date, current wash stage temperature, time remaining
- Variable speed pump for improved cleaning and efficiency
- Precise monitoring of water intake to ensure correct ration of water vs cleaning agents
- Water softener salt dispenser now in door for ease of refill



| | |
|---------------------------|-------------------|
| Power | 230V/50Hz 2.4kW |
| Power Supply | Single Phase |
| Dimensions (WxDxH) | 600 x 600 x 835mm |
| Weight | 74kg |

Options and Accessories

- External pump for non-pressurised demineralised water feed
- DOS G80/1 dispenser for liquid cleaning agents
- Plinth to raise height by 300mm
- Commissioning / IQOQ available
- Conversion kits available to convert previous Miele upper and lower
- Commissioning / IQOQ available
- Conversion kits available to convert previous Miele upper and lower baskets to fit the new range

Baskets and Inserts

Upper and lower baskets can be fitted with a wide range of inserts to suit individual wash requirements.

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering. For ordering or information on Baskets please contact customer services at the time of ordering. For installation and services requirement please contact customer services. Does not come with baskets. 12 month warranty.

| Cat No. | Model | Quantity | Price |
|--------------------|-----------|----------|-----------------|
| DWH 020 013 | PG8504 AD | EACH | £4372.00 |



Glass Washer Accessories

A range of accessories to fit PG8504 Glass Washers.

There are many accessories available for these Glass Washers. If in doubt about the accessories you require, please contact Customer Services for assistance.



| Cat No. | Code | Description | Quantity | Price |
|--|-------|-----------------------------|----------|----------------|
| Stainless Steel Half Inserts for flasks, cylinders, bottles etc | | | | |
| DWH 020 520 | E 106 | With 28 large & small clips | EACH | £152.00 |
| Stainless Steel Half Inserts for beakers | | | | |
| DWH 020 550 | E 109 | For 21 beakers up to 250ml | EACH | £241.00 |

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595

H Heating Mantles

GENERAL

EM Series Heating Mantles

The EM Electromantle series features a durable, chemically resistant polypropylene outer housing that minimises damage from spills. They allow for maximum heat transfer with minimal risk of flask breakage.

Designed with flexibility and ease of use in mind, the EM series Electromantle is a reliable workhorse for your heating applications in the laboratory. Larger capacity products have multiple heating elements, enabling a more even and directed transfer of heat.

Features:

- Use with round bottom flasks from 50ml to 1 Litre
- "Cool-to-touch" design
- Maximum element temperature 450°C
- Built-in energy regulator
- Replaceable insulated heater cartridge
- Indicator lamps for power and heater operation
- A chemically resistant polypropylene outer casing
- A grounded earth screen and double fuses for extra safety
- Supplied with clamps for 1.3cm diameter support rods (but not including support rods)



| Cat No. | Capacity | Power | Quantity | Price |
|--------------------|-----------------------------------|-------|----------|----------------|
| HEM 030 010 | 50ml | 60W | EACH | £226.00 |
| HEM 030 020 | 100ml | 60W | EACH | £227.00 |
| HEM 030 030 | 250ml | 150W | EACH | £241.00 |
| HEM 030 040 | 500ml | 200W | EACH | £255.00 |
| HEM 030 050 | 1000ml | 300W | EACH | £263.00 |
| Accessories | Description | | Quantity | £263.00 |
| STR 040 020 | Support Stand Rod, 12.5mm x 600mm | | EACH | £4.84 |

DATA LOGGING

BIOLOGY

CHEMISTRY

Economy Regulated Heating Mantles

Heating mantles with electronic temperature regulation are essential pieces of equipment in any lab.

Offering quick and homogeneous heating and low energy consumption, these heating mantles:

- Feature electronic temperature regulation
- Can be used for distillation, digestion, evaporation, extraction and boiling
- Have an outer frame made of furnace-painted steel and a thermally isolated inner vessel
- Feature chromium-nickel heating elements
- Include a clamp for supporting rods

| | HEM080010 | HEM080020 | HEM080030 |
|--------------------------|-----------|-----------|-----------|
| Max Temp | 370°C | 370°C | 370°C |
| Capacity | 100ml | 250ml | 500ml |
| Power | 100W | 150W | 250W |
| Internal Diameter | 70mm | 90mm | 105mm |
| Dimensions | 220x160mm | 160x195mm | 220x160mm |



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|----------------|
| HEM 080 010 | 100ml | EACH | £113.30 |
| HEM 080 020 | 250ml | EACH | £119.48 |
| HEM 080 030 | 500ml | EACH | £131.84 |

PHYSICS

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

E Series Controlled Heating Mantles

These mantles have an energy regulator, which uses a time proportional double pole system to 'ramp' the heater giving stable control and reducing any risk of overheating the liquid. A dial setting allows approximate temperature selection up to 450°C. A soft fibre glass woven mantle provides good impact protection and the close surface contact allows optimum heat transmission to the flask. The elements are insulated from the case by moulded silica powder to give excellent thermal insulation and very low case temperatures.

- Upright control panel making it far easier and quicker to regulate the temperature
- Superior design and build gives a more stable base
- Integral clamp for a retort stand at rear (available separately)

Retort Stand Rod

Dimensions: 12.7 x 400mm (Dia x Length)



| Cat No. | Capacity | Power | Quantity | Price |
|--------------------|----------|-------|----------|----------------|
| HEM 110 011 | 50ml | 60W | EACH | £185.40 |
| HEM 110 021 | 100ml | 80W | EACH | £134.64 |
| HEM 110 031 | 250ml | 150W | EACH | £150.00 |

CHEMICALS

GENERAL LABWARE

SAFETY





Hot Air Blower

- 110-240V, 1200W
- 2 speed/3 heat settings
- 'Twist-to-fold' handle
- Safety cut-out
- Concentrator nozzle
- Hang-up loop

NB: Item supplied may vary from the model shown.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| HAD 030 010 | Hot Air Blower | EACH | £10.29 |



Round Hotplate

This hotplate features:

- Hotplate temperature up to 400°C
- Cast steel plate with embedded heating elements throughout the plate surface
- Fast heating rate at maximum power temperature setting
- Enamelled outer casing that is resistant to high temperatures and corrosive agents
- 6 position power setting controller

| | |
|-------------------------------|---------------|
| Plate Diameter | 15cm |
| Size, Exterior (HxWxD) | 8 x 22 x 22cm |
| Power | 1600W |
| Weight | 3kg |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|----------------|
| HPL 230 010 | Round Hotplate | EACH | £176.46 |

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H

Hotplates

GENERAL

UC150 and US150 Hotplates

Stylish and economical general purpose hotplate designed with safety as well as performance in mind. The compact shape takes up less bench space and makes storage easier. The hotplate has microprocessor control and an innovative LED based true °C temperature setting system rather than simply a 1 to 10 arbitrary scale.

The "Hot" warning light will flash whenever the plate temperature is above 50°C even when the hotplate is turned off and unplugged from the mains. Model UC150 has a glass ceramic top which has excellent chemical resistance. The surface is easy to clean and allows high plate temperatures for faster heating.

Model US150 has a robust aluminium/silicon alloy top plate for excellent heat transmission. The top plate has a thin ceramic coating for added chemical resistance. A 700W element gives rapid heating and ensures even temperature distribution across the whole surface of the plate. Both models have an integral fitting for a retort rod and the bottom is shaped to allow a retort base to slide underneath the unit if required so saving further bench space.

- Choice of top plate
- Flashing "Hot" warning light, mains independent
- Accurate temperature control with LED setting scale
- Compact space saving design
- BioCote antimicrobial protection



HPL 020 011



HPL 080 031

| Model | US150 | UC150 |
|-----------------------|--------------------------|---------------------|
| Plate Material | Coated Aluminium Silicon | Glass Ceramic |
| Plate Dimensions | 150 x 150mm | 150 x 150mm |
| Heated Area | 150 x 150mm | 120 x 120mm |
| Heater Power | 700W | 500W |
| Max Plate Temperature | 325°C | 450°C |
| Dimensions (WxDxH) | 172 x 248 x 120mm | 172 x 248 x 122mm |
| Net Weight | 2.2kg | 2.2kg |
| Electrical Supply | 230V, 50-60Hz, 700W | 230V, 50-60Hz, 500W |
| IP Rating | 32 | 32 |

| Cat No. | Model | Plate | Quantity | Price |
|-------------|-------|------------------|----------|---------|
| HPL 020 011 | US150 | Coated Aluminium | EACH | £263.68 |
| HPL 080 031 | UC150 | Ceramic | EACH | £277.07 |

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Heating Block Kits

Combined with the Stuart range of hotplates and hotplate stirrers, Stuart heating blocks provide the cleanest and safest method for synthesis for single or multiple reactions, whilst giving equal or better heating performance than silicon oil.

- Turn your hotplate into a heating mantle
- Flexible modular system
- Range of sizes available up to 500ml
- Excellent chemical resistance

The modular nature of the Stuart heating block system gives you the greatest degree of flexibility. Two base plates are available which accommodate up to three blocks each, while for larger volume reactions a third base plate is available, which accepts a single insert for up to 500ml flasks and also includes heat resistant handles for safe and easy lifting. The high quality anodised blocks offer excellent chemical and solvent resistance, and the low well has been proven to offer excellent temperature transfer without compromising your view of the reaction or risking cracking the glassware. The low well also ensures that the blocks are compatible with multi neck flasks. These heating blocks are compatible with the Stuart range of Hotplates (HPL 080 031).



HPL120510
1x base plate
3x 100ml inserts
3x 250ml inserts

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|---------|
| HPL 120 510 | 6 Part | EACH | £747.60 |



Supercuber Ice Machine

- Produces individual Gourmet crystal clear ice cubes.
- Resistant stainless steel exterior.
- Advanced diagnostics computerized controls.
- Front panel in and out airflow (air-cooled model only) for built-in installation.
- Front access condenser air filter, removable and washable (air cooled model only).
- Ergonomically designed ice storage access, with disappearing door. Door-closing movement dampening system.
- Water system protected by patented anti-scale system.



| | |
|--|---|
| | ACM 47 |
| Standard | Medium cube |
| Option | - |
| Dimensions (HxWxD) | 645 x 386 x 600mm |
| Optional | Extension leg kit available |
| Max. production/24hrs | 24kg / 1200 Cubes |
| Bin capacity | 9 Kg |
| Weight | 35 Kg |
| Water consumption | 77 Litres (AS) @15°C, 400 Litres (WS) @15°C |
| Recommended Water Filter | AP3S |
| Electricity consumption | 8 kwh |
| Circuit rating | 13 Amps |
| Voltage | 230/50/1* |
| Air Cooled (AS) Water Cooled (WS) *Other voltages available, please contact Customer Services | |

| Cat No. | Model | Quantity | Price |
|--------------------|--------|----------|----------------|
| ICE 110 011 | ACM 47 | EACH | £784.62 |

Dry Ice

Dry Ice is a great material to demonstrate scientific principles for students of all ages. It is also brilliant as a means of adding pizzazz to open days and assemblies. Dry Ice can be used to conduct the experiments listed below (and more besides!):

- Bubble Monsters
- Pouring CO₂
- Making Fog
- Big Fog Effect
- Safe Explosion
- Fruit Clouds and Smoking Drink

For further information, safety advice and experiment ideas, please visit the Chillsticks website.

Dry Ice Packs

Dry ice pellets, supplied in a pharmaceutical-quality insulated polystyrene box. Available in two pack sizes - 9 or 20kg.

NB: These products need to be ordered for an exact date and they will then be delivered to your school on that day. 7 days' notice is required. Please contact Customer Services to discuss your delivery requirements.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| GFT 130 010 | Dry Ice | 9KG | £57.75 |
| GFT 130 020 | Dry Ice | 20KG | £80.85 |

Snowpack Dry Ice Maker

Connect the snowpack to a siphon-type CO₂ cylinder and proceed in accordance with the instructions. An injection time of one minute is sufficient to produce a pellet 22 x 50mm (height x diameter).



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|----------------|
| GFT 070 010 | Snowpack Dry Ice Maker | EACH | £113.29 |



General Purpose Incubator

Genlab General Purpose Incubators offer a range of highly efficient, reliable, cost effective units to suit most biological analysis, research and general laboratory applications.

- Easy clean powder coated body; aluminium coated mild steel chamber
- Direct reading thermostat
- Safety overheat thermostat
- C.E. compliant
- Full two year warranty

All units have CLAD interior with thermostatic control as standard. The incubators have a solid steel door as standard or as an alternative a door with an integral viewing window can be fitted. Please ask for details about additional options.



Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.



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GENERAL LABWARE

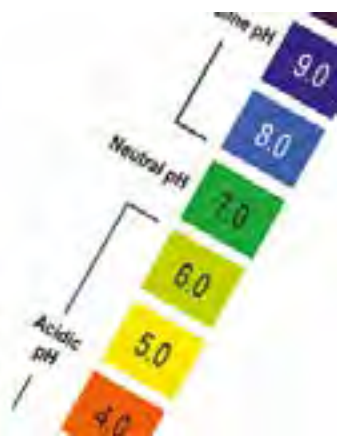
SAFETY

| | | | | | |
|--|---|-------------------|-------------------|-------------------|-------------------|
| Temperature Range | ambient +5 to 100°C without fan ambient +5 to 60°C with window | | | | |
| Temperature Fluctuation | ±0.25°C @ 37°C | | | | |
| Capacity | 18L | 30L | 40L | 50L | 75L |
| Internal Dimensions (HxWxD) | 260 x 260 x 270mm | 240 x 360 x 350mm | 320 x 360 x 350mm | 330 x 490 x 330mm | 330 x 490 x 450mm |
| External Dimensions - Without Fan (HxWxD) | 520 x 380 x 410mm | 500 x 480 x 490mm | 580 x 480 x 490mm | 590 x 610 x 470mm | 590 x 610 x 600mm |
| External Dimensions - With Fan (HxWxD) | N/A | 500 x 480 x 620mm | 580 x 480 x 620mm | 590 x 610 x 590mm | 590 x 610 x 720mm |
| No. of Shelves | 2 | 2 | 2 | 2 | 2 |
| No. of Shelf Positions | 2 | 2 | 3 | 3 | 3 |
| Weight | 14kg | 20kg | 23kg | 26kg | 34kg |

| Cat No. | Capacity | Quantity | Price |
|---|----------|----------|---------|
| Vertical Style, Analogue, Without Fan, Solid Steel Door | | | |
| INC 125 020 | 18L | EACH | £614.00 |
| INC 125 030 | 30L | EACH | £660.00 |
| INC 125 040 | 40L | EACH | £730.00 |
| INC 125 050 | 50L | EACH | £787.95 |
| INC 125 060 | 75L | EACH | £886.00 |
| Vertical Style, Analogue, Without Fan, Door with Integral Viewing Window | | | |
| INC 125 025 | 18L | EACH | £632.00 |
| INC 125 035 | 30L | EACH | £684.00 |
| INC 125 045 | 40L | EACH | £753.00 |
| INC 125 055 | 50L | EACH | £811.00 |
| INC 125 065 | 75L | EACH | £910.00 |



pH Indicator Strips



| Cat No. | pH Range | Quantity | Price |
|-------------|--------------|----------|--------|
| IND 300 030 | pH 3.8 - 5.5 | PK200 | £22.09 |
| IND 300 040 | pH 5.2 - 6.8 | PK200 | £22.09 |

Universal Indicator Strips

The indicator pads on these environmentally friendly strips are prepared as a non bleed system therefore the resultant colour change remains far longer and readable until the pad is dry. Each strip is long enough to protect the user from the test solution as the test pads are at the extreme end of the strip.



| Cat No. | Description | pH Range | Quantity | Price |
|-------------|----------------|-------------|----------|-------|
| IND 130 010 | Full Range | pH 1.0 - 14 | PK100 | £3.28 |
| IND 130 020 | Standard Range | pH 1.0 - 11 | PK100 | £3.28 |

Indicator Paper Books

20 leaves per book with 10 books per box.



| Cat No. | Description | Range | Quantity | Price |
|-------------|---------------------------|--------------------------|----------|-------|
| IND 010 005 | Universal Indicator Paper | pH 1.0 - 14.0 | PK200 | £3.93 |
| IND 010 010 | Universal Indicator Paper | pH 1.0 - 11.0 | PK200 | £3.67 |
| IND 010 040 | Comparator Paper | pH 5.2 - 6.7 | PK200 | £5.34 |
| IND 010 050 | Comparator Paper | pH 6.8 - 8.3 | PK200 | £5.34 |
| IND 010 060 | Comparator Paper | pH 8.4 - 10.0 | PK200 | £5.34 |
| IND 010 090 | Litmus Neutral | pH 5.0 - 8.0 | PK200 | £4.22 |
| IND 010 100 | Cobalt Chloride | Detects Moisture | PK200 | £5.15 |
| IND 010 110 | Lead Acetate | Detects Hydrogen Sulfide | PK200 | £7.36 |
| IND 010 130 | Starch | Detects Iodine | PK200 | £4.22 |
| IND 010 140 | Starch & Potassium Iodide | Detects Chlorine | PK200 | £4.22 |

Indicator Paper Reels

7mm x 5m.

| Cat No. | Description | pH Range | Quantity | Price |
|-------------|---------------|-----------|----------|--------|
| IND 020 011 | Full Range | 1 - 14 | EACH | £14.35 |
| IND 020 021 | Narrow Range | 0.5 - 5.5 | EACH | £11.51 |
| IND 020 031 | Narrow Range | 4 - 7 | EACH | £12.55 |
| IND 020 051 | Narrow Range | 8 - 10 | EACH | £11.51 |
| IND 020 081 | Litmus Red | - | EACH | £13.16 |
| IND 020 101 | Starch Iodide | - | EACH | £14.16 |



Test Paper Reels

7mm x 5m.



| Cat No. | Description | pH Range | Quantity | Price |
|-------------|----------------------|----------|----------|-------|
| IND 010 201 | Wide Range Universal | 1 - 11 | EACH | £2.22 |
| IND 010 211 | Full Range Universal | 1 - 14 | EACH | £3.14 |
| IND 010 221 | Litmus Red | - | EACH | £3.12 |
| IND 010 231 | Litmus Blue | - | EACH | £2.99 |

Comparator pH Paper Strips

The unique single pad system of impregnated paper allows the resultant colour change to remain up to 5 times longer than standard comparator papers. Supplied with a colour chart.



| Cat No. | pH Range | Quantity | Price |
|-------------|--------------|----------|-------|
| IND 010 021 | pH 1.0 - 3.5 | PK100 | £4.22 |
| IND 010 031 | pH 3.6 - 5.1 | PK100 | £4.22 |
| IND 010 041 | pH 5.2 - 6.7 | PK100 | £4.22 |
| IND 010 051 | pH 6.8 - 8.3 | PK100 | £4.22 |
| IND 010 061 | pH 8.4 - 10 | PK100 | £4.22 |



J

Jacks | Jars | Jugs

GENERAL

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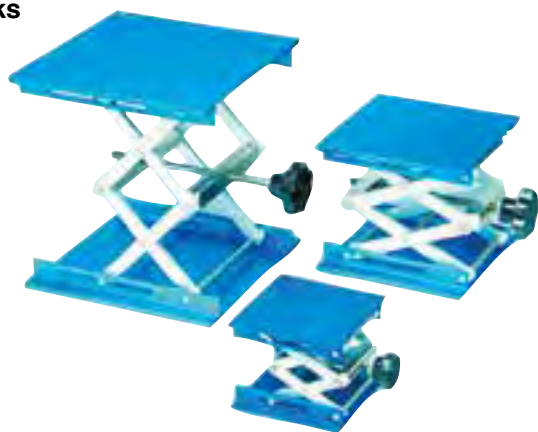
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GENERAL LABWARE

SAFETY

Jacks



| Cat No. | Size | Max. Height | Max. Weight | Quantity | Price |
|--------------------|-------------|-------------|-------------|----------|---------------|
| JAK 010 010 | 100 x 100mm | 140mm | 30kg | EACH | £19.37 |
| JAK 010 020 | 150 x 150mm | 280mm | 60kg | EACH | £33.92 |
| JAK 010 030 | 200 x 200mm | 290mm | 60kg | EACH | £62.16 |

Latex Sheet

- 91.4 x 100cm sheet
- 0.25mm thick
- For bell jars and lung experiments



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| EMZ 170 011 | Latex Sheet | EACH | £13.78 |

Polypropylene Graduated Jugs, Printed Graduations

PP Measuring Jugs With Handle
These beakers are provided with large sturdy handles for safe handling of acids, alkalies and other dangerous solutions.
Graduated and Autoclavable



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|---------------|
| JME 060 046 | 500ml | EACH | £2.73 |
| JME 060 056 | 1000ml | EACH | £3.98 |
| JME 060 086 | 5000ml | EACH | £15.93 |



Glass Bell Jars

*Diameter does not include flange.

| Cat No. | Height x Dia. | Quantity | Price |
|-----------------------------------|---------------|----------|---------------|
| With B29 Joint and Stopper | | | |
| BLJ 010 010 | 200 x 150mm | EACH | £49.23 |
| BLJ 010 020 | 250 x 150mm | EACH | £57.64 |
| BLJ 010 030 | 300 x 200mm | EACH | £72.79 |
| With Moulded Knob | | | |
| BLJ 020 010 | 200 x 150mm | EACH | £39.18 |
| BLJ 020 020 | 250 x 150mm | EACH | £38.93 |
| BLJ 020 030 | 300 x 200mm | EACH | £68.00 |

Polypropylene Graduated Jugs, Moulded Graduations

ROUND GRADUATED JUGS SHORT TYPE.

Material: Polypropylene

For food use - Autoclavable

They resist to temperatures from -10°C to +120° C.

Color: Neutral - Very transparent especially when they contain liquid products.

Graduation is in embossed form, very strong with drip spout.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| JME 080 046 | 500ml | EACH | £1.99 |
| JME 080 056 | 1L | EACH | £2.11 |
| JME 080 066 | 2L | EACH | £3.52 |
| JME 080 076 | 3L | EACH | £5.60 |
| JME 080 086 | 5L | EACH | £8.66 |



Graduated Jugs

Made of lightweight PE and suitable for general use.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| JME 040 010 | 500ml | PK2 | £1.64 |
| JME 040 020 | 1L | PK2 | £1.84 |
| JME 040 030 | 2L | EACH | £1.95 |



Label Tapes for Brother P-Touch

Superb adhesive labels that will stay on under normal indoor and outdoor use, including hot and cold environments. Gloss laminated cover layer repels water. Perfect for everyday applications and best suited for smooth flat surfaces. Available in a variety of widths. Tape Length: 8m

| Cat No. | Colour | Quantity | Price |
|-------------------------|-----------------|----------|--------|
| Tape Width: 9mm | | | |
| LAM 024 010 | Black on White | EACH | £19.47 |
| Tape Width: 12mm | | | |
| LAM 034 010 | Black on White | EACH | £21.63 |
| LAM 034 020 | Black on Yellow | EACH | £21.63 |
| LAM 034 030 | Black on Green | EACH | £21.63 |
| LAM 034 050 | Blue on White | EACH | £21.63 |
| Tape Width: 18mm | | | |
| LAM 044 010 | Black on White | EACH | £25.83 |
| LAM 044 020 | Black on Yellow | EACH | £25.83 |
| LAM 044 040 | Red on White | EACH | £25.83 |
| LAM 044 050 | Blue on White | EACH | £25.24 |
| Tape Width: 24mm | | | |
| LAM 047 010 | Black on White | EACH | £30.00 |
| LAM 047 020 | Black on Yellow | EACH | £28.80 |
| LAM 047 050 | Blue on White | EACH | £30.00 |



Silicone Grease

Resistant to most chemicals. Stable over temperature range -40 to 200°C. For high vacuum purposes. Must not be used with volumetric glassware because silicone contamination distorts the shape of the meniscus. Colourless, Paste, Odourless

| Cat No. | Pk Qty | Quantity | Price |
|---------|--------|----------|-------|
| S10 25 | 50GM | 50GM | £7.20 |



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M

Magnifiers | Mats

GENERAL

Hand Magnifiers

Glass with metal frame.



| Cat No. | Lens Diameter | Magnification | Quantity | Price |
|--------------------|---------------|---------------|----------|--------------|
| MAG 040 010 | 50mm | 3.5 | EACH | £1.68 |
| MAG 040 020 | 63mm | 2.5 | EACH | £2.81 |
| MAG 040 030 | 75mm | 2 | EACH | £3.66 |
| MAG 040 040 | 90mm | 2 | EACH | £5.15 |

Hand Magnifiers

Hand Magnifier

Clear plastic magnifiers that are ideal for the classroom. 38mm diameter with a magnification of x3.

Detail Magnifier

50mm diameter with a magnification of x3 with a secondary lens of x6 for fine detail.

Clarity Magnifier

75mm diameter with a magnification of x3 and x6.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| MAG 050 012 | Hand Magnifier | PK12 | £4.69 |
| MAG 050 021 | Detail Magnifier | PK5 | £3.66 |
| MAG 050 031 | Clarity Magnifier | PK5 | £13.31 |

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SAFETY



Folding Pocket Magnifiers

Metal case, with a 17mm diameter lens.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| MAG 020 010 | x5 Magnification | EACH | £1.42 |
| MAG 020 030 | x10 Magnification | EACH | £1.85 |

Ceramic, Asbestos-Free Mats

Calcium silicate board reinforced with selected fibres and fillers. It is formulated without inorganic fibres and does not contain formaldehyde.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| MAT 010 010 | 150 x 150mm | PK10 | £8.99 |
| MAT 010 020 | 230 x 230mm | PK5 | £11.91 |
| MAT 010 030 | 300 x 300mm | PK5 | £14.81 |
| MAT 010 040 | 375 x 375mm | EACH | £7.19 |
| MAT 010 050 | 450 x 450mm | EACH | £12.92 |



Hardboard Mats

Colours supplied may vary.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| MAT 020 010 | 230 x 230mm | PK10 | £6.73 |

Heat Resistant Paper

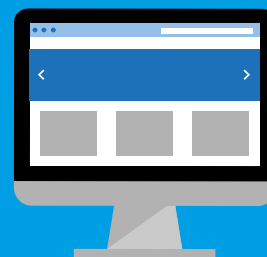
This product features low bio-persistence, excellent tensile strength, high insulating values at high temperatures, immunity to thermal shock and outstanding handling characteristics.



| Cat No. | Form | Size | Quantity | Price |
|--------------------|-------|-----------------|----------|---------------|
| APS 020 010 | Sheet | 250 x 250 x 2mm | EACH | £9.54 |
| APS 020 020 | Reel | 50mm x 10m | EACH | £26.72 |

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Digital Melting Point Apparatus

The SMP range has been designed with safety and ease of operation in mind making it ideal for use in education. The temperature is selected, measured and displayed digitally making it accurate and negating the need for a thermometer. Two samples can be tested simultaneously. They are viewed via a magnifying lens with clear observation aided by built in illumination. Extendible back feet allow the unit to be operated at the optimum viewing angle. Full access to the block aids cleaning.

- Digital selection & display of temperature
- High accuracy
- Easy to operate with plateau facility
- Ideal for education use
- With BioCote antimicrobial protection



MPA 040 010

| | |
|-------------------------------|--|
| No. of Samples | 2 |
| Temperature Range | Ambient to 300°C |
| Temperature Resolution | 1.0°C |
| Temperature Accuracy | ± 1% of displayed temperature |
| Display | 3 digit LED |
| Sensor | Platinum resistance PT100 |
| Ramp Rates | 20°C per min to plateau: 2°C per min to melt |
| Dimensions (WxDxH) | 160 x 220 x 170 mm |
| Net Weight | 1.8kg |
| Electrical Supply | 230V, 50Hz, 75W |

| Cat No. | Model | Accuracy | Quantity | Price |
|--------------------|-------|----------|----------|----------------|
| MPA 040 010 | SMP10 | 1.0°C | EACH | £680.40 |
| MPA 040 020 | SMP20 | 0.1°C | EACH | £916.70 |

SMP11 Analogue Melting Point Apparatus

The SMP11 measures the melting point of chemicals from ambient to 250°C. Samples need to be placed in a sealed end capillary tube and located in the heating block. Up to three tubes can be tested at one time. The heating rate can be adjusted manually between 20°C/min for rapid heating and 1°C/min to obtain an accurate melting point range. The sample and melt process can be viewed via the magnifying lens, which is illuminated by bright LEDs. Record the melt temperatures from the thermometer, positioned horizontal to the samples to allow simultaneous viewing. Comes complete with thermometer and pack of 100 melting point tubes (open both ends).



| | |
|---------------------------|-------------------|
| No. of Samples | 3 |
| Temperature Range | Ambient to 250°C |
| Heating Rate | 1 to 20°C/min |
| Dimensions (WxDxH) | 370 x 140 x 110mm |
| Net Weight | 1.7kg |
| Electrical Supply | 230V, 50Hz, 50W |

| Cat No. | Model | Quantity | Price |
|--------------------|---|----------|----------------|
| MPA 010 020 | SMP11 | EACH | £557.55 |
| MPA 010 520 | Spare Thermometer, Spirit Filled, 0°C to 250°C | EACH | £36.75 |
| MPA 010 530 | Brass Cooling Plug (for rapidly reducing heating block temperature after use) | EACH | £23.10 |



M

Melting Point Apparatus | Mortar & Pestle

GENERAL

Melting Point Tubes

VITREX melting point tubes are quality products perfect for handling and transporting small volumes of liquid, melting point determinations and many other purposes. The tubes are uniform and are cut at right angles.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| MPA 020 005 | Open Ended | PK100 | £4.12 |
| MPA 020 010 | Open Ended | PK1000 | £32.94 |
| MPA 020 020 | Sealed One End | PK1000 | £43.80 |

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SAFETY

Thiele Tubes

Borosilicate glass for heating melting point tubes in the determination of melting points.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| CMZ 060 010 | Thiele Tubes | EACH | £13.75 |



Aluminium Cylinder

An aluminium cylinder for melting point determination. 64mm x 50mm (diameter x height) with a drilled 8mm hole for insertion of a thermometer.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| MPA 060 010 | Aluminium Cylinder | EACH | £26.88 |



Budget Mortar & Pestle

Rough inside and partially glazed outside with a pouring lip.

| Cat No. | Outer Diameter | Quantity | Price |
|--------------------|----------------|----------|---------------|
| MOR 080 010 | 60mm | EACH | £1.37 |
| MOR 080 020 | 75mm | EACH | £1.65 |
| MOR 080 030 | 150mm | EACH | £5.39 |
| MOR 080 040 | 200mm | EACH | £11.75 |



Porcelain Mortar & Pestle

Unglazed grinding surface with glazed outside.

| Cat No. | Capacity | Diameter | Height | Quantity | Price |
|--------------------|----------|----------|--------|----------|---------------|
| MOR 020 010 | 30ml | 70mm | 37mm | EACH | £8.84 |
| MOR 020 020 | 75ml | 91mm | 46mm | EACH | £10.38 |
| MOR 020 030 | 150ml | 113mm | 56mm | EACH | £13.84 |
| MOR 020 040 | 220ml | 125mm | 64mm | EACH | £16.42 |
| MOR 020 050 | 325ml | 144mm | 71mm | EACH | £29.15 |



Glass Mortar & Pestle

| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| MOR 010 020 | 100mm | EACH | £20.23 |



Genlab General Purpose Ovens

The Genlab Standard Ovens offer a range of highly efficient, reliable, cost effective units to suit most drying, warming and general laboratory applications.

- Temperature range 40 to 250°C
- Easy clean powder coated body
- Direct reading thermostat
- Full two year warranty
- Fluctuation $\pm 0.75^{\circ}\text{C}$
- Aluminium coated mild steel chamber
- Safety overheat thermostat
- C.E. compliant

Design

The exterior is constructed from sheet steel finished in an easy clean powder coated paint. The interior chamber is made from mild steel coated with aluminium (CLAD) with a stainless steel chamber available as an option. Fitted with fixed shelf runners and removable chrome plated wire grid shelves.

Heating

Heated by Incoloy sheathed elements; positioned below the chamber floor for natural convection units and fitted around the fan on the back wall of the chamber for mechanical convection units.

Controls

The control system comprises of a direct reading thermostat and overheat thermostat both with calibrated scales and tamper proof locks. They also include main switch with indicator and heat and overheat indicators.

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.



| Cat No. | Capacity | Internal Dimensions | External Dimensions | No of Shelves | Quantity | Price |
|--------------------|----------|---------------------|---------------------|---------------|----------|----------------|
| OVE 010 020 | 18L | 26 x 26 x 27 | 52 x 38 x 41 | 2 | EACH | £614.00 |
| OVE 010 030 | 30L | 24 x 36 x 35 | 50 x 48 x 49 | 2 | EACH | £660.00 |
| OVE 010 040 | 40L | 32 x 36 x 35 | 58 x 45 x 49 | 2 | EACH | £730.00 |
| OVE 010 050 | 50L | 33 x 49 x 33 | 59 x 61 x 47 | 2 | EACH | £787.95 |
| OVE 010 060 | 75L | 33 x 49 x 45 | 59 x 61 x 60 | 2 | EACH | £886.00 |

For optional extras, please contact Customer Services



P

Petri Dishes | pH Buffer

GENERAL

Resistance Glass Petri Dishes



| Cat No. | Size | Quantity | Price |
|--------------------|------------|----------|---------------|
| PDG 040 010 | 60 x 12mm | PK10 | £10.71 |
| PDG 040 020 | 80 x 15mm | PK10 | £10.51 |
| PDG 010 010 | 90 x 15mm | PK10 | £10.92 |
| PDG 040 030 | 100 x 15mm | PK10 | £12.15 |

DATA LOGGING

Polystyrene Petri Dishes

Material: Polystyrene
Diameter: 90mm
Vents: 3



| Cat No. | Diameter | Vents | Quantity | Price |
|--------------------|----------|-------|----------|---------------|
| PDP 050 080 | 90mm | 3 | PK500 | £40.74 |

BIOLOGY

Polystyrene Petri Dishes

Material: Polystyrene
Diameter: 90mm
Vents: 3



| Cat No. | Diameter | Vents | Quantity | Price |
|--------------------|----------|-------|----------|---------------|
| PDP 010 006 | 90mm | 3 | PK33 | £2.99 |
| PDP 010 011 | 90mm | 3 | PK99 | £9.99 |
| PDP 200 011 | 90mm | 3 | PK825 | £77.24 |

CHEMISTRY

Polystyrene Petri Dishes

Material: Polystyrene
Diameter: 55mm
Vents: 6



| Cat No. | Diameter | Vents | Quantity | Price |
|--------------------|----------|-------|----------|--------------|
| PDP 040 021 | 55mm | 6 | PK60 | £6.57 |

PHYSICS

Buffer Solution Sachets

20ml calibration sachets are quick and easy, and come in a variety of pH values. No need to mix powders or dilute, just tear off the top and insert your electrode or pocket meter for guaranteed measurement.



| Cat No. | pH Value at 25°C | Quantity | Price |
|--------------------|------------------|----------|---------------|
| PHA 010 010 | pH 4.01 | PK25 | £33.60 |
| PHA 010 020 | pH 7.01 | PK25 | £33.60 |
| PHA 010 030 | pH 10.01 | PK25 | £33.60 |

ENVIRONMENTAL SCIENCE

Buffer Solutions Certified, Coloured



| Cat No. | Colour | pH Value | Quantity | Price |
|----------------|--------|----------|----------|--------------|
| BU5 011 | Red | pH 4.0 | LTR | £6.80 |
| BU5 021 | Yellow | pH 7.0 | LTR | £6.80 |
| BU5 031 | Blue | pH 10.0 | LTR | £6.80 |

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SAFETY



Checker 1 Pocket pH Meter

A pocket pH meter with 0.1 resolution and replaceable electrodes, priced at the cost of a few rolls of pH paper. Ideal for laboratory use, or anywhere a quick and easy pH reading is required. Standard combination electrode with screw fit.

Range: 0-14 pH
Accuracy: 0.2 pH

Benefits:

- Fast accurate readings from 0 - 14 pH with a resolution of 0.1 pH
- Small diameter electrode designed to fit easily into a test tube - ideal for laboratory sampling
- 1000 hours of battery life
- Sturdy compact meter designed for direct sample testing
- Easy to read LCD with 0.1 pH resolution
- Thin long-reach pH electrode included as standard
- Electrode is quick and easy to replace by unscrewing it from the meter body and adding a new one
- Complete with pH electrode
- 1 year manufacturer warranty



| Cat No. | Model | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| PHM 210 010 | Checker 1 | EACH | £50.40 |
| Accessories | Description | Quantity | £50.40 |
| PHH 020 010 | Spare Electrode | EACH | £29.55 |

Pocket pHep Tester

A simple to use low cost pocket pH tester reading from 0 to 14pH. Ideal for student use, the pHep has a large easy to read LCD screen and sliding on/off switch. Can be manually calibrated at two points.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------------|----------|---------------|
| PHM 100 010 | Pocket pHep Tester | EACH | £57.05 |
| Accessories | Description | Quantity | £57.05 |
| PHA 010 020 | Buffer Solution Sachets, pH 7.01 | PK25 | £33.60 |
| PHM 055 510 | Electrode Storage Solution | EACH | £24.45 |

Pocket pHep Water Resistant pH Testers

Water resistant, accurate and portable, these handy little pocket meters are true go anywhere pH testers with replaceable electrodes.

Features:

- Dual LCD screen displays pH and temperature simultaneously
- Temperature given in °C or °F
- Rubberised, easy to use two button operation
- Water resistant casing designed to float if dropped in water
- Tactile grip casing
- Replaceable electrodes help prolong the life of the meter
- Electrode features stainless steel round connector ensuring there are no pins to bend or break during replacement
- Exposed temperature sensor provides fast response time
- Removable safety cap
- pHep4 offers 0.1 pH resolution and ± 0.1 pH accuracy
- pHep5 offers 0.01 pH resolution and ± 0.05 pH accuracy

| | PHM 310 010 | PHM 310 020 |
|---------------------------------|--|--|
| pH Range | -2.0 to 16.0 pH | -2.0 to 16.0 pH |
| Temperature Range | -5 to 60°C | -5 to 60°C |
| pH Resolution | 0.1 pH | 0.01 pH |
| Temperature Resolution | 0.1°C | 0.1°C |
| pH Accuracy | ±0.1 pH | ±0.05 pH |
| Temperature Accuracy | ±0.5°C | ±0.5°C |
| pH Calibration | automatic, at 1 or 2 points with 2 sets of memorised buffers | automatic, at 1 or 2 points with 2 sets of memorised buffers |
| Temperature Compensation | Automatic | Automatic |
| Dimensions | 163 x 40 x 26mm | 163 x 40 x 26mm |
| Weight | 100g | 100g |



| Cat No. | Code | Model | Resolution | Quantity | Price |
|--------------------|-----------------------|-------|------------|----------|----------------|
| PHM 310 010 | HI-98127 | pHep4 | 0.1 pH | EACH | £112.00 |
| PHM 310 020 | HI-98128 | pHep5 | 0.01 pH | EACH | £127.25 |
| Accessories | Description | | | Quantity | £127.25 |
| PHM 310 500 | Replacement pH Sensor | | | EACH | £66.20 |



P

pH Meters

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SAFETY

Waterproof pH Meter

A waterproof pocket pH tester that measures four parameters in one without changing probes. Simply press a button to switch from pH to EC to TDS, with temperature continuously displayed on the bottom half of a large LCD screen. Although packed with features, this tester has just two buttons and is simple to use.



| Range | HI-98129 |
|-------|-------------------|
| EC | 0-3999 μ S/cm |
| TDS | 0-2000 ppm |

| Cat No. | Model | Quantity | Price |
|-------------|----------|----------|---------|
| PHM 450 010 | HI-98129 | EACH | £178.15 |

Hand Held pH/mV Meters

Two low cost hand held pH meters suitable for use in the laboratory or out in the field. Supplied with a detachable plastic bodied pH electrode on 1m of cable. Manual temperature compensation is featured from 0 - 100°C, both meters can be calibrated to any pH buffer. HI-8014 also reads millivolts. Supplied with pH electrode and battery.



| | HI-8010 | HI-8014 |
|-----------------|------------------|------------------|
| pH Range | 0.00 to 14.00 | 0.00 to 14.00 |
| mV Range | N/A | \pm 1999 |
| pH Accuracy/Res | 0.01/ \pm 0.01 | 0.01/ \pm 0.01 |
| mV Accuracy/Res | N/A | 1/ \pm 1 |

| Cat No. | Model | Quantity | Price |
|--------------------|--------------------------|----------|---------|
| PHM 160 005 | HI-8010 | EACH | £207.70 |
| PHM 160 010 | HI-8014 | EACH | £247.90 |
| Accessories | Description | Quantity | £247.90 |
| PHM 050 500 | Replacement pH Electrode | EACH | £96.75 |

550 Portable pH Meter

Model 550 is a general purpose portable pH meter offering 2 point pH calibration and automatic buffer recognition. This model simultaneously displays both the temperature compensated pH readings and temperature. This small, lightweight meter has an LCD display encompassed in a splash proof housing.

- Simultaneously displays pH and temperature
- Automatic calibration
- Manual or Automatic Temperature Compensation (ATC)
- Auto shut off 10 minutes
- 5000 hours battery life
- 2 year warranty

This meter is supplied ready to use with an epoxy bodied electrode (924 001), a temperature probe (170 101) and buffers and is supplied in a handy carry case.



| | |
|------------------------------|--------------------|
| Model | 550 |
| Type | pH and temperature |
| Waterproof | No (IP65) |
| pH Range | 0 to 14 |
| pH Resolution | 0.01 |
| pH Accuracy | \pm 0.05 |
| mV Range | N/A |
| mV Resolution | N/A |
| mV Accuracy | N/A |
| ATC | 0 to 60°C |
| Temperature Range | 0 to 100°C |
| Temperature Resolution | 0.1°C |
| Temperature Accuracy | \pm 0.5°C |
| No. of Calibration Points | 2 |
| Automatic Buffer Recognition | Yes |
| Auto Shut Off | 10 mins |
| Operating Temperature | 0 to 50°C |
| Battery Life (hours) | 5000 |
| pH Connector | BNC |
| Temperature Connector | 3.5mm jack |
| Dimensions (l x w x d) | 128 x 56 x 25mm |
| Weight | 130g |



| Cat No. | Model | Quantity | Price |
|-------------|------------------------------|----------|---------|
| PHM 170 010 | 550 pH and Temperature Meter | EACH | £209.00 |



ZPH-202 pH Bench Meter

A professional quality bench pH meter.

- Large 18mm LCD Display
- Power: 1x 9V alkaline battery (supplied separately)
- BNC electrode connector (Electrode not included)
- Spill proof front panel
- Range: 0-14pH
- Resolution: 0.01pH
- Dimensions: 147 x 117 x 52mm
- Weight: 250g
- ISO9001 Calibration Certificate

PE-03 pH Electrode

General purpose & field use.

- Compatible with ZPH-202 pH Meter (PHM 990 010)
- BNC connector
- Epoxy body
- 1-13pH
- 12.3mm dia x160mm



Technical Specification for Probe

| | |
|--|------------------------------------|
| Description | pre-amplified pH/temperature probe |
| Reference | single, Ag/AgCl |
| Junction | open |
| Electrolyte | viscolene |
| Max Pressure | 0.1 bar |
| Range | pH: 0 to 12 |
| Recommended Operating Temperature | 0 to 50°C (32 to 122°F) - LT |
| Tip /Shape | conic (dia: 6 x 10 mm) |
| Temperature Sensor | yes |
| Amplifier | yes |
| Body Material | PVDF |
| Cable | coaxial; 1 m (3.3') |
| Connection | quick connect DIN |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| PHM 990 010 | ZPH-202 pH Bench Meter | EACH | £72.00 |
| PHM 990 500 | PE 03 pH Electrode | EACH | £72.00 |
| Accessories | Description | Quantity | Price |
| BAT 010 050 | PP3 - 9V Battery | EACH | £3.29 |

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P

pH Electrodes

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SENTEK



Sentek pH Electrodes

Combining ergonomic practicality with unrivalled performance, these electrodes also feature:

- Extremely fast response
- Virtually unbreakable construction
- Exceptionally stable reference system
- Snap action closure for easy refilling and zero leakage
- High quality ABS cap with unique 'soft grip'
- Rugged 'long life' pH glass membrane

Electrode P11 Glass bodied, refillable, general purpose combination pH electrode. Recommended sample types: brewing, blood products, cement, cosmetics, dairy products, education and low ionic solutions.

Electrode P14 & P17 Epoxy bodied, gel filled, general purpose combination pH electrode. Recommended sample types: brewing, cosmetics, education and field use.

| Cat No. | Model | Application | Quantity | Price |
|--------------------|-------|-------------|----------|---------------|
| PHD 150 020 | P11 | Liquids | EACH | £33.71 |
| PHD 150 050 | P14 | General | EACH | £33.71 |
| PHD 150 080 | P17 | Surface | EACH | £84.32 |

Electrode Storage Bottles

These electrode storage bottles fit around the base of the electrode and can be filled with storage solution, keeping the electrode in good condition.



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| PHS 090 010 | Storage Bottle | EACH | £4.12 |
| PHS 090 020 | Storage Bottles | PK3 | £10.30 |
| PHM 480 020 | Storage Solution | 150ML | £14.42 |

SENTEK

pH Electrode with Soaker Bottle

This epoxy bodied P14 probe comes fitted with a soaker bottle to keep it wet, a bottle of partial gel with a syringe to enable refilling when necessary, and bottles of both cleaning and storage solution. Includes instruction sheet.

- pH Range: 0-14
- Temp Range: 0-70°C
- Dimensions: 12 x 120mm
- Ref. Type: Ag/AgCl

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|---------------|
| PHD 150 055 | pH Electrode with Soaker Bottle | EACH | £48.69 |

SENTEK



Electrode Stand

Built to withstand the rigours of most laboratory environments, the stand is manufactured using chemical-resistant materials and is supplied with a heavy base plate to ensure complete stability when used with a number of electrodes. The holder will accept up to four 12mm diameter electrodes, together with a separate temperature/ATC probe, making it particularly suitable for use with many of the multi-parameter instruments currently available or under development. Integral cable clips ensure that all cables are neatly routed to provide a safe and tidy installation.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| PHS 030 010 | Electrode Stand | EACH | £72.00 |



Pasteur Pipettes

Soda lime glass pipettes.



PPP 010 016



PIA 020 010

| Cat No. | Capacity | Length | Quantity | Price |
|--------------------|-------------|--------|----------|--------|
| PPP 010 016 | 2ml | 150mm | PK1000 | £29.83 |
| PPP 010 026 | 2ml | 230mm | PK1000 | £29.99 |
| Accessories | Description | Colour | Quantity | £29.99 |
| PIA 020 010 | Latex Teats | Red | PK20 | £29.99 |

Dropping Pipettes

Glass pipettes with rubber teat.
Length: 75mm



PPD 010 011



PPD 010 031

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|-------|
| PPD 010 021 | Dropping Pipettes | PK10 | £4.93 |
| Accessories | Description | Quantity | £4.93 |
| PPD 010 011 | Spare Pipettes | PK10 | £2.11 |
| PPD 010 031 | Spare Teats | PK10 | £3.29 |



PPT 300 015



PPT 300

Disposable Graduated Pipettes

Produced from translucent polyethylene and graduated on the stem.
Length: 150mm

| Cat No. | Capacity | Graduations | Quantity | Price |
|-------------------------------|----------|-------------|----------|--------|
| Sterile, Sleeve of 20 | | | | |
| PPT 300 010 | 1ml | 0.25ml | PK500 | £22.97 |
| Non-Sterile, Fine Stem | | | | |
| PPT 300 015 | 1ml | 0.25ml | PK400 | £69.32 |
| Non-Sterile | | | | |
| PPT 300 030 | 1ml | 0.25ml | PK500 | £11.36 |
| PPT 300 040 | 3ml | 0.50ml | PK500 | £11.36 |

Glass One Mark Pipettes, Class AS



PPB 070 066

| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|-------|
| PPB 070 066 | 10ml | EACH | £2.84 |
| PPB 070 086 | 20ml | EACH | £3.56 |
| PPB 070 096 | 25ml | EACH | £4.00 |



Graduated Class B Glass Pipettes

Pipettes, serological, AR glass.

| Cat No. | Capacity | Graduations | Quantity | Price |
|-------------|----------|-------------|----------|--------|
| PPG 095 010 | 1ml | 0.01ml | PK5 | £6.49 |
| PPG 095 020 | 2ml | 0.02ml | PK5 | £6.90 |
| PPG 095 030 | 5ml | 0.05ml | PK5 | £7.11 |
| PPG 095 040 | 10ml | 0.1ml | PK5 | £8.65 |
| PPG 095 050 | 25ml | 0.1ml | PK5 | £11.12 |

Graduated Class AS Glass Pipettes

Pipettes, serological, soda glass.



PPG 150 046

| Cat No. | Capacity | Graduations | Quantity | Price |
|-------------|----------|-------------|----------|-------|
| PPG 150 046 | 10ml | 0.1ml | EACH | £3.31 |
| PPG 150 056 | 25ml | 0.1ml | EACH | £6.08 |



P Pipettes

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Budget Pipette Fillers

Budget range of pipette fillers in 3 sizes.



| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| PRF 100 010 | 0-2ml | EACH | £3.99 |
| PRF 100 020 | 0-10ml | EACH | £3.99 |
| PRF 100 030 | 0-25ml | EACH | £4.10 |

Pi-Pump Pipette Fillers



| Cat No. | For Pipettes | Colour | Quantity | Price |
|--------------------|--------------|--------|----------|---------------|
| PRF 050 010 | Up to 2.0ml | Blue | EACH | £12.35 |
| PRF 050 020 | Up to 10ml | Green | EACH | £13.38 |
| PRF 050 030 | Up to 25ml | Red | EACH | £16.47 |

Pipette Controller

This pipette controller is comfortable and easy to use. It offers precise pipetting control for the complete range of glass and plastic pipettes both volumetric and graduated, from 0.1ml to 100ml. The robust and lightweight controller is easy to clean and maintain, with replaceable 0.45µm filters.

Complies with ISO9001, 13485 and GLP guidelines.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|---------------|
| PRF 090 010 | Blue | EACH | £38.60 |
| PRF 090 020 | Red | EACH | £38.60 |
| PRF 090 030 | Green | EACH | £38.60 |



3 Valve Pipette Filler

Economy. Suitable for pipettes up to 60ml.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| PRF 020 020 | 3 Valve Pipette Filler | EACH | £3.89 |



Rubber Pipette Filler

A moulded rubber bulb, approx. 60ml capacity, with three glass ball valves which can be controlled by finger pressure. There are no metal parts to corrode and the filler can be used with all liquids except those that attack rubber. Complete with adaptor for pipettes with capacities more than 20ml.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| PRF 030 010 | Rubber Pipette Filler | EACH | £8.59 |

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Pipette & Burette Rinsers

These high quality and high speed rinsers solve the problem of washing pipettes up to 600mm and Mohr burettes quickly and safely. The polyethylene rinser fills via the spray nozzle situated on the top rim. Contaminated water syphons out totally once the syphon point at the top of the rinser has been reached via the large diameter drain situated at the lowest point, before refilling automatically. During washing, the pipettes/burettes are housed in baskets specifically designed to minimise breakages. Since soaking can take the longest time when washing, two or three baskets of pipettes/burettes can be soaking in their jars whilst another basketful is being washed in the rinser.

NB: You will require 2x Extension Handles (PRA 054 030)

Please Note: Tubing/Hose is not supplied



| Cat No. | Description | Diameter x Height | Quantity | Price | |
|--------------------|--|-------------------|-------------------|----------------|-------|
| PRA 050 010 | Burette Rinser | 170 x 990mm | EACH | £156.49 | |
| PRA 050 020 | Pipette Rinser | 170 x 734mm | EACH | £164.24 | |
| Accessories | | Description | Diameter x Height | Quantity | Price |
| PRA 054 010 | Jar for Pipette Rinser | 162 x 650mm | EACH | £76.38 | |
| PRA 054 020 | Basket for Pipette Rinser | 145 x 650mm | EACH | £34.00 | |
| PRA 054 030 | Extension Handle for Pipette & Burette Rinsers | - | EACH | £8.43 | |

**Pipette Stand**

This PP pipette stand accommodates 18 pipettes with diameters not exceeding 10mm, plus 10 pipettes with diameters not exceeding 15mm. Small drain holes allow drainage onto dished base. Boss head (supplied) allows for the holder to be raised or lowered on supporting rod. Can be used with other supporting rods - olives supplied for 8 - 14mm rods. The distance between top and bottom plates is 168mm.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| PRA 030 010 | Pipette Stand | EACH | £42.58 |

**Pipette Storage Tray**

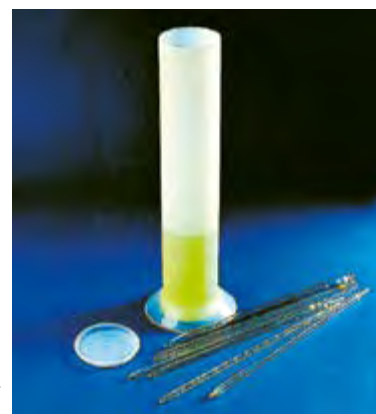
A PVC pipette tray that will fit most drawers. Approximate capacity for 30 pipettes. Four compartments for segregation. Suitable for 1, 2, 5 and/or 10ml pipettes.

| Cat No. | Dimensions | Quantity | Price |
|--------------------|------------------|----------|---------------|
| PRA 010 010 | 420 x 300 x 40mm | EACH | £29.15 |

Pipette Jar

This polypropylene jar is very versatile and is particularly suitable for storing pipettes. No more chipped ends as pipettes are cushioned in this rugged jar. The jar, but not the PE cap, can be autoclaved at 120°C for 20 minutes. The tight fitting cover protects pipettes during transportation and also from dust. Could be cut down to store shorter length pipettes. Circular base with PVC rod, 18 small and 10 large hole places.

Diameter: 82mm
Height: 426mm
Interior height: 410mm



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| PRA 040 010 | Pipette Jar | EACH | £35.00 |



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615

P Pipettors

GENERAL

Pipette Tips

Non-sterile, universal, polypropylene pipette tips.



PRT 190 010



PRT 190 020

| Cat No. | Colour | Volume | Quantity | Price |
|-------------|--------|--------------|----------|--------|
| PRT 190 010 | Yellow | 5 - 200µl | PK1000 | £10.38 |
| PRT 190 020 | Blue | 101 - 1000µl | PK1000 | £13.18 |

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Non-Sterile Pipette Tips



| Cat No. | Size | Type | Colour | Quantity | Price |
|-------------|-------|--------|---------|----------|--------|
| PRT 040 071 | 1-5ml | Gilson | Natural | PK250 | £16.99 |



PRP 550



PRP 560

Variable & Fixed Volume Micropipettes

- Fully autoclavable
- UV resistance
- 'CE' mark awarded
- Click-stop system for digital volume setting
- Ergonomic design ensuring light weight & soft plunger movement
- Two step plunger operation allows 'reverse pipetting technique'
- Calibration as per DIN 12650 & EN-ISO 8655 standards
- High accuracy and precision guaranteed
- Individual serial no. permanently marked on each pipette
- Calibration report enclosed with every pipette
- Colour coded for easy identification

| Cat No. | Volume | Quantity | Price |
|------------------------|---------------|----------|--------|
| Variable Volume | | | |
| PRP 550 020 | 0.5 - 10µl | EACH | £91.36 |
| PRP 550 030 | 2 - 20µl | EACH | £91.36 |
| PRP 550 040 | 5 - 50µl | EACH | £91.36 |
| PRP 550 050 | 10 - 100µl | EACH | £91.36 |
| PRP 550 070 | 20 - 200µl | EACH | £91.36 |
| PRP 550 060 | 50 - 200µl | EACH | £91.36 |
| PRP 550 080 | 100 - 1000µl | EACH | £91.36 |
| PRP 550 090 | 200 - 1000µl | EACH | £91.36 |
| PRP 550 100 | 500 - 5000µl | EACH | £91.36 |
| PRP 550 120 | 500 - 10000µl | EACH | £91.36 |
| PRP 550 110 | 1000 - 5000µl | EACH | £85.24 |

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2-Stage Vacuum Pump

A vacuum pump which is ideal for bell jar experiments. This pump includes an oil mist eliminator to stop smoking when used for long periods of time.

| | |
|------------------------------------|-------------------|
| Number of Stages | 2 |
| Volumetric Flow in l/min (at 50Hz) | 28 |
| Ultimate Vacuum | <0.02 mbar |
| Rotational Speed | 3440rpm |
| Motor Power | 200W |
| Weight | 5.5kg |
| Dimensions (LxWxH) | 347 x 137 x 194mm |
| Suction Inlet | 6mm |

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| PVA 130 010 | 2-Stage Vacuum Pump | EACH | |

JAVAC



2-Stage High Vacuum Pump

This vacuum pump is extremely light and portable and its compact design and low centre of gravity makes it very stable and safe for bench top work. Outstanding features are its 'whisper' like operation making it suitable for all teaching applications, cool running and tiny oil capacity.

| | |
|--------------|-------------------|
| Volume | 35 L/min |
| Vacuum | 0.02mbr ultimate |
| Oil Capacity | 125ml |
| Power | 230V |
| Connection | 6mm Hose Nozzle |
| Weight | 3.8kg |
| Dimensions | 271 x 166 x 195mm |

| Cat No. | Description | Quantity | Price |
|-------------|--------------------------|----------|---------|
| PVA 100 010 | 2-Stage High Vacuum Pump | EACH | £637.00 |

CCL Series Vacuum Pumps

The CCL Series are oil sealed, two-stage, high vacuum pumps. The pumps are dual voltage and are suitable for laboratory bench work where a high vacuum is required in relatively clean applications.

Javac CCL-31 This oil sealed 2-stage high vacuum pump is suitable for laboratory bench work where a high vacuum is required in relatively clean applications. The pump features a 6mm hose inlet and a standard oil mist eliminator with replaceable element.

Javac CCL-141 This oil sealed 2-stage high vacuum pump is suitable for running multiple applications where a higher through put is required in relatively clean applications. It can be used to create vacuums in larger equipment such as vacuum ovens and degassing chambers. The pump features a 8mm hose inlet and standard oil mist eliminator with replaceable element.

| Model | CCL-31 | CCL-141 |
|------------------|---------------------|----------------------|
| Vacuum | 35L/min 2.1m³/hr | 140L/min 8.4m³/hr |
| Ultimate Vacuum | <0.005mbar | <0.005mbar |
| Rotational Speed | 1440rpm | 2880rpm |
| Hose Connection | 6mm | 8mm |
| Dims (LxWxH) | 375 x 178 x 330mm | 375 x 178 x 330mm |
| Weight | 11.5kg | 13.8kg |
| Motor | 200W | 240W |
| Voltage | 110/240 Dual | 110/240 Dual |

| Cat No. | Model | Quantity | Price |
|-------------|--------------|----------|---------|
| PVA 120 010 | Javac CC-31 | EACH | £501.00 |
| PVA 120 020 | Javac CC-141 | EACH | £682.00 |

JAVAC



P Pumps

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Oil-Free Vacuum / Pressure Pump

The 2511 oil free vacuum / pressure pump is suitable for a number of standard duty lab applications, such as vacuum & pressure filtration (1 filter), degassing, gas sampling and desiccation. The 2511 is economically priced with a high performance to price ratio. It uses quiet oil free WOB-L piston technology, making it lightweight and portable.

| | |
|-----------------------------|-------------------|
| Free Air Displacement | 9.2 L/min |
| Ultimate Vacuum | 292 mbar |
| Pressure | 2.3 bar |
| Intake / Exhaust Connection | DN6 hose nozzle |
| Mass | 2.7 kg |
| Electrical Supply | 230V, 50Hz |
| Dimensions | 194 x 114 x 191mm |

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|---------|
| PVA 200 010 | Piston Pump WOB-L 2511 | EACH | £220.94 |



Dymax Pumps

These pumps offer whisper quiet, oil free operation for contamination free pumping of air and gas. Both models are housed in a compact polycarbonate case with low noise operation and rugged reliability. Features include an illuminated on/off switch and integral inlet filter with push fit cap for easy access and quick cleaning. Both models conform to the EN61010 laboratory safety standard.

Applications include:

- Aspiration
- Gentle fume extraction
- Air sampling

| | |
|-------------|-------------------|
| Flow | Dymax 14 |
| Max. Vacuum | 14.0 L/min |
| Pressure | 240 mbar |
| Dimensions | 2.0 bar |
| Weight | 210 x 125 x 151mm |
| | 2.3kg |

| Cat No. | Model | Quantity | Price |
|-------------|----------|----------|---------|
| PDM 040 010 | Dymax 14 | EACH | £429.00 |

Laboport® Mini Diaphragm Vacuum Pump

This diaphragm pump is a single-head, dry-running device that can be used in a wide range of laboratory applications. It transfers, compresses and pumps down without contamination. At the heart of these very compact pumps is a KNF structured diaphragm. This patented diaphragm results in smaller pumps with longer service life.

- 100% oil-free transfer
- Pure transferring, evacuation and compression of gases
- Maintenance-free
- Environmentally friendly
- High level of gas tightness



| | |
|--------------------|------------------|
| Model | N86 |
| Flow | 6 L/min |
| Vacuum | 100 mbar |
| Pressure | 2.4 bar |
| Tube Connectors | 4mm ID |
| Power | 60W |
| Weight | 1.9kg |
| Dimensions (LxHxW) | 164 x 141 x 90mm |

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|---------|
| PDM 050 041 | Mini Diaphragm Vacuum Pump | EACH | £332.87 |





Kartell

PP Filter Pump

This pump will work on pressures up to 10 kg/cm². Built-in non return valve to eliminate back flow. Useful for sucking to waste any spilt chemicals as well as for filter work. Easily dismantled for cleaning. Autoclavable.
Evacuating nozzle tapers from 9 to 20mm.
Example: Operating pressure of water: 1kg/cm².
Attained Vacuum: 15mm Hg.
Will evacuate a 5 litre container in about 20 minutes.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| PFL 030 010 | Vacuum Pump | EACH | £14.63 |
| Accessories | Description | Quantity | £14.63 |
| PFL 030 500 | Connectors | PK5 | £5.67 |



Nickel Plated Brass Connector

Filter pump connectors.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| PFL 010 010 | Threaded Connector - 1/2" BSP | EACH | £36.90 |
| PFL 010 020 | Tube Connector - 11mm ID | EACH | £28.84 |



Hand Held Vacuum Pump

Use this handheld vacuum pump to remove air for experimental purposes. Generates a vacuum of 700mm Hg. Works well with the Guinea and Feather Apparatus (XMC 200 010). This model comes with gauge and Teacher's Guide.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|---------------|
| PFL 050 010 | Hand Held Vacuum Pump | EACH | £33.98 |

NALGENE



Hand Operated Vacuum Gauge Pumps

Attains and holds vacuum of 635mm Hg. Vacuum release trigger. Adjustable vacuum release rate. Full blank port pressure is achieved with two strokes. Gauge measures in inches and cm Hg. Nozzle fits standard quarter inch ID tubing. Ideal for siphoning, filtration, liquid transfer, bleeding fluid lines and checking for equipment leaks. Polyvinyl chloride body.

| Cat No. | Pump Rate | Pressure | Quantity | Price |
|--------------------|---------------|----------|----------|----------------|
| PFL 040 020 | 36ml / stroke | 0.48 bar | EACH | £183.49 |



R Refractometers

GENERAL

Eclipse Handheld Refractometer

The Eclipse model is a low cost portable instrument used for 'on the spot' determination of refractive index of liquids or concentration of solutions. It features a high precision, clear scale, a simple zero adjust, a push-on (replaceable) prism flap, a comfortable eyepiece with smooth adjustment, a hand grip for comfort and insulation, a unique sample 'dribble' feature, anti-roll design and is lightweight.



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| Cat No. | Range | Scale Division | Quantity | Price |
|-------------|--------------------|----------------|----------|---------|
| REF 030 010 | Sugar (Brix) 0-15% | 0.1 | EACH | £204.97 |
| REF 030 020 | Sugar (Brix) 0-30% | 0.2 | EACH | £204.97 |
| REF 030 030 | Sugar (Brix) 0-50% | 0.5 | EACH | £204.97 |

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Digital Sugar Refractometer

A range of digital refractometers which are easy to use and read in seconds. Just two drops of sample are required, similar in price to optical versions, but easier to read.

- 1.5 second measurement time
- Direct readout
- Automatic temperature compensation
- No calibration solutions required
- Large clear LCD display Supplied with battery and instructions.



| | |
|------------------------------------|-------------------------------|
| Range - Sugar Content | 0 to 85% Brix |
| Resolution - Sugar Content | ± 0.1% Brix |
| Accuracy - Sugar Content (@ 20 °C) | ± 0.2 % Brix |
| Range - Temperature | 0 to 80°C |
| Resolution - Temperature | ±0.1°C |
| Accuracy - Temperature (@ 20 °C) | ± 0.3°C |
| Temperature Compensation | Automatic between 10 and 40°C |
| Min Sample Vol. | 2 metric drops (cover prism) |
| Light Source | Yellow LED |
| Dims (WxDxH) | 192 x 102 x 67mm |

CHEMICALS

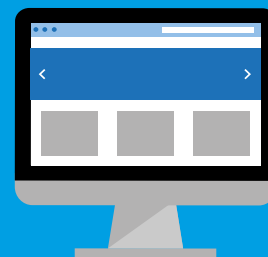
GENERAL LABWARE

SAFETY

| Cat No. | Model | Quantity | Price |
|-------------|----------|----------|---------|
| REF 400 010 | HI-96801 | EACH | £269.80 |

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Glass Door Refrigerators

- Temperature display
- Door lock
- Fan assisted cooling provides a more uniform temperature throughout the chamber
- Replaceable door gasket
- CFC and HCFC free refrigeration system



| | | | | |
|-------------------------------|---------------|---------|-----------------|-----------|
| Set Point (adjustable) | 4°C | | | |
| Capacity | Temp. Range | Shelves | Dims (HxWxD) | Defrost |
| 372L | +1°C to +12°C | 7 | 1825x595x640mm | Automatic |
| 1300L | -2°C to +5°C | 10 | 2000x1420x800mm | Automatic |

| Cat No. | Model | Description | Capacity | Quantity | Price |
|--------------------|-------------|----------------|----------|----------|-----------------|
| RFR 420 010 | BIO370FRSGD | Upright Fridge | 372L | EACH | £1152.54 |

Upright Fridge
Features:

- Reversible doors
- Replaceable door gasket
- CFC and HCFC free refrigeration system

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.



| | |
|-------------------------------|-------------------|
| Set Point (Adjustable) | 4°C |
| Capacity | 170L |
| Temp. Range | +2°C to +8°C |
| Shelves | 3 glass |
| Dims (HxWxD) | 845 x 544 x 570mm |
| Weight | 39kg |
| Defrost | Manual |

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|----------------|----------|----------|----------------|
| RFR 410 010 | Upright Fridge | 170L | EACH | £291.83 |

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R Rulers

GENERAL

Wooden Rulers

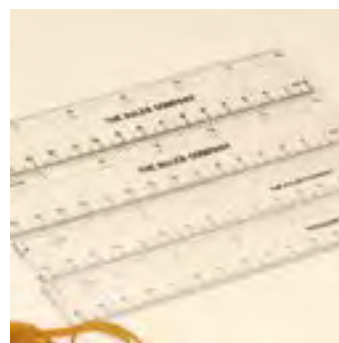
Graduated in cm and mm.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| RUL 040 010 | 0.5m | PK5 | £7.52 |
| RUL 040 020 | 1m | PK5 | £15.30 |

DATA LOGGING

Clear Plastic Rulers



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| RUL 050 011 | 15cm | PK10 | £2.68 |
| RUL 050 021 | 30cm | PK10 | £3.69 |

BIOLOGY

Plastic Ruler

Horizontal Reading Ruler

With mm and cm divisions, horizontal on each side.

Vertical Reading Ruler

With mm and cm divisions vertically on one side and mm/cm and inches on the other.

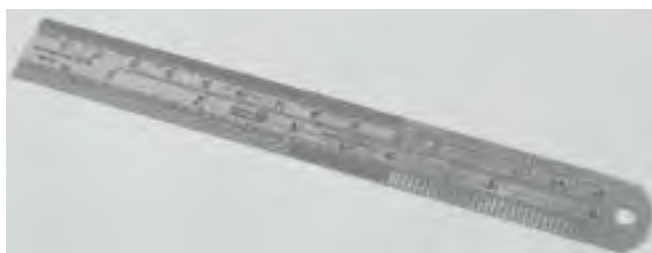


| Cat No. | Description | Length | Quantity | Price |
|--------------------|--------------------|--------|----------|--------------|
| RUL 020 010 | Horizontal Reading | 1m | EACH | £5.14 |
| RUL 030 010 | Vertical Reading | 1m | EACH | £5.14 |

CHEMISTRY

PHYSICS

Steel Rule



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| TOR 400 010 | 15cm | EACH | £2.75 |

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PP Measuring Scoops

100ml measuring scoops which are also suitable as weighing scoops. With precisely formed filling edge and comfortable, stable handle.

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|--------------|
| SCP 050 010 | Red | EACH | £1.56 |
| SCP 050 020 | Yellow | EACH | £1.56 |
| SCP 050 030 | Blue | EACH | £1.56 |

Parafilm M

Parafilm is a two way stretch sealing film with numerous uses in the laboratory. It is resistant to polar substances such as saline solutions, inorganic acid and alkaline solutions for up to 48 hours. Parafilm is also resistant to most lower alcohols but is unstable in many common solvents including diethyl ether and carbon tetrachloride. The film can stretch up to 200% and will cling around irregular shapes and surfaces.



| Cat No. | Width x Length | Quantity | Price |
|--------------------|----------------|----------|---------------|
| SEL 010 010 | 50mm x 76m | EACH | £34.99 |
| SEL 010 020 | 100mm x 38m | EACH | £29.40 |
| SEL 010 030 | 100mm x 76m | EACH | £54.32 |



Cling Film

General purpose sealing film.

| Cat No. | Width x Length | Quantity | Price |
|--------------------|----------------|----------|---------------|
| SEL 020 010 | 300mm x 10m | PK6 | £8.65 |
| SEL 020 020 | 450mm x 300m | EACH | £11.49 |

Clear Adhesive Tape



| Cat No. | Brand | Width | Length | Quantity | Price |
|--------------------|-----------|-------|--------|----------|--------------|
| TPE 010 020 | Sellotape | 25mm | 66m | EACH | £3.91 |
| TPE 020 011 | Unbranded | 12mm | 66m | PK12 | £3.91 |

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S Sieves

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Stainless Steel Soil Sieve Set

A set of nine stainless steel soil sieves with the following mesh sizes: 10, 20, 30, 40, 60, 80, 100, 120 and 250. Set supplied with an aluminium cover and receiver pan. Mesh number equates to the number of holes per square inch.
Size: 100 x 45mm (Dia x Depth)

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|----------------|
| SVE 010 060 | Soil Sieve Set | EACH | £135.96 |



Plastic Soil Sieve

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| YPP 120 010 | Plastic Soil Sieve | EACH | £3.35 |

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Nuffield Spatula
Stainless steel.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| SPA 140 010 | 140mm | EACH | £0.31 |



Nuffield Spatulas
Stainless steel.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| SPA 050 010 | 140mm | PK10 | £11.15 |



Trulla Spatula
Stainless steel.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| SPA 060 010 | 175mm | EACH | £3.42 |

Trulla Spatula
Stainless steel.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| SPA 140 020 | 176mm | EACH | £1.58 |

Spoon End Spatulas



| Cat No. | Length | Quantity | Price |
|------------------------|--------|----------|---------------|
| Nickel | | | |
| SPA 080 020 | 150mm | EACH | £10.82 |
| SPA 080 030 | 210mm | EACH | £17.00 |
| Stainless Steel | | | |
| SPA 070 010 | 120mm | EACH | £3.99 |
| SPA 070 020 | 150mm | EACH | £4.60 |
| SPA 070 030 | 210mm | EACH | £7.21 |



Chattaway Spatulas

| Cat No. | Length | Quantity | Price |
|------------------------|--------|----------|---------------|
| Nickel | | | |
| SPA 030 010 | 102mm | PK5 | £24.00 |
| Stainless Steel | | | |
| SPA 040 040 | 102mm | PK5 | £12.62 |
| SPA 040 050 | 152mm | PK5 | £15.19 |
| SPA 040 060 | 203mm | PK5 | £18.62 |

Polypropylene Spatulas

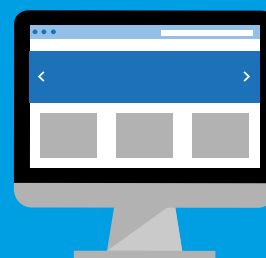
Spoon ended on one end and flat construction with knife edge on the other. This edge is useful for breaking up crystals etc.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| SPA 150 010 | 150mm | EACH | £0.40 |
| SPA 150 020 | 200mm | EACH | £0.60 |

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S

Specific Gravity

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SAFETY



Specific Gravity Bottles

| Cat No. | Description | Capacity | Quantity | Price |
|--------------------|-------------|----------|----------|---------------|
| SGB 020 020 | Adjusted | 50ml | EACH | £22.72 |

General Purpose Hydrometers

Calibrated for use at 15.6°C (60°F).



| Cat No. | Range | Subdivisions | Quantity | Price |
|----------------------|-----------|--------------|----------|---------------|
| Length: 250mm | | | | |
| HYD 020 030 | 1.00-1.50 | 0.005 | EACH | £13.39 |
| Length: 320mm | | | | |
| HYD 020 060 | 0.70-2.00 | 0.01 | EACH | £11.64 |

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Spectral Source

This unique unit has been specially developed to provide a varied range of light sources for examination by spectrometers. Various monochromatic LEDs are available together with a full set of transmission filters which can be used with the tungsten filament lamp. Compare yellow filter with yellow LED; examine the wavelength distribution from a white LED; compare clear envelope and red envelope LEDs; examine the band spectrum from a tungsten filament at various brightnesses etc. Requires a 12V DC power supply. Connection via 4mm leads or 2.1mm centre positive jack.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| SPE 410 011 | Spectral Source | EACH | £64.88 |

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S

Stands

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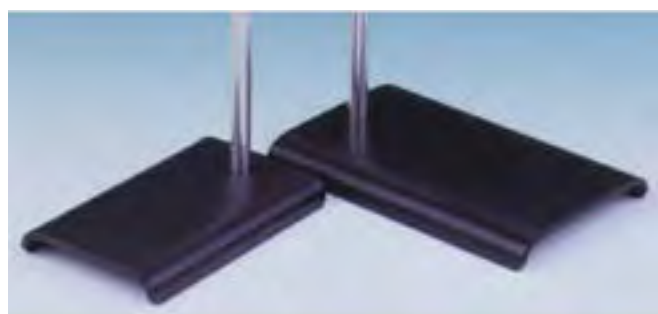
SAFETY

Budget Stand and Rod

Black enamel finished steel base with rubber feet for stability. Supplied with a plated steel rod which screws into the base.



| Cat No. | Dimensions (WxDxH) | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| STA 140 010 | 150 x 100 x 450mm | EACH | £5.18 |
| STA 140 020 | 200 x 125 x 500mm | EACH | £7.30 |
| STA 140 030 | 225 x 150 x 600mm | EACH | £9.99 |
| STA 140 040 | 300 x 150 x 900mm | EACH | £11.46 |



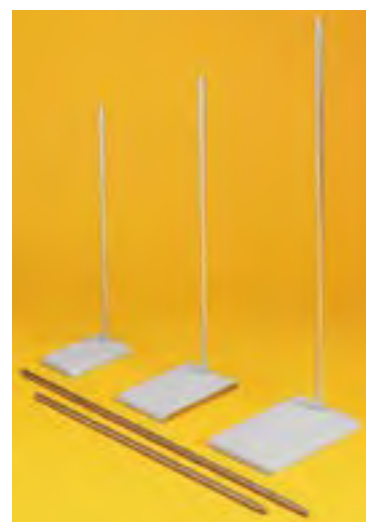
Pressed Steel Base

Finished in matt black textured acrylic paint, threaded M10 x 1.5mm. Supplied without rods.

| Cat No. | Dimensions | Thread | Quantity | Price |
|--------------------|-------------|--------|----------|---------------|
| STA 040 010 | 160 x 100mm | M10 | EACH | £10.30 |
| STA 040 020 | 200 x 125mm | M10 | EACH | £11.99 |
| STA 040 030 | 250 x 160mm | M10 | EACH | £16.40 |

Heavy Duty, Stove Enamelled Iron Bases

Supplied without rods.



| Cat No. | Diameter | Length | Quantity | Price |
|------------------------|-------------|--------|----------|---------------|
| STA 030 010 | 160 x 100mm | M10 | EACH | £10.29 |
| STA 030 020 | 200 x 125mm | M10 | EACH | £13.38 |
| STA 030 030 | 250 x 160mm | M10 | EACH | £18.53 |
| STA 030 040 | 315 x 200mm | M10 | EACH | £22.31 |
| Accessories | Diameter | Length | Quantity | £22.31 |
| Mild Steel Rods | | | | |
| STR 030 011 | 10mm | 400mm | EACH | £2.99 |
| STR 030 020 | 12mm | 600mm | EACH | £4.37 |
| STR 030 030 | 12mm | 750mm | EACH | £5.15 |
| STR 030 040 | 12mm | 1000mm | EACH | £7.33 |
| Alloy Rods | | | | |
| STR 040 010 | 12.5mm | 500mm | EACH | £3.81 |
| STR 040 020 | 12.5mm | 600mm | EACH | £4.84 |

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Jacks



| Cat No. | Size | Max. Height | Max. Weight | Quantity | Price |
|--------------------|-------------|-------------|-------------|----------|--------|
| JAK 010 010 | 100 x 100mm | 140mm | 30kg | EACH | £19.37 |
| JAK 010 020 | 150 x 150mm | 280mm | 60kg | EACH | £33.92 |
| JAK 010 030 | 200 x 200mm | 290mm | 60kg | EACH | £62.16 |



Bosshead

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|-------|
| SBH 010 020 | Bosshead | EACH | £4.11 |



Cork Lined Clamp
Cork lined jaws.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|-------|
| SCL 010 010 | Plain Metal | EACH | £9.27 |
| SCL 010 020 | Blue Painted, Economy | EACH | £3.59 |



Rubber Lined Clamp
3-prong with rubber covered jaws.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|-------|
| SCL 020 010 | Rubber Lined Clamp | EACH | £3.65 |



Budget Rubber Lined Clamp
Clamp with rubber lined jaws.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|-------|
| SCL 060 010 | Budget Rubber Lined Clamp | EACH | £3.59 |

Utility Clamp

Vinyl-covered, 3-prong clamp grips objects securely and does not scratch glass. Clamp rotates 360° and can be locked in any position. Jaws open to 9cm wide. Accommodates rods up to 19mm diameter.



| Cat No. | Supplier Code | Description | Quantity | Price |
|--------------------|---------------|---------------|----------|--------|
| SCL 070 010 | 707377 | Utility Clamp | EACH | £17.64 |

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S

Stands | Clamps

GENERAL

Bosshead with Eccentric Rings

These rings have a standard stem length with various ring diameters. The stem length to the centre of the bosshead is approximately 60mm.



| Cat No. | Internal Diameter | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| SCL 050 010 | 50mm | EACH | £9.87 |
| SCL 050 020 | 75mm | EACH | £9.31 |
| SCL 050 030 | 100mm | EACH | £10.38 |

Burette Clamps

Plastic, spring type one piece. For use with 12mm diameter rods.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| BHR 030 010 | Burette Clamps | PK3 | £8.53 |

DATA LOGGING

Economy Burette Stand

Wooden pole with screw.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| STA 130 010 | Single | EACH | £14.61 |
| STA 130 020 | Double | EACH | £9.71 |

BIOLOGY

CHEMISTRY

PHYSICS



Burette Clip

For supporting 25mm or 50mm burettes. The clamp is made with two plastic coated spring clips mounted 50mm apart on a stainless steel plate and a rod 150 x 8mm diameter.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| BHR 050 010 | Burette Clip | EACH | £8.23 |

ENVIRONMENTAL SCIENCE



Double Burette Clamp

High strength alloy casting with plastic jaws. The spring is positive, yet allows easy operation and will not damage glassware. Suitable for all burettes up to 100ml capacity.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| BHR 010 010 | Double Burette Clamp | EACH | £52.74 |

FORENSIC SCIENCE

Polypropylene Burette Clamps

Polypropylene burette clamp which is corrosion proof.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| BHR 060 010 | Single | EACH | £1.99 |
| BHR 060 020 | Double | EACH | £4.84 |

CHEMICALS



Burette Clamp

The plastic-covered jaws of this burette clamp open up to 35mm, rotate 360° and lock in position at any angle. Fits rods up to 16mm in diameter. The length of the clamp is adjustable.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|--------------|
| BHR 070 010 | Burette Clamp | EACH | £5.95 |

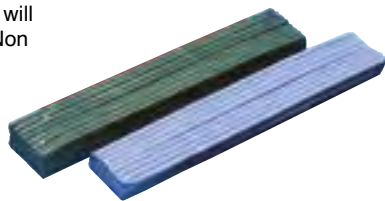
GENERAL LABWARE

SAFETY



Modelling Clay

Looks and acts like plasticine. Odourless and will not dry out. CE marked. Non toxic. Conforms to EN71 safety regulations.



Please note: The colour from dark modelling clay may transfer onto students' hands. This washes off with soap and water.

| Cat No. | Colour | Quantity | Price |
|-------------|--------|----------|-------|
| XPS 040 010 | Blue | 500GM | £2.69 |
| XPS 040 030 | Grey | 500GM | £2.69 |
| XPS 040 040 | Orange | 500GM | £2.69 |
| XPS 040 050 | Red | 500GM | £2.69 |
| XPS 040 070 | White | 500GM | £2.69 |
| XPS 040 080 | Yellow | 500GM | £2.69 |
| XPS 040 090 | Green | 500GM | £2.69 |



Newplast Modelling Clay

Newplast is a non-drying, reusable modelling material. It is still available in the traditional layered bar form familiar to many generations of children and adults. Newplast is sufficiently pliable to make a wide variety of models, but is firm enough to retain its shape indefinitely. Newplast is the material specified by most animators as being the only fit-for-purpose product of its type available. Similarly, it is used extensively in education and in industry, for a wide variety of applications ranging from construction to medical device manufacture. Set of 20 colours.

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| XPS 045 010 | Newplast Modelling Clay | PK20 | £30.89 |

Plastic Straws

200 x 3mm (length x diameter).
1000 straws per box.



| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|-------|
| EMZ 040 010 | Plastic Straws | BX | £4.66 |

Clipboard

Heavy duty A4 clipboard with pen holder.



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| EMZ 110 010 | Clipboard | EACH | £1.42 |

Pentel Giant Markers

Fibre tip.



| Cat No. | Colour | Quantity | Price |
|-------------|--------|----------|--------|
| LAS 025 010 | Black | PK6 | £11.64 |
| LAS 025 020 | Blue | PK6 | £11.64 |
| LAS 025 040 | Red | PK6 | £11.85 |



LabStuff® Marker

Indelible pen which can write on metal, glass, plastic and porcelain. Suitable for use on cold and wet surfaces.

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| LAS 070 010 | LabStuff® Marker | PK10 | £28.99 |

Pentel Fine Point Fibre Tip Pen



| Cat No. | Colour | Quantity | Price |
|-------------|--------|----------|-------|
| LAS 035 010 | Black | PK6 | £9.53 |

Chinagraph Pencils



| Cat No. | Colour | Quantity | Price |
|-------------|--------|----------|--------|
| LAS 010 010 | Black | PK12 | £16.58 |
| LAS 010 020 | Blue | PK12 | £14.46 |
| LAS 010 080 | Brown | PK12 | £16.58 |



S Stationery

GENERAL

Protractors



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|-------|
| RUL 070 010 | Protractors | PK10 | £2.99 |

String

Balls of string.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|-------|
| CMZ 050 010 | String | PK5 | £4.52 |

DATA LOGGING

BIOLOGY

CHEMISTRY



Rubber Bands

450g of assorted rubber bands. Packed in a re-sealable grip bag.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|-------|
| EMZ 120 010 | Rubber Bands | PACK | £4.31 |

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Compact Magnetic Stirrer

The white plate improves the colour perception during titration. It offers greater surface stability due to its shape. Single button for power and speed control. The stirrer can be stacked away easily when not in use. Supplied with one stirring bar. 90mm plate.

Dimensions: 160 x 110 x 45mm (LxWxD)



| | |
|---------------------------|------------------|
| Max Viscosity | 10cps |
| Max. Volume | 1L |
| Max. Beaker Dia. | 110mm |
| Speed | 250-1500rpm |
| Dimensions (HxWxD) | 25 x 116 x 170mm |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| MST 170 011 | Compact Magnetic Stirrer | EACH | £57.44 |

**Mini Magnetic Stirrers**

The mini stirrer has proved to be the UK's number one choice magnetic stirrer where a low cost, compact, robust model is required. At only 120mm square, the mini stirrer occupies very little space on the bench. Easy to use, the mini stirrer can be supplied with a choice of a plastic or metal cover plate. Suitable for capacities up to 1 litre.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|----------------|
| MST 100 010 | Plastic Cover | EACH | £99.30 |
| MST 100 020 | Stainless Steel Cover | EACH | £207.70 |

Hotplate Stirrers**Advanced safety features:**

- Flashing 'Hot' warning light, even when turned off
- Mains independent
- Accurate temperature control
- LED setting scale
- Compact space saving design

Stylish and economical general purpose hotplate designed with safety as well as performance in mind. The compact design takes up less bench space and makes storage easier. A retort stand base can slide underneath giving a compact footprint on the bench. This product has an innovative LED temperature indicator scale. The 'Hot' warning light will flash whenever the plate temperature is above 50°C even when the hotplate is turned off and unplugged from the mains.

Model US152 has a robust aluminium/silicon alloy top plate for excellent heat transmission. The top plate has a thin ceramic coating for added chemical resistance. A 700W element gives rapid heating and ensures even temperature distribution across the whole surface of the plate.

Model UC152 has a glass ceramic top which has excellent chemical resistance. The surface is easy to clean and the thermal properties allow very high plate temperatures while ensuring the edges stay cooler, reducing the chance of accidental burns. The white surface ensures good visibility of colour changes. Both models have an integral fitting for a retort rod and are supplied with 2x 25mm PTFE coated stir bars.

| | US152 | UC152 |
|--|--------------------------|-------------------|
| Plate Material | Coated Aluminium/Silicon | Glass ceramic |
| Plate Dimensions | 150 x 150mm | 150 x 150mm |
| Heated Area | 150 x 150mm | 120 x 120mm |
| Heater Power | 700W | 500W |
| Max. Plate Temp. | 325°C | 450°C |
| Stirrer Speed | 100 - 2000rpm | 100 - 2000rpm |
| Maximum Stirring Capacity | 15L* | 15L* |
| Dimensions (WxDxH) | 172 x 248 x 120mm | 172 x 248 x 122mm |
| Net Weight | 2.9kg | 2.9kg |
| Electrical Supply | 230V, 50Hz, 750W | 230V, 50Hz, 550W |
| * Based on water contained in a 20 litre glass bottom boiling flask. | | |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|----------------|
| MSH 080 011 | Aluminium Hotplate Stirrer | EACH | £321.36 |
| MSH 020 011 | Ceramic Hotplate Stirrer | EACH | £331.66 |

stuart

3 YEAR
WARRANTY**MSH 080 011****MSH 020 011**

S

Stirrers

GENERAL

Ultra-Flat Magnetic Stirrer

The ultra-flat magnetic stirrer is particularly suitable for use in physical/chemical, analysis and biotechnology laboratories.

Features:

- Only 15mm thick
- Automatic reverse rotation for better mixing results
- High IP protection class : IP65
- Set-up plate is made from chemically resistant materials
- Slip-proof and stable



| | |
|----------------------|-------------------------|
| Speed Range | 15-1500 rpm |
| Max. Stirring Volume | 0.8L (H ₂ O) |
| Max. Stirring Weight | 2 kg |
| Speed Adjustment | By +/- buttons |
| Work Light | Yes |
| Plate Dia. | 90 mm |
| Heating | No |
| Dimensions (LxWxH) | 175x120x15mm |
| Weight | 0.3kg |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| MST 200 050 | Ultra-Flat Magnetic Stirrer | EACH | £95.37 |

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GENERAL LABWARE

SAFETY

Heated Magnetic Stirrers

Clifton® aluminium hotplate stirrers are designed for general laboratory requirements.

Featuring a robust aluminium heating surface, with good heat transfer, each plate can be precisely controlled, spillages are directed away from the controls and user. Smooth start up and changes in stirring speed ensure that the follower increases or decreases its mixing speed without detaching.

- Easy clean and spillages directed away from controls
- Durable heating surface
- Over temperature protection
- Smooth start stirring 100rpm up to maximum speed 1500rpm
- Maximum stirring volume 15 litres
- Economically priced, robust design
- Spill proof design, IP32
- 2 PTFE coated stirring bars are supplied
- 'Hot' warning indicator will flash when hob temperature is above 50°C, even when hob is turned off
- Featuring an anti-bacterial paint finish



(An accessory retort rod can be fitted into a mounting point at the rear.)

| | MSH-1 |
|-------------------------|-------------------|
| Dimensions (W x D x H) | 190 x 300 x 110mm |
| Temperature Range | ambient to 325°C |
| Temperature Control | Analogue |
| Stirring Speed | 100 - 1500rpm |
| Stirring Volume Max. | 15 litres |
| Heater Power (220-240V) | 700W |
| Voltage | 230V 50Hz |
| Packed Weight | 4.6kg |

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|----------------|
| MSH 050 011 | Single Place | EACH | £349.00 |

Magnetic Stirrer

Powerful magnets and motor give stirring speeds up to 2000rpm and capable of mixing large volumes (up to 15 litres*). The compact shape takes up less bench space and makes storage easier. This model has a robust stainless steel top plate that does not produce eddy currents like aluminium and so ensures a very powerful coupling and stirring action. Also includes an integral fitting for a retort rod and is supplied with 2x 25mm PTFE coated stir bars. The bottom is shaped to allow a retort base to slide underneath the unit if required to make experiment setup quicker.

| | |
|--|-------------------|
| Plate Material | Stainless steel |
| Plate Dimensions | 150 x 150mm |
| Stirrer Speed | 100 - 2000rpm |
| Max. Stirring Capacity | 15L* |
| Dimensions (WxDxH) | 172 x 248 x 109mm |
| Net Weight | 2kg |
| * Based on water contained in a 20 litre glass bottom boiling flask. | |



| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|----------------|
| MST 090 011 | Magnetic Stirrer | EACH | £234.84 |



Cylindrical Magnetic Followers

A popular general purpose PTFE coated stirrer for a wide variety of applications.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| MFW 030 010 | 8mm | PK5 | £2.99 |
| MFW 030 020 | 12mm | PK5 | £2.76 |
| MFW 030 030 | 25mm | PK5 | £3.46 |
| MFW 030 040 | 30mm | PK5 | £3.84 |
| MFW 030 050 | 45mm | PK5 | £6.49 |
| MFW 030 060 | 50mm | PK5 | £7.25 |
| MFW 030 070 | 60mm | PK5 | £9.63 |

Pivot Ring Magnetic Followers

PTFE coated stirrers for use in containers with slightly curved or uneven bases.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| MFW 040 010 | 8mm | PK5 | £2.76 |
| MFW 040 020 | 12mm | PK5 | £2.98 |
| MFW 040 030 | 25mm | PK5 | £4.11 |
| MFW 040 040 | 30mm | PK5 | £4.11 |
| MFW 040 050 | 45mm | PK5 | £6.49 |
| MFW 040 060 | 50mm | PK5 | £7.41 |
| MFW 040 070 | 60mm | PK5 | £8.27 |

PVC Bobbies

For use with stirring rods.



| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|--------------|
| RST 030 030 | 6mm | PK10 | £6.29 |
| RST 030 040 | 8mm | PK10 | £6.75 |

PTFE Stirrer Bar Retrievers

PTFE, for the removal of stirrer magnets from vessels.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| MFW 080 020 | 250mm | EACH | £10.12 |
| MFW 080 030 | 350mm | EACH | £8.51 |

Glass Stirring Rods

250mm x 6mm diameter glass rods with rounded ends, supplied without bobbies (policemen).



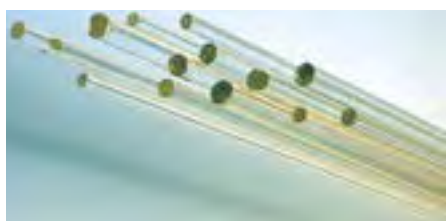
| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| RST 020 010 | Glass Rods | PK10 | £4.33 |

Stirring Rods

| Cat No. | Material | Length | Quantity | Price |
|--------------------|---------------|--------|----------|--------------|
| RST 020 020 | PVC | 250mm | PK10 | £5.38 |
| RST 020 030 | Polypropylene | 150mm | PK10 | £5.15 |

Glass Stirring Rods

In 0.5m lengths.



| Cat No. | Diameter | Quantity | Price |
|---------------------------|----------|----------|---------------|
| Borosilicate Glass | | | |
| RBS 010 010 | 4mm | PK50 | £23.20 |
| RBS 010 020 | 5mm | PK50 | £35.62 |
| RBS 010 030 | 6mm | PK40 | £42.52 |
| RBS 010 040 | 7mm | PK25 | £29.91 |
| RBS 010 050 | 8mm | PK25 | £33.23 |
| Soda Glass | | | |
| RSG 010 010 | 4mm | PK50 | £32.73 |
| RSG 010 020 | 5mm | PK50 | £25.25 |
| RSG 010 030 | 6mm | PK40 | £36.39 |
| RSG 010 040 | 7mm | PK25 | £24.49 |
| RSG 010 050 | 8mm | PK25 | £23.03 |

PP Stirring Rods

The tapered body gives strength to the 12mm triangular scraper at one end and flexibility to a 15mm palette knife blade at the other. These rods are autoclavable.



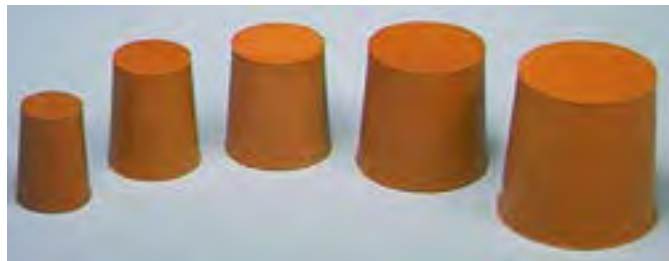
| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| RST 040 010 | 245mm | PK10 | £8.45 |



S Stoppers

GENERAL

Solid Red Rubber Stoppers



| Cat No. | Bottom Dia. (mm) | Top Dia. (mm) | Quantity | Price |
|-------------|------------------|---------------|----------|-------|
| RTS 010 010 | 3 | 4.5 | PK50 | £5.45 |
| RTS 010 020 | 4 | 5.8 | PK50 | £5.45 |
| RTS 010 030 | 5 | 7 | PK50 | £7.62 |
| RTS 010 040 | 6 | 8 | PK50 | £7.92 |
| RTS 010 050 | 7 | 9 | PK20 | £3.28 |
| RTS 010 060 | 8 | 10.5 | PK20 | £3.64 |
| RTS 010 070 | 9 | 11.5 | PK20 | £3.93 |
| RTS 010 080 | 10 | 12.5 | PK20 | £3.99 |
| RTS 010 090 | 11 | 14 | PK20 | £4.21 |
| RTS 010 100 | 13 | 16 | PK20 | £3.89 |
| RTS 010 110 | 15 | 18 | PK20 | £4.99 |
| RTS 010 120 | 17 | 20.3 | PK20 | £6.96 |

| Cat No. | Bottom Dia. (mm) | Top Dia. (mm) | Quantity | Price |
|-------------|------------------|---------------|----------|--------|
| RTS 010 130 | 19 | 22.5 | PK20 | £11.63 |
| RTS 010 140 | 21 | 24.5 | PK20 | £11.63 |
| RTS 010 150 | 23 | 26.5 | PK20 | £11.63 |
| RTS 010 160 | 25 | 28.5 | PK20 | £13.35 |
| RTS 010 170 | 27 | 31 | PK10 | £8.33 |
| RTS 010 180 | 29 | 33 | PK10 | £9.20 |
| RTS 010 190 | 31 | 36 | PK10 | £13.20 |
| RTS 010 200 | 33 | 38.5 | PK10 | £16.29 |
| RTS 010 210 | 35 | 40.5 | PK10 | £17.62 |
| RTS 010 220 | 37 | 42.5 | PK10 | £19.16 |
| RTS 010 230 | 39 | 44.5 | PK10 | £22.18 |
| RTS 010 240 | 41 | 47 | PK5 | £14.49 |
| RTS 010 250 | 43 | 49 | PK5 | £15.19 |
| RTS 010 260 | 45 | 51 | PK5 | £16.76 |
| RTS 010 270 | 49 | 55 | PK5 | £18.17 |
| RTS 010 280 | 53 | 59.5 | PK2 | £9.68 |
| RTS 010 290 | 57 | 64 | PK2 | £9.90 |
| RTS 010 320 | 71 | 78 | EACH | £10.32 |
| RTS 010 370 | 99 | 109 | EACH | £24.44 |

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1 Hole Red Rubber Stoppers



| Cat No. | Bottom Dia. (mm) | Top Dia. (mm) | Quantity | Price |
|-------------|------------------|---------------|----------|-------|
| RTS 020 060 | 8 | 10.5 | PK20 | £3.64 |
| RTS 020 070 | 9 | 11.5 | PK20 | £3.93 |
| RTS 020 080 | 10 | 12.5 | PK20 | £3.99 |
| RTS 020 090 | 11 | 14 | PK20 | £4.21 |
| RTS 020 101 | 13 | 16 | PK20 | £3.67 |

| Cat No. | Bottom Dia. (mm) | Top Dia. (mm) | Quantity | Price |
|-------------|------------------|---------------|----------|--------|
| RTS 020 111 | 15 | 18 | PK20 | £4.12 |
| RTS 020 121 | 17 | 20.3 | PK20 | £4.74 |
| RTS 020 131 | 19 | 22.5 | PK20 | £6.18 |
| RTS 020 141 | 21 | 24.5 | PK20 | £8.99 |
| RTS 020 151 | 23 | 26.5 | PK20 | £12.36 |
| RTS 020 161 | 25 | 28.5 | PK20 | £12.77 |
| RTS 020 171 | 27 | 31 | PK10 | £7.21 |
| RTS 020 181 | 29 | 33 | PK10 | £7.75 |
| RTS 020 191 | 31 | 36 | PK10 | £10.30 |
| RTS 020 200 | 33 | 38.5 | PK10 | £16.29 |
| RTS 020 210 | 35 | 40.5 | PK10 | £17.62 |
| RTS 020 250 | 43 | 49 | PK5 | £15.19 |
| RTS 020 260 | 45 | 51 | PK5 | £16.76 |

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2 Hole Red Rubber Stoppers

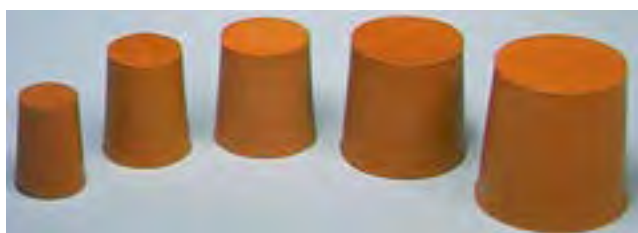
| Cat No. | Bottom Dia. (mm) | Top Dia. (mm) | Quantity | Price |
|-------------|------------------|---------------|----------|--------|
| RTS 030 110 | 15 | 18 | PK20 | £4.99 |
| RTS 030 120 | 17 | 20.3 | PK20 | £6.96 |
| RTS 030 130 | 19 | 22.5 | PK20 | £7.79 |
| RTS 030 140 | 21 | 24.5 | PK20 | £7.92 |
| RTS 030 150 | 23 | 26.5 | PK20 | £11.56 |
| RTS 030 160 | 25 | 28.5 | PK20 | £13.35 |
| RTS 030 170 | 27 | 31 | PK10 | £8.33 |
| RTS 030 180 | 29 | 33 | PK10 | £9.20 |
| RTS 030 190 | 31 | 36 | PK10 | £13.20 |
| RTS 030 200 | 33 | 38.5 | PK10 | £16.29 |
| RTS 030 210 | 35 | 40.5 | PK10 | £17.62 |
| RTS 030 250 | 43 | 49 | PK5 | £15.19 |
| RTS 030 280 | 53 | 59.5 | PK2 | £9.68 |



Long Form Cork Stoppers

Long form corks, dimension shown is diameter in mm on the narrow end. Larger sizes available, please ask.

| Cat No. | Size (Narrow End) | Quantity | Price |
|-------------|-------------------|----------|--------|
| COR 010 010 | 6mm | PK100 | £8.99 |
| COR 010 020 | 8mm | PK100 | £5.97 |
| COR 010 030 | 10mm | PK100 | £5.99 |
| COR 010 040 | 12mm | PK100 | £7.57 |
| COR 010 050 | 14mm | PK100 | £8.37 |
| COR 010 060 | 16mm | PK100 | £8.82 |
| COR 010 080 | 19mm | PK100 | £13.41 |
| COR 010 090 | 22mm | PK50 | £9.87 |
| COR 010 100 | 25mm | PK25 | £6.52 |
| COR 010 110 | 29mm | PK25 | £7.14 |
| COR 010 120 | 32mm | PK25 | £12.13 |
| COR 010 130 | 35mm | PK20 | £12.99 |



Assorted Solid Rubber Stoppers

An assorted pack of solid natural rubber stoppers. Total of 67 stoppers.

Contents:

- 5 of each of the following sizes:
7, 8, 9, 10, 11, 13, 15, 17, 19, 21 and 23
- 2 of each of the following sizes:
25, 27, 29, 31, 33 and 35

| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|--------|
| RTS 040 010 | 67 Assorted Stoppers | PK67 | £42.90 |



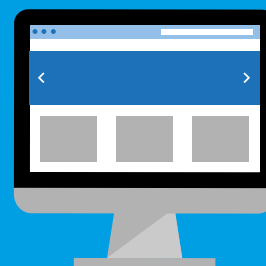
Rubber Turnover Sleeve Stoppers

Turnover stoppers create a very effective double seal for narrow aperture containers. External serration creates an excellent internal seal with the flexible turnover sleeve creating a secure seal on the container's outer neck. The head is easily pierced with a hypodermic needle.

| Cat No. | Plug Diameter | Quantity | Price |
|-------------|---------------|----------|-------|
| RTS 050 010 | 6.5mm | PK10 | £4.45 |

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- Shop and find a superb range of Science Equipment online.
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- A vast range of Science Equipment online.





NEW!

Tall Treble Column Frames

1850mm high x 1055mm wide x 420mm deep. Comes complete with trays. Flat packed.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TTF 010 010 | 3625 F1 Set | EACH | £550.66 |
| TTF 010 020 | 3625 A | EACH | £490.60 |
| TTF 010 030 | 3625 B | EACH | £471.24 |
| TTF 010 040 | 3625 C | EACH | £489.28 |



NEW!

Mid Height Treble Column Frames

1500mm high x 1055mm wide x 420mm deep. Comes complete with trays. Flat packed.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TTF 020 010 | 3525 F1 Set | EACH | £455.84 |
| TTF 020 020 | 3525 J | EACH | £437.36 |
| TTF 020 030 | 3525 K | EACH | £388.86 |



NEW!

Wide Treble Frames

1850mm high x 1055mm wide x 420mm deep. Flat packed.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TTF 030 010 | 3622 D | EACH | £306.90 |
| TTF 030 020 | 3622 E | EACH | £670.78 |
| TTF 030 030 | 3622 F | EACH | £364.10 |



NEW!

Tall Double Column Frames

1850mm high x 710mm wide x 420mm deep. Comes complete with trays. Flat packed.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TTF 040 010 | 2625 F1 Set | EACH | £400.84 |
| TTF 040 020 | 2625 G | EACH | £364.32 |
| TTF 040 030 | 2625 H | EACH | £251.90 |



Complete Low Frame Sets

Treble column frame sets. Come complete with trays. Flat packed.

Bench height frames 825mm high



- 21 Shallow F1 trays
- 21 Pairs of runners
- Treble Column Frame 825mm High

Cat No.: **TTF 050 010**



- 14 Shallow F1 trays
- 14 Pairs of runners

Cat No.: **TTF 050 020**



- 7 Shallow F1 trays
- 7 Pairs of runners

Cat No.: **TTF 050 030**

Under bench frames 725mm high



- 18 Shallow F1 trays.
- 18 Pairs of runners

Cat No.: **TTF 050 040**



- 12 Shallow F1 trays.
- 12 Pairs of runners

Cat No.: **TTF 050 050**



- 6 Shallow F1 trays
- 6 Pairs of runners

Cat No.: **TTF 050 060**

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TTF 050 010 | 3325 NTL | EACH | £276.76 |
| TTF 050 020 | 2325 BF1 | EACH | £217.14 |
| TTF 050 030 | 1325 BF1 | EACH | £112.42 |
| TTF 050 040 | 3325 NTM | EACH | £258.28 |
| TTF 050 050 | 2325 BF2 | EACH | £204.82 |
| TTF 050 060 | 1325 BF2 | EACH | £106.26 |

Complete Trolley Sets

Complete Trolley Sets. Come complete with trays. Flat packed.

Bench height frames 825mm high



- 18 Shallow F1 trays
- 18 Pairs of runners

Cat No.: **TLY 011 100**



- 15 Shallow F1 trays
- 15 Pairs of runners

Cat No.: **TLY 011 200**



- 6 Shallow F1 trays
- 6 Pairs of runners

Cat No. **TLY 011 300**

Under bench frames 725mm high



- 18 Shallow F1 trays
- 18 Pairs of runners

Cat No.: **TLY 011 400**



- 15 Shallow F1 trays
- 15 Pairs of runners

Cat No.: **TLY 011 500**



- 6 Shallow F1 trays
- 6 Pairs of runners

Cat No.: **TLY 011 600**

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TLY 011 100 | 3025 N | EACH | £309.98 |
| TLY 011 200 | 2025 Q | EACH | £242.78 |
| TLY 011 300 | 1025 S | EACH | £144.76 |
| TLY 011 400 | 3025 P | EACH | £320.66 |
| TLY 011 500 | 2025 R | EACH | £230.46 |
| TLY 011 600 | 1025 S2 | EACH | £138.60 |



S

Storage

GENERAL

Gratnells School Trays

Award-winning Gratnells trays offering quality and value.

The world-renowned Gratnells trays are the perfect solution for storing science materials and equipment. Use as part of the Gratnells integrated storage system, or in any school furniture which employs a 312mm tray width.

Each tray is made from super-strong polypropylene (able to withstand 108°C) and is chemically inert, cadmium free, and fire retardant. Available in four different heights and a wide range of colours, the trays can be fitted with Gratnells foam and plastic inserts and clip-on translucent lids for extra storage safety. Gratnells offers a full five year guarantee on all its products.



Features:

- BSI tested and passed for heavy educational use
- Choose from a wide range of colours (please contact Customer Services if the colour you require is not listed below)
- All trays fit standard school furniture
- Lids and inserts also available
- Fully recyclable



Shallow Tray,
312 x 427 x 75mm (WxDxH)



Deep Tray,
312 x 427 x 150mm (WxDxH)



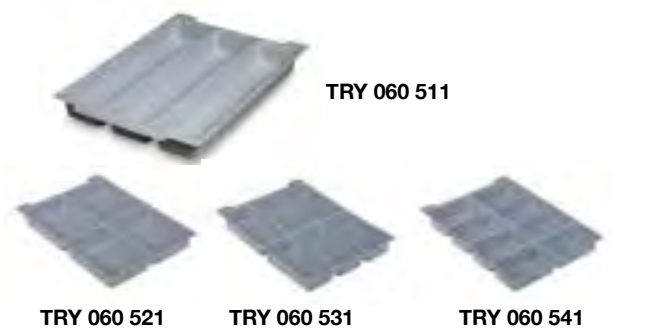
Extra Deep Tray,
312 x 430 x 225mm (WxDxH)



Jumbo Tray,
312 x 430 x 300mm (WxDxH)

| Colour | Cat No. | Price | Cat No. | Price | Cat No. | Price | Cat No. | Price |
|-------------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| Brown | TRY 060 080 | £2.81 | TRY 070 080 | £4.39 | - | - | - | - |
| Dark Blue | TRY 060 070 | £2.81 | TRY 070 070 | £4.39 | TRY 420 030 | £6.17 | TRY 430 030 | £7.20 |
| Dark Green | TRY 060 090 | £2.81 | TRY 070 090 | £4.39 | - | - | - | - |
| Olive Green | TRY 060 010 | £2.81 | TRY 070 010 | £4.39 | - | - | - | - |
| Orange | TRY 060 030 | £2.81 | TRY 070 030 | £4.39 | - | - | - | - |
| Pale Grey | TRY 060 020 | £2.81 | TRY 070 020 | £4.39 | - | - | - | - |
| Pink | TRY 060 040 | £2.81 | TRY 070 040 | £4.39 | - | - | - | - |
| Purple | TRY 060 050 | £2.81 | TRY 070 050 | £4.39 | - | - | - | - |
| Red | TRY 060 100 | £2.81 | TRY 070 100 | £4.39 | TRY 420 010 | £6.17 | TRY 430 010 | £7.20 |
| Steel Blue | TRY 060 110 | £2.81 | TRY 070 110 | £4.39 | - | - | - | - |
| Translucent | TRY 060 120 | £2.81 | TRY 070 120 | £4.39 | TRY 420 040 | £6.17 | TRY 430 040 | £7.20 |
| Yellow | TRY 060 060 | £2.81 | TRY 070 060 | £4.39 | TRY 420 020 | £6.17 | TRY 430 020 | £7.20 |

Shallow Tray Inserts



| Cat No. | Description | Quantity | Price |
|--------------------------|----------------|----------|-------|
| For Shallow Trays | | | |
| TRY 060 511 | 3 Compartments | EACH | £2.99 |
| TRY 060 521 | 4 Compartments | EACH | £2.99 |
| TRY 060 531 | 6 Compartments | EACH | £2.99 |
| TRY 060 541 | 8 Compartments | EACH | £2.99 |

Tray Accessories



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| TRY 060 502 | Clip-on Lid | EACH | £2.31 |

Deep Tray Inserts



| Cat No. | Description | Quantity | Price |
|-----------------------|--------------------------|----------|-------|
| For Deep Trays | | | |
| TRY 070 501 | For 30 Lab Glasses | EACH | £4.99 |
| TRY 070 511 | For 30 50ml Bottles | EACH | £4.99 |
| TRY 070 521 | For 30 Calculators | EACH | £4.99 |
| TRY 070 531 | For 30 Stopwatches | EACH | £4.99 |
| TRY 070 541 | For 56 Test Tubes | EACH | £4.99 |
| TRY 070 551 | For 108 Test Tubes | EACH | £4.99 |
| TRY 070 561 | Customisable Foam Insert | EACH | £4.99 |



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Lockable Treble Cupboards

Lockable cupboards with adjustable tray storage. Come complete with trays. Flat packed.



SST 500 010



SST 050 020

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|---------|
| SST 500 010 | 3600 F1 Set | EACH | £677.16 |
| SST 050 020 | 3600 F2 Set | EACH | £588.72 |

MakerSpace Trolley

The Gratnells MakerSpace trolley holds standard Gratnells trays on StopSafe runners, allowing easy and safe access to components. The tool hangers can be moved and changed to suit many objects. Comes complete with three deep (F2) trays, 12 shallow (F1) trays, 12 green mini bins, roll holder, 5 single hooks and 5 double hooks. You can customise your MakerSpace trolley with different tray combinations and additional hooks and bins.

Comes with starter kit of trays. Flat packed.



| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|---------|
| TLY 120 010 | MakerSpace Trolley | EACH | £548.90 |



S

Storage

GENERAL

Callero Plus Science Storage Trolleys

Callero Plus is Gratnells' new range for School science storage. These attractive trolleys have 25% more storage space than standard trolleys and have larger castors for added stability. They also feature enclosed metal sides for extra protection, curved handles which mean that the trolleys can be move around the school easily, and StopSafe runners as standard. They are available in double or treble width with a durable silver finish and a selection of tray sizes and colours to suit your requirements. Callero Plus is ideal for transporting your class science equipment between classroom and preproom.

Features:

- Enclosed metal framing reduces cleaning needs and boosts security
- New stop safe runners
- Ergonomic design
- Supplied fully assembled
- Come complete with trays
- Flat packed

NB: Please specify tray colours at time of ordering. Available colours: Red, Lime Green, Yellow, Grass Green, Orange, Cyan Blue, Silver, Royal Blue.

callero
Plus



TLY 090 010



TLY 090 020



TLY 090 030



TLY 090 040



TLY 090 050

| Cat No. | Description | Quantity | Price |
|--|---|----------|---------|
| Dimensions (HxWxD): 885 (1055 with handle) x 690 x 435mm | | | |
| TLY 090 010 | Double Trolley with Shallow Trays | EACH | £269.50 |
| TLY 090 020 | Double Trolley with Deep Trays | EACH | £258.50 |
| TLY 090 030 | Double Trolley with 8x Shallow and 4x Deep Trays | EACH | £264.00 |
| Dimensions (HxWxD): 885 (1055 with handle) x 1020 x 435mm | | | |
| TLY 090 040 | Treble Trolley with Shallow Trays | EACH | £352.00 |
| TLY 090 050 | Treble Trolley with Deep Trays | EACH | £341.00 |
| TLY 090 060 | Treble Trolley with 16x Shallow and 4x Deep Trays | EACH | £374.00 |

Gratnells Chemical Storage System

Come complete with trays. Flat packed.

Chemical Storage System 1

- 18 translucent shallow (F1) trays
- 6 translucent deep (F2) trays
- 3 translucent jumbo (F3) trays
- 14 pairs of runners
- 21 pairs of runners
- 12 single shelves - the bottom trays sit on shelves for easy access



SST 400 010

Chemical Storage System 2

- 12 translucent shallow (F1) trays
- 4 translucent deep (F2) trays
- 2 translucent jumbo (F3) trays
- 14 pairs of runners
- 8 single shelves - the bottom trays sit on shelves for easy access



SST 200 010

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|---------|
| SST 400 010 | Chemical Store 1 | EACH | £589.28 |
| SST 200 010 | Chemical Store 2 | EACH | £589.28 |



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Gratnells Rover

Tough and practical, the Gratnells Rover has been designed to carry trays over any terrain and help you move heavy loads around with ease. Whether you need to take beanbags and bottled water to the field on sports day or a class full of iPads to an after school club the Rover is ideal for transporting anything you need.



TLY 300 010



TLY 300 020



TLY 300 030

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------------|----------|---------|
| TLY 300 010 | Rover with 2 Jumbo Trays in orange | EACH | £192.50 |
| TLY 300 020 | Rover with 3 Extra Deep Trays in Blue | EACH | £192.50 |
| TLY 300 030 | Rover with 3 Deep Trays in green | EACH | £192.50 |

PowerTray 2

The second generation PowerTray from C Storage and charging in one handy schoc



TRY 500 010



TRY 500 040

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|---------|
| TRY 500 010 | PowerTray, Deep, Silver | EACH | £218.90 |
| TRY 500 020 | PowerTray, Extra Deep, Silver | EACH | £247.50 |
| TRY 500 030 | PowerTray, Deep, White | EACH | £218.90 |
| TRY 500 040 | PowerTray, Extra Deep, White | EACH | £247.50 |

PowerTrolley

Now you can safely store, charge and sync your USB devices in this compact trolley which holds Gratnells PowerTrays. With one of the smallest footprints on the market, the Gratnells PowerTrolley combines portability, security and functionality. The PowerTrolley is compatible with both deep and extra deep PowerTrays and thanks to its unique design fits discreetly into any school, creating an unobtrusive solution for storing your valuable devices.

Features:

- Compact and cost effective
- Highly portable and easy to manoeuvre
- Bespoke door hinges offer 270° opening angle
- Robust locking system
- Holds either 3 Deep PowerTrays or 2 Extra Deep PowerTrays
- Stores up to 30 USB devices
- Choose from silver or white

Dimensions (HxWxD): 957 (including handle) x 423 x 545mm

NB: Please specify trolley colours at time of ordering. Fully assembled



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|---------|
| TLY 110 010 | PowerTrolley | EACH | £275.00 |



S

Storage | Swabs | Syringes

GENERAL



Boxes With Push On Sealable Lid

These polypropylene boxes come complete with a push on sealable lid. Dishwasher, microwave & freezer safe.

| Cat No. | Dimensions (LxWxH) | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| BXS 010 011 | 235 x 140 x 70mm | PK2 | £15.64 |
| BXS 010 030 | 175 x 120 x 60mm | PK3 | £16.03 |
| BXS 010 050 | 115 x 115 x 105mm | PK2 | £13.93 |
| BXS 010 070 | 140 x 140 x 140mm | PK2 | £18.13 |



Storage Boxes

These HDPE storage boxes can be either stacked inside or on top of each other.

| Cat No. | Size | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| BXS 030 010 | 300 x 250 x 200mm | EACH | £2.93 |
| BXS 030 021 | 480 x 350 x 250mm | EACH | £4.52 |

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SAFETY

Irradiated Swabs

- Primary sample collection device for bacteria
- Colour-coded caps for ease of identification
- Lot number, expiry date and tamper evident labelling to ensure complete traceability and sterility
- Maximum 5 year shelf life



| Cat No. | Description | Cap Colour | Tip | Quantity | Price |
|--------------------|---------------------------|------------|-------|----------|-------|
| SWA 010 020 | Plain Swab, Plastic Stick | White | Rayon | PK100 | |

Hypodermic Needles

Non-Sterile. Sharp End. Luer Lock Fitting.



| Cat No. | Code | Gauge | Length | Quantity | Price |
|--------------------|---------|-------|--------|----------|---------------|
| SYR 260 100 | M618/03 | 18 | 50mm | PK10 | £20.88 |

Disposable Syringes

Plastic, sterile, disposable syringes supplied without needles.

| Cat No. | Code | Capacity | Quantity | Price |
|--------------------|------------|----------|----------|---------------|
| Slip Tip | | | | |
| SYR 200 010 | TUSS-01T1 | 1ml | PK100 | £14.41 |
| SYR 200 021 | TUSS-02SE1 | 2.5ml | PK100 | £9.12 |
| SYR 200 030 | TUSS-05SE1 | 5ml | PK100 | £14.41 |
| Eccentric | | | | |
| SYR 200 040 | TUSS-10SE1 | 10ml | PK100 | £18.53 |
| SYR 200 050 | TUSS-20ES1 | 20ml | PK50 | £13.38 |
| SYR 200 060 | TUSS-50ES | 50ml | PK25 | £24.71 |
| SYR 230 040 | 21 | 38mm | PK100 | £4.85 |



Syringe Needles with Plastic Hub

23 gauge x 1.5", 0.6mm x 38mm



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|--------------|
| SYR 060 020 | Syringe Needles | PK100 | £4.67 |



Plastipak® Disposable Syringes

Polypropylene sterile disposable syringes. Each syringe is tested for sterility, pyrogenicity and toxicity. Sterile single use.



NB: Syringes are individually wrapped in peel-apart blister packs. Supplied without needles.

| Cat No. | Code | Capacity | Quantity | Price |
|-----------------------------|--------|----------|----------|---------------|
| Concentric Luer Slip | | | | |
| SYR 220 011 | 300013 | 1ml | PK120 | £18.53 |
| SYR 220 020 | 300185 | 2ml | PK100 | £9.99 |
| SYR 220 030 | 302187 | 5ml | PK100 | £14.99 |
| Eccentric Luer Slip | | | | |
| SYR 220 040 | 302188 | 10ml | PK100 | £16.91 |
| SYR 220 050 | 300613 | 20ml | PK120 | £33.99 |
| SYR 220 070 | 300866 | 50ml | PK60 | £60.82 |

**Hypodermic Syringes**

All glass, luer fitting, fully interchangeable. Supplied without needles.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SYR 030 010 | 1ml | EACH | £2.25 |
| SYR 030 020 | 2ml | EACH | £2.25 |
| SYR 030 040 | 10ml | EACH | £2.74 |
| SYR 030 050 | 20ml | EACH | £3.99 |

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-10°C to 110°C Initial Brand Thermometers

The Initial brand of thermometers comes with a moulded glass end.

| Cat No. | Length | Immersion | Quantity | Price |
|---------------------|--------|-----------|----------|--------------|
| Green Spirit | | | | |
| THS 020 010 | 150mm | Total | PK5 | £7.20 |
| THS 020 020 | 200mm | 76mm | PK5 | £7.20 |
| THS 020 030 | 300mm | 76mm | PK5 | £7.20 |
| Blue Spirit | | | | |
| THS 110 010 | 150mm | Total | PK5 | £7.54 |
| THS 110 020 | 200mm | 76mm | PK5 | £8.86 |
| THS 110 030 | 300mm | 76mm | PK5 | £7.97 |

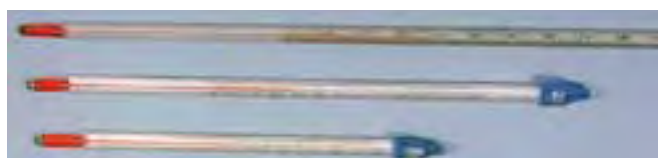


Economy Thermometer

Spirit filled.

| Cat No. | Range | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| THM 200 010 | -10 to 110°C x 1°C | EACH | £0.82 |

Red Spirit Thermometers



| Cat No. | Range | Length | Quantity | Price |
|--------------------|------------------|--------|----------|---------------|
| THS 010 010 | -10/50°C x 0.5°C | 305mm | PK5 | £13.38 |
| THS 010 020 | -10/110°C x 1°C | 305mm | PK5 | £13.38 |
| THS 010 030 | 0/150°C x 1°C | 305mm | PK5 | £13.38 |
| THS 050 010 | -10/110°C x 1°C | 150mm | PK10 | £17.80 |
| THS 050 020 | -10/110°C x 1°C | 205mm | PK5 | £10.30 |



Total Immersion Thermometers

These thermometers are red spirit filled on a white back glass and offer total immersion. Range: -10/110°C

| Cat No. | Range | Length | Quantity | Price |
|--------------------|------------------|--------|----------|---------------|
| THS 010 010 | -10/50°C x 0.5°C | 305mm | PK5 | £13.38 |
| THS 010 020 | -10/110°C x 1°C | 305mm | PK5 | £13.38 |
| THS 010 030 | 0/150°C x 1°C | 305mm | PK5 | £13.38 |
| THS 050 010 | -10/110°C x 1°C | 150mm | PK10 | £17.80 |
| THS 050 020 | -10/110°C x 1°C | 205mm | PK5 | £10.30 |



ECOtherm Thermometer

The ECOtherm laboratory thermometer is a green spirit thermometer filled with a non toxic expansion liquid. This is a -10/110°C 305mm partial immersion thermometer. The quality and resolution make these an ideal substitute for general purpose mercury thermometers. Each thermometer is fitted with a Brannan non roll end cap which has an integral ring to allow the thermometer to be suspended and is supplied in protective PVC packaging.

| | |
|---------------------|---------------|
| Range: | -10 to +110°C |
| Divisions: | 1°C |
| Tube Length: | 305mm |
| Immersion: | 75mm |
| Accuracy: | ±1.5°C |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| THS 120 010 | ECOtherm Thermometer | EACH | £1.67 |



T Thermometers

GENERAL



Pocket Thermometers

Red spirit filled pocket thermometer in a plastic case.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| THZ 160 010 | -10/110°C | EACH | £6.65 |
| THZ 160 020 | Dual Scale °C & °F | EACH | £6.65 |

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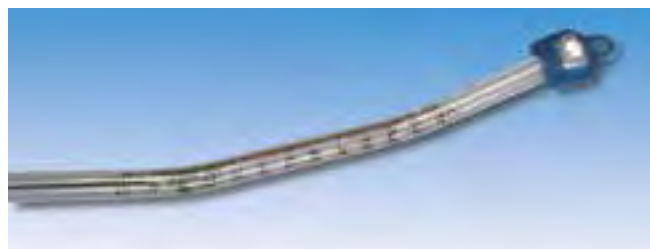
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Breaksafe Thermometer

The Breaksafe Thermometer is a 205mm green spirit filled -10/110°C partial immersion thermometer. The unique feature of this product is that should accidental breakage occur all contents will remain encapsulated within the special PVC coating, preventing spillage.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| THS 080 010 | Breaksafe Thermometer | EACH | £6.43 |



Soil Thermometer

These thermometers are used to check the temperature of soil and compost. The thermometer has a green knob at the top to assist with location.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| SOT 100 010 | Soil Thermometer | EACH | £9.30 |



Uncalibrated Thermometer

Green spirit filled.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| THS 030 010 | 300mm | PK5 | £7.20 |



Lotox (Low Toxicity) Thermometers

This range of thermometers with an environmentally friendly filling offers the ideal substitute for the traditional mercury filled thermometers up to 330°C.

- Low toxic blue or brown filling is easy to read
- Accurately calibrated against traceable standards
- Temperature ranges up to 330°C
- Blue non-roll top and safety suspension ring
- Clear permanent markings

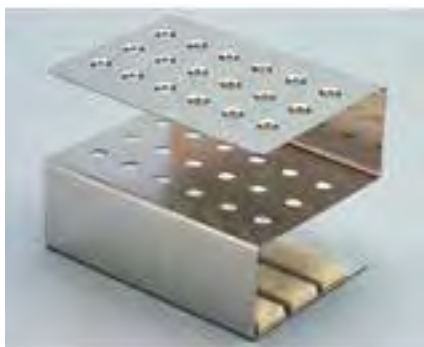


| Cat No. | Range | Length | Quantity | Price |
|------------------------|----------------------|--------|----------|---------------|
| 76mm Immersion | | | | |
| THS 060 010 | -10/50°C x 0.5 Divs | 305mm | EACH | £2.99 |
| THS 060 020 | -35/50°C x 1.0 Divs | 305mm | EACH | £2.87 |
| THS 060 030 | -20/110°C x 1.0 Divs | 305mm | EACH | £2.99 |
| THS 060 040 | -20/150°C x 1.0 Divs | 305mm | EACH | £2.86 |
| THS 060 050 | -10/260°C x 1.0 Divs | 405mm | EACH | £3.19 |
| THS 070 070 | -10/300°C x 1.0 Divs | 305mm | EACH | £4.37 |
| THS 070 080 | -10/330°C x 2.0 Divs | 305mm | EACH | £4.37 |
| THS 090 010 | -1/51°C x 0.1 Divs | 405mm | EACH | £11.35 |
| THS 090 030 | -1/51°C x 0.2 Divs | 405mm | EACH | £10.99 |
| THS 090 050 | -1/101°C x 0.2 Divs | 405mm | EACH | £12.32 |
| Total Immersion | | | | |
| THS 070 010 | -10/110°C x 1.0 Divs | 155mm | EACH | £2.14 |
| THS 070 020 | -10/50°C x 0.5 Divs | 305mm | EACH | £2.78 |
| THS 070 040 | -20/110°C x 1.0 Divs | 305mm | EACH | £2.35 |
| THS 070 050 | -20/150°C x 1.0 Divs | 305mm | EACH | £2.76 |
| THS 070 060 | -10/210°C x 1.0 Divs | 405mm | EACH | £3.19 |
| THS 090 020 | -1/51°C x 0.1 Divs | 405mm | EACH | £11.35 |
| THS 090 040 | -1/51°C x 0.2 Divs | 405mm | EACH | £10.99 |
| THS 090 060 | -1/101°C x 0.2 Divs | 405mm | EACH | £12.32 |



Aluminium Thermometer Stand

Aluminium thermometer stand which will support 18 thermometers. The base of the stand has a protective foam cushion.
Size: 165 x 120 x 125mm



| Cat No. | Description | Quantity | Price |
|-------------|-------------------|----------|--------|
| THZ 390 010 | Thermometer Stand | EACH | £23.00 |

Window Thermometer

Allows the outdoor temperature to be read from inside. 70mm dial mounts directly on to glass with self adhesive pads (supplied).



| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|-------|
| THZ 280 010 | Window Thermometer | EACH | £4.82 |

Fridge/Freezer Dial Thermometer

A bi-metallic dial thermometer for fridges and refrigerators. Features a strong white moulded case and hanging hook. Clear display with blue and red lettering, Celsius only. Recommended fridge and freezer temperatures clearly marked.
Range: - 40°C to + 40°C
Dimensions: 70mm diameter, 23mm deep



| Cat No. | Description | Quantity | Price |
|-------------|---------------------------------|----------|-------|
| THZ 010 020 | Fridge/Freezer Dial Thermometer | EACH | £4.76 |



Fridge Freezer Thermometer

Helps compliance with food safety regulations. Features zoned scales for both fridges and freezers. Can stand, hang or clip onto a fridge/freezer basket.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------------|----------|-------|
| THZ 110 010 | Fridge Freezer Thermometer | EACH | £2.80 |

Wall Thermometer

Calibrated in two points for accuracy. The plastic housing includes a hanging hook.
Range: -20°C to +50°C, in 1.0°C graduations
Dimensions: 145 x 32 x 7mm (L x W x D)



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|-------|
| THZ 060 010 | Wall Thermometer | EACH | £2.41 |

Wall Thermometer

This large (380mm) wall thermometer is ideal for many uses within the classroom environment. Designed to be seen from a distance it is suitable for both indoor and outdoor use.



| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|-------|
| THZ 290 010 | Wall Thermometer | EACH | £9.54 |

Dipping Thermometer

A plastic cased spirit filled glass thermometer with reservoir around the thermometer bulb. Ideal for testing water temperature of swimming pools, ponds and rivers. The case has a 1.5m cord attached.
Range: -30 to +50°C x 1°C, -20 to + 120°F x 2°F
Overall Length: 300mm



| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| MET 540 010 | Dipping Thermometer | EACH | £9.54 |

Max/Min Thermometer

At last, a traditional style Max/Min Thermometer with environmentally friendly filling offering the ideal substitute for mercury models. Reliable and accurate and capable of low temperature. Easy to read with push button control.



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| THZ 150 030 | °C Only | EACH | £9.72 |

T

Thermometers - Digital

GENERAL

Max/Min Thermometer

Six's Pattern, spirit filled with a resetting magnet.



| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|--------|
| THZ 150 010 | Max/Min Thermometer | EACH | £15.55 |

Max/Min Thermometer

Six's Pattern spirit filled with press button return.



| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| THZ 150 020 | Max/Min Thermometer | EACH | £8.04 |

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Electronic Ear Thermometer

Easy to use battery operated electronic ear thermometer. Suitable for all ages. Range: 0 to 50°C (32 to 122°F).

Features:

- One second measuring time
 - Beeps when temperature reached
 - Illuminated display for easy reading
 - Fahrenheit and centigrade measurement scales
 - Stores last 5 readings
 - Automatic power off
 - Comprehensive instructions supplied
- Supplied in a carry case complete with a set of disposable, hygienic probe covers.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------|
| THD 220 010 | Electronic Ear Thermometer | EACH | £19.78 |
| Accessories | Description | Quantity | £19.78 |
| THD 220 500 | Probe Covers | EACH | £4.99 |

Digital Clinical Thermometer

Maximum thermometer with memory and LCD display.

Measuring Range: 32°C to 42°C

Measuring Accuracy: ± 0.1°C

Resolution: 0.1°

Requires: 1 x SR41 battery (included)



| Cat No. | Description | Quantity | Price |
|---------------------|------------------------------|----------|-------|
| THZ 090 010 | Digital Clinical Thermometer | EACH | £2.25 |
| Accessories | Description | Quantity | £2.25 |
| Silver Oxide | | | |
| BAT 050 070 | SR41 - 1.55V Batteries | PK10 | £6.17 |

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Dual Sensor Thermometer with Memory

This thermometer has 2 sensors each having its own readout, one sensor is built inside the unit, while the second sensor is water resistant with a 1 metre connection lead. There is a separate 12mm high contrast LCD display for each sensor with 'IN' and 'OUT' indicators. Measures °C or °F while the min/max memory operates for each sensor and is constantly updated with reset.

Supplied with battery and instructions for use.



| | |
|-------------------|--------------|
| Range | -50° to 70°C |
| Resolution | 0.1°C |
| Accuracy | ±1°C |

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------|----------|--------|
| THD 190 010 | Dual Sensor Thermometer | EACH | £15.16 |



SAFETY



Waterproof Electronic Thermometer

- Max/Min memory function
- 120mm stainless steel probe
- Complete with pocket case
- Range: -50 to 150°C and also °F

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|--------------|
| THD 270 010 | Waterproof Electronic Thermometer | EACH | £9.99 |

Classroom Temperature Kit

Comes complete with a laminated worksheet (photocopiable) that enables the student to monitor and log the ambient temperature within the classroom.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| THZ 190 030 | Classroom Temperature Kit | EACH | £12.99 |



Digital Thermometer and Timer

Hand held electronic thermometer and timer with probe and max/min temperature memory and programmable alarm. Requires 1 x 1.5V AAA battery (supplied).

Features:

- Data hold function
- Large and clear digital display
- Magnetic attachment
- 1000mm cable with stainless steel probe, 125 x 3.5mm diameter

| | |
|----------------------|---|
| Accuracy | ± 1.0°C between -20°C, & 150°C, otherwise 2°C |
| Range | -50 +300°C & also °F |
| Sampling Rate | 1 second |
| Resolution | 0.1°C |
| Dimensions | 65 x 97 x 20mm |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| THD 170 011 | Digital Thermometer and Timer | EACH | £36.71 |
| Accessories | Description | Quantity | £36.71 |
| BAT 010 020 | AAA Size - 1.5V Batteries | PK4 | £2.99 |

Checktemp Thermometers

HI-98501 Checktemp Electronic Thermometer

A compact meter with a direct probe ideal for taking quick-fire temperature measurement in semi-solids and liquids.

- Easy read digital display - whatever the viewing angle
- Simple to use with direct probe
- Ideal for spot checks
- Small, lightweight, easy to clean
- Automatic CAL CHECK: provides automatic calibration check every time

HI-98509 Checktemp1 Pocket Thermometer

A compact probe with a stainless steel sensor on a 1m flexible cable, designed to take fast response temperature measurements in semi-solids and liquids.

- IP65 water resistant rating
- Auto shut-off
- Automatic CAL CHECK: provides automatic calibration check every time
- Easy read digital display - whatever the viewing angle
- High accuracy
- Quick and easy to use
- Stainless steel sensor on flexible cable is ideal for measurements in hard to reach locations

HI-151-00 Folding Pocket Thermometer

Pocket meter with folding probe and wide temperature range.

- Ultra wide range: -50°C to +220°C
- Easy clean design
- All in one pocket thermometer
- High accuracy
- Built-in Cal Check performs calibration check each time meter switches on

| Cat No. | Model | Quantity | Price |
|--------------------|-------------------------------|----------|---------------|
| THD 050 011 | HI-98501 Checktemp | EACH | £42.80 |
| THD 050 021 | HI-98509 Checktemp1 | EACH | £66.20 |
| THD 050 040 | HI-151-00 Folding Thermometer | EACH | £71.30 |



| | THD 050 011 | THD 050 021 | THD 050 040 |
|-------------------|----------------------|-----------------------|----------------------|
| Range | -50 to 150°C | -50 to +150°C | -50 to +220°C |
| Resolution | 0.1°C | 0.1°C | 0.1°C |
| Accuracy | ±0.3°C (-20 to 90°C) | ±0.2°C (-30 to 120°C) | ±0.3°C (-20 to 90°C) |



T

Thermometers - Digital

GENERAL

Pen-Type Thermometer with Alarm

This low cost, easy-to-use Splash-Proof Thermometer with Alarm and 145mm pointed tip penetration probe is ideal for liquid and semi-solid sampling.

Features:

- -50° to 300°C x 1°
- Soft touch rubber function buttons
- Audible Alarm when target temperature set by the user is met or exceeded
- 15mm LCD display with Alarm indicator
- 145 x 4mm diameter Stainless Steel penetration probe with pointed tip
- Supplied with the probe cap and battery
- The temperature sensor is located in the bottom 20mm of the probe



NB: Calibration Certificate is available on request. Please contact Customer Services for more information.

| | | | |
|-------------------|-----------------------------|-------------------|--|
| Range | -50°C to +300°C | | |
| Resolution | 1°C | | |
| Accuracy | ±1°C | | |
| Power | 1x 1.5V Button Cell Battery | | |
| Dimensions | 240 x 30 x 20mm (Unit) | 145 x 4mm (Probe) | |
| Weight | 36g | | |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|---------------|
| THD 020 010 | Thermometer with Alarm | EACH | £13.38 |



Horizontal Test Thermometer

Electronic test thermometer with horizontal display and 120mm stainless steel probe. Measures temperature in both °C and °F. Constructed from a hi-grade ABS plastic with a stainless steel probe. Supplied with pocket case and clip.

| | | | |
|--------------------------|-----------------------------|--|--|
| Temperature Range | -50 to +150°C & 58 to 302°F | | |
| Divisions | 0.1°C | | |
| Dimensions | 152 x 58 x 17mm | | |
| Product Weight | 20g | | |

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|--------------|
| THD 140 011 | Horizontal Test Thermometer | EACH | £8.96 |
| BAT 050 020 | LR44 - 1.5V Batteries | PK10 | £1.95 |

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Min/Max Memory Alarm Thermometer

A modern compact max/min alarm thermometer. Easy-to-use and cost effective for liquid and semi-solid sampling with a memory function to store measured values. The stainless steel probe is connected to the unit with a 1 metre cable. The thermometer probe can be clipped to the thermometer body for single-handed use.

Features:

- Programmable alarm for min/max values
 - Audible alarm at the high/low temperature limits
 - 30mm LCD display with function indicators
 - Data hold function retains displayed value
 - Sampling rate of one reading per second
 - Supplied with a probe protector cap & battery
 - Impact resistant ABS case incorporates a desk stand and compartment for the sensor cable when not in use
 - 100mm x 4mm diameter stainless steel pointed tip probe with handle and 1m cable
- For best results ensure the thermometer's probe tip is immersed at least 10mm into the substance being tested, as the sensor is located in the bottom 10mm of the probe.

- Min/max memory
- Auto shut off after 1 hour
- Low battery indicator
- Optional Calibration Certificate available
- Measures in °C or °F



| | | | |
|----------------------|--------------------------------------|--|--|
| Range | -50° to +150°C | | |
| Resolution | 0.1°C (-19.9 to +150°C), 1° (others) | | |
| Accuracy | ±1° (-30° to +150°C), ±2° (others) | | |
| Sampling Rate | 1 second | | |
| Power | 1x 1.5V Button Cell Battery | | |
| Dimensions | 120 x 60 x 20mm | | |
| Weight | 77g | | |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|---------------|
| THD 440 010 | Min/Max Memory Thermometer | EACH | £28.83 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

Pen-Type Stirring/Stem Thermometer

Clear display with 0.1°C resolution. The head is adjustable through 180° rotation and the spiked stainless steel stem is available in 2 lengths - 125mm and 200mm. The pocket case and clip can act as a handle during use. There is a hold facility to record the temperature.



| | | | |
|-----------------------|--|--|--|
| Range | -45 to 200°C | | |
| Dimensions | 145 (THD 130 010) or 255 (THD 130 020) x 34 x 30mm | | |
| LCD Dimensions | 10 x 20mm | | |
| Accuracy | ±1°C from -40°C / +100°C, ±2°C others | | |
| Battery | 1 x LR44 1.5V button cell | | |

| Cat No. | Stem Length | Quantity | Price |
|--------------------|-------------|----------|---------------|
| THD 130 010 | 125mm | EACH | £13.99 |

Mini Infrared Thermometer Gun

Hand held infrared thermometer with backlit display. Provides easy and safe temperature measurement where non-contact access is required. Comes complete with full instructions, battery and protective case.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|---------------|
| THD 280 040 | Mini Infrared Thermometer | EACH | £61.00 |

CHEMICALS

GENERAL LABWARE

SAFETY





Mini Infrared Thermometer

This unique digital thermometer measures surface temperatures from up to 3 metres away. Simply press and point at an object and you will get a reading in °C or °F within a second. The unit is accurate to within $\pm 2.5^{\circ}\text{C}$ and has a range from -22°C to 110°C . Supplied complete with battery.

| Cat No. | Description | Quantity | Price |
|-------------|---------------------------|----------|--------|
| THZ 350 010 | Mini Infrared Thermometer | EACH | £26.47 |



Pocket Infrared Thermometer

A quick and easy infrared thermometer providing safe temperature measurement where non-contact access is required. Supplied complete with wrist strap, clip-out stamp and storage pouch.

Features:

- User selectable °C or °F
- Auto power off
- LCD screen
- Automatic data hold
- Low battery indicator

| | |
|------------------------|--|
| Range | -35 to 235°C and °F (switchable) |
| Resolution | 0.1°C/°F |
| Basic Accuracy | $\pm 2\%$ or $\pm 2.0^{\circ}\text{C}$ ($\pm 2.0^{\circ}\text{F}$) |
| Distance to Spot Ratio | 1:1 |
| Emmissivity | Fixed at 0.95 |
| Battery | 1x CR2032 (supplied) |
| Dimensions | 75 x 40 x 20mm |
| LCD Dimensions | 14 x 24mm |
| Weight | 33g |

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------|----------|--------|
| THZ 350 020 | Pocket Infrared Thermometer | EACH | £35.41 |

Pen Type Infrared Thermometer

This pocket-size, easy-to-use infrared thermometer is ideal for precise non-contact measurement of surface temperatures. Suitable for monitoring appliances, heating, ventilation and air conditioning systems, food preparation and storage temperatures.

Features:

- -50° to 260°C x 0.1°
- User selectable °C or °F
- Response time less than 1 second
- Automatic Data Hold
- Auto Power Off
- Low Battery indication
- Impact-resistant ABS case
- Supplied with batteries
- Distance to spot size ratio is 1 to 1 at the focal point
- Large 20mm LCD display with function indicators
- Hold within 2 feet of the area to be measured, push the button, read the display
 - Fixed emissivity at 0.95



| | |
|------------|---|
| Range | -50° to $+260^{\circ}\text{C}$ (-58° to $+500^{\circ}\text{F}$) |
| Resolution | 0.1°C/°F |
| Accuracy | $\pm 2\%$ of reading or $\pm 2^{\circ}\text{C}$ (-10° to $+230^{\circ}\text{C}$), $\pm 4^{\circ}\text{C}$ (-10° to -50°C) |
| Power | 2 x 1.5V Button Cell Batteries (PL-13) |
| Dimensions | 88 x 19 x 23.3mm |
| Weight | 20g |

| Cat No. | Description | Quantity | Price |
|-------------|-------------------------------|----------|--------|
| THD 460 010 | Pen Type Infrared Thermometer | EACH | £20.59 |

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T

Spotting Tiles | Timing

GENERAL



Polypropylene Spotting Tile

Made of strong white polypropylene with 12 depressions.

| Cat No. | Material | Cavities | Quantity | Price |
|--------------------|---------------|----------|----------|--------------|
| TIL 040 010 | Polypropylene | 12 | EACH | £0.65 |



Porcelain Spotting Tile

Suitable for observing colour reactions. Extensively used in semi-micro chemistry. Glazed top and sides. Depressions are 22mm in diameter and 8mm deep.

| Cat No. | Dimensions (LxW) | Cavities | Quantity | Price |
|--------------------|------------------|----------|----------|--------------|
| TIL 030 010 | 112x81mm | 6 | EACH | £1.63 |
| TIL 030 020 | 115x91mm | 12 | EACH | £1.99 |

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Watch Glasses

Soda glass with ground edges.

| Cat No. | Diameter | Quantity | Price |
|--------------------|----------|----------|---------------|
| WGL 010 010 | 40mm | PK10 | £5.15 |
| WGL 010 020 | 50mm | PK10 | £5.56 |
| WGL 010 030 | 60mm | PK10 | £5.77 |
| WGL 010 040 | 70mm | PK10 | £3.97 |
| WGL 010 050 | 80mm | PK10 | £4.31 |
| WGL 010 060 | 90mm | PK10 | £5.67 |
| WGL 010 070 | 100mm | PK10 | £11.12 |
| WGL 010 080 | 130mm | PK10 | £14.42 |
| WGL 010 090 | 150mm | PK10 | £15.45 |



Wall Clock

25cm Quartz wall clock with shatterproof acrylic lens.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TCK 030 016 | Wall Clock | EACH | £9.40 |

Radio Controlled Clock

Features:

- Accuracy to 1 second in a million years
- Bold dial markings, designed to be easily read from a distance
- Set themselves to the correct time after battery is fitted
- Shatterproof acrylic lens
- Do not require mains power supply
- Takes AA battery (supplied separately)
- 24 month guarantee

Diameter: 25cm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| TCK 040 011 | Radio Controlled Clock | EACH | £23.99 |
| Accessories | | | |
| | Description | Quantity | Price |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |





Colour Coded Stopwatch

- No alarm, no beeper, no clock
- Colour coded buttons for easy reference
- Start - Stop - Reset
- Times to 9h 59m 59.99s
- Large clear display
- Safety wrist cord (will not fit over head)
- Battery securely fitted behind back casing
- 12 month guarantee

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| TMR 350 010 | Colour Coded Stopwatch | EACH | £4.11 |



Economy Stopwatch

- Three easy to use button controls. Lightweight and easy to operate.
- 1/100th second stopwatch
 - Split/lap time
 - Hour/min/second display as well as day/month
 - Includes battery and lanyard

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| TMR 400 011 | Economy Stopwatch | EACH | £2.58 |

Heavy Duty Stopwatch

A heavy duty stopwatch specifically designed for laboratory use.

Features:

- No clock or alarm function
- Large buttons - will not pull off
- Lap and split time
- 1/100th second chronograph
- Capacity: 9hrs 59min 59secs



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| TSW 050 010 | Heavy Duty Stopwatch | EACH | £9.26 |

Large Digit Display Stopwatch

- 1/100th second precision with lap counter
- Calendar & time (12/24-hour format)
- Daily alarm
- Extra large digit display
- Water resistant



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|--------------|
| TSW 040 011 | Large Digit Display Stopwatch | EACH | £7.85 |

Digital Stop Clock

Easy to use as a standard timer or automatically triggered by external devices for start/stop via 4mm jack sockets. This digital stop-clock is a high accuracy timer, with a robust construction ideal for regular use. Colour coded buttons and jack sockets make the timer extremely practical and convenient to use.

- 15mm LCD display
- Quick and easy press-button action for activation of Start, Stop and Reset
- Stop, Start and Reset actuation buttons located on the top of the timer for faster reaction times
- Pressing the Reset button during a timing cycle displays the time elapsed
- 4mm jack sockets for Start, Stop and Reset allow automatic triggering of timer by external devices
- Practical and convenient to use with colour coding and clear marking on buttons and jack sockets
- Impact-resistant ABS case with non-slip rubber feet for stability on the bench
- Supplied with battery

| | |
|-------------------|--|
| Range | 99mins, 59secs 99/100ths with auto roll-over |
| Resolution | 1/100th second |
| Accuracy | ±1 sec in 24 hours |
| Power | 1x 1.5V AAA battery |
| Dimensions | 100 x 105 x 80mm |
| Weight | 151g |



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| TMR 040 011 | Digital Stop Clock | EACH | £9.50 |

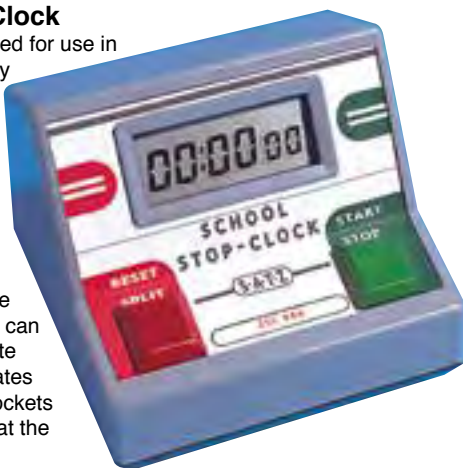


T Timers

GENERAL

School Stop Clock

Specifically designed for use in schools. This highly accurate quartz stop clock is housed in a robust ABS casing. The two buttons are large and colour coded for clarity. The liquid crystal display is also large and clear. The unit can be used with remote switches, timing gates etc via the 4mm sockets which are located at the rear of the unit.



Features:

- Capacity 59 hours, 59 minutes and 59 seconds
- Resolution 1/100 seconds for the first hour and 1 second thereafter
- Dimensions 95 x 90 x 75mm
- Purpose built timer does not have to be reset when battery is changed
- Simple start stop operation with split timing
- Powered by one AA type battery
- Labeled as a 'School Stop-Clock' to act as a deterrent against theft

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| TSC 030 010 | School Stop Clock | EACH | £15.44 |
| Accessories | Description | Quantity | £15.44 |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |

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Laboratory Stop Clock

Housed in a black ABS case 120 x 100 x 39mm with 13.5 x 6.75mm digit LCD display, with accuracy to within 0.5 seconds/24hrs. The timing period is up to 9 hours 59 minutes, 59.99 seconds.

Features:

- Count up with lap and split features
- Positive stop
- Start and reset buttons with beep sound when activated
- 4mm sockets for external triggering

It is powered by a 1.5V AA/LR6 alkaline battery.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| TSC 010 010 | Laboratory Stop Clock | EACH | £17.50 |
| Accessories | Description | Quantity | £17.50 |
| BAT 010 030 | AA Size - 1.5V Batteries | PK4 | £2.99 |



TMR 640 010



TMR 640 020

Bench Timers

Bench Timer without Triggering Contacts

This bench timer has colour coded buttons and a clear LCD display, housed in a robust ABS casing. Timing up to 9 hours, 59 minutes, 59 seconds, resolution 1/100th seconds for 30 minutes and then 1 second thereafter.

Features:

- Highly accurate
- Count up with lap and split timing features
- Positive stop, start and reset buttons with bleep sound when activated

Bench Timer with Triggering Contacts

As above but also with external triggering contacts.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------------|----------|---------------|
| TMR 640 020 | Timer without Triggering Contacts | EACH | £19.24 |
| TMR 640 010 | Timer with Triggering Contacts | EACH | £20.13 |

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Bench Timer

This Bench Timer has two modes of operation: a count down mode with audible alarm on expiry and a count up mode until stopped. There is also memory storage for past countdown times. The display is a high contrast screen with 11mm high digits.



| | |
|----------------------------|--------------------------------------|
| Count Up Capacity | 23hrs, 59mins, and 59secs |
| Count Down Capacity | 23hrs, 59mins, and 59secs with alarm |
| Resolution | 1 second |
| Accuracy | ±1 sec in 24 hours |
| Power | 1x 1.5V AAA battery |
| Dimensions | 100 x 105 x 80mm |
| Weight | 150g |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TMR 210 010 | Bench Timer | EACH | £9.50 |

Jumbo Countdown Timer

Jumbo display timer that counts down from 99 minutes 59 seconds with alarm at end of count down period, memory timer, 30 and 22mm digit heights, back clip with magnet, stand and hook. Requires 1 AAA battery. Dimensions: 88 x 62mm



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| TMR 240 020 | Jumbo Countdown Timer | EACH | £9.99 |
| Accessories | Description | Quantity | £9.99 |
| BAT 010 020 | AAA Size - 1.5V Batteries | PK4 | £2.99 |

Large Display Stop Clock

A large display bench timer with the following features:

Count up/stopwatch:

- Count up in 1 second intervals up to 23 hrs, 59 mins, 59 secs
- 1/100s: Count up in 0.01 second intervals up to 59 mins, 99 secs
- Decimal seconds: Count up in 0.01 second intervals up to 9999.99 secs
- Decimal minutes: Count up in 0.01 minute intervals up to 1999.99 mins

Count down/time:

- Count down in 1 second intervals from 23 hrs, 59 mins, 59 secs
- Memory timer selectable

Clock/calendar:

- 12/24 hour selection
- Day, date and month display
- Daily alarm feature



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|---------------|
| TMR 020 020 | Large Display Stop Clock | EACH | £39.99 |

Digital Count Up/Down Timer

A simple to use count-up or countdown timer. It is ideal for the food trade, laboratories, education and industry. This count up/down timer is easy to program and has a high frequency alarm on expiry of count-down times.



Features:

- Large 20mm LCD display
- Count-down can be stopped and restarted at any point
- Memory to store last count-down time setting
- Auto-repeat function for count-down times
- Count-up mode until stopped
- Cumulative count-up function - count-up can be paused and restarted without losing the cumulative time count
- Timer can be mounted on a magnetic surface or suspended using the strap and hook
- Supplied with battery

| | |
|----------------------------|----------------------------------|
| Count-Up Capacity | 99 minutes 99 seconds |
| Count-Down Capacity | 99 minutes 99 seconds with Alarm |
| Resolution | 1 second |
| Accuracy | ±1 second in 24 hours |
| Power | 1.5V AAA Alkaline Battery |

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| TMR 060 010 | Count Up/Down Timer | EACH | £4.99 |

Water Resistant Timer

Water resistant and steam proof timer with stand clip and suction cup fixture.

- Timer Count: 59 minutes, 59 seconds
- Time Accuracy Standard: ±0.005 minutes
- LCD Dimensions: 20mm x 39mm
- Product Dimensions: 112 x 79 x 25mm
- Product Weight: 53g



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| TMR 230 010 | Water Resistant Timer | EACH | £6.99 |

Laboratory Stop Clock

Standard pattern clock for all kinds of timing experiments. With hand wind precision spring movement and large start and reset levers. Height: 130mm.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|--------------|
| TMR 280 011 | Laboratory Stop Clock | EACH | £9.99 |



T Tongs

GENERAL



Crucible Tongs

Budget crucible tongs made from plated steel 200mm long.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| TNG 110 010 | Crucible Tongs | EACH | £1.18 |

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Beaker Tongs

Mild Steel.

| Cat No. | Shape | Length | Quantity | Price |
|--------------------|----------|--------|----------|--------------|
| TNG 100 010 | Bowed | 150mm | PK5 | £8.76 |
| TNG 100 030 | Bowed | 200mm | PK5 | £9.27 |
| TNG 100 020 | Straight | 150mm | PK5 | £8.76 |
| TNG 100 040 | Straight | 200mm | PK5 | £9.27 |



Beaker Tongs

Budget beaker tongs. Designed to hold liquid filled beakers from 50ml to 600ml capacity. Made from plated steel rod with plastic tubing covered jaws. The finger grips are large enough for thumb and two fingers.

Approximately 280mm long.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| TNG 110 020 | Beaker Tongs | EACH | £2.93 |



Beaker Tongs

Stainless Steel.

| Cat No. | Shape | Length | Quantity | Price |
|--------------------|-------|--------|----------|---------------|
| TNG 070 010 | Bowed | 356mm | EACH | £46.76 |



Evaporating Dish Tongs

They can be used to hold or pick up many items, but work best as tongs for picking up a hot evaporating dish up to 125mm diameter.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| TNG 120 010 | Evaporating Dish Tongs | EACH | £5.82 |



Flask Tongs

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TNG 080 010 | Flask Tongs | EACH | £2.99 |



Silicone Lubricant

Colourless and non-toxic anti-static lubricant ideal for use on metals, plastics, vinyl, rubber and wood. Safe for use on food machinery. CFC free.



| Cat No. | Pk Qty | Quantity | Price |
|-------------|--------|----------|-------|
| LUB 010 011 | 400ML | EACH | £7.36 |

3-in-One Oil



| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|-------|
| LUB 010 011 | 3-in-One Oil | EACH | £7.36 |



Silicone Grease

Resistant to most chemicals. Stable over temperature range -40 to 200°C. For high vacuum purposes. Must not be used with volumetric glassware because silicone contamination distorts the shape of the meniscus. Colourless, Paste, Odourless

| Cat No. | Quantity | Price |
|---------|----------|-------|
| SI0 25 | 50GM | £7.20 |

Allen Key Sets

8 piece metric and Imperial hexagon key sets manufactured from chrome vanadium steel hardened and tempered, each secured on a key ring type holder.



Imperial Set Contents:

1/16, 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4"

Metric Set Contents:

1.5, 2.0, 2.5, 3.0, 4.0, 5.0, 5.5, 6.0mm

TOQ 040 020

| Cat No. | Description | Quantity | Price |
|-------------|--------------|----------|-------|
| TOQ 040 011 | Imperial Set | EACH | £4.11 |
| TOQ 040 020 | Metric Set | EACH | £4.11 |



Brush Set

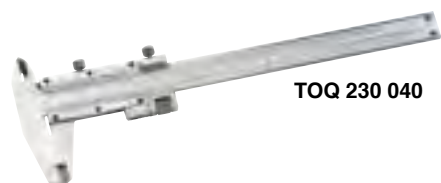
3 piece set comprising one of each of the following: brass, nylon and stainless steel, to suit a number of applications.

| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|-------|
| TOQ 050 010 | Brush Set | SET3 | £7.20 |

Callipers



| Cat No. | Length | Quantity | Price |
|-------------|--------|----------|--------|
| TOQ 230 010 | 115mm | EACH | £10.66 |
| TOQ 230 020 | 150mm | EACH | £13.63 |



TOQ 230 040



Vernier Callipers

Manufactured from hardened stainless steel. Four-way measurement: internal, external, depth and step. Scale interval 0.02mm. Two sizes available.

| Cat No. | Range | Quantity | Price |
|-------------|---------|----------|--------|
| TOQ 230 040 | 0-140mm | EACH | £40.92 |
| TOQ 230 050 | 0-200mm | EACH | £48.90 |



Steel Rule

| Cat No. | Length | Quantity | Price |
|-------------|--------|----------|-------|
| TOR 400 010 | 15cm | EACH | £2.75 |



T Tools

GENERAL



External Micrometer

- Graduated every 0.01mm
- Carbide tipped anvils
- Supplied in a plastic storage case
- Enamelled frame
- Lock and ratchet stop
- Range 0-25mm

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|---------------|
| TOQ 240 010 | External Micrometer | EACH | £29.75 |

Tape Measures

Long life, tough, rust-proof tapes made from fibreglass.



| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| YSU 060 010 | 10m | EACH | £7.64 |
| YSU 060 020 | 20m | EACH | £9.89 |
| YSU 060 030 | 30m | EACH | £19.94 |
| YSU 060 040 | 50m | EACH | £27.02 |

DATA LOGGING

BIOLOGY



YSU 090 010

Open Frame Tape Measures

These open frame surveyors' tapes are made from heavy duty plastic with a 13mm wide fibreglass blade. Comes with folding end claw and handle. Measures from zero.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| YSU 090 010 | 30m | EACH | £16.17 |
| YSU 090 020 | 50m | EACH | £24.76 |

CHEMISTRY

PHYSICS



Sewing Tape Measure

Fibreglass. Imperial/metric
60 inch/150cm.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------|----------|--------------|
| YSU 300 010 | Sewing Tape Measure | EACH | £0.67 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE

Diamond Tipped Engraver Tool

Battery-powered diamond tipped engraver suitable for engraving most surfaces including, glass, ceramics and metals. Supplied with diamond point.



| Cat No. | Description | Quantity | Price |
|--------------------|---------------|----------|---------------|
| TOQ 020 010 | Engraver Tool | EACH | £24.98 |

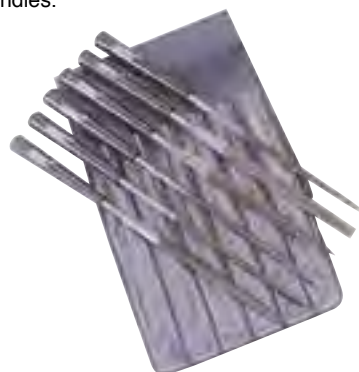
CHEMICALS

GENERAL LABWARE

SAFETY

Needle Files

Set of 6 needle files, comprising flat parallel, flat taper, half round, three square, square and round files. Complete with handles.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| TOQ 030 010 | Needle Files | SET6 | £6.37 |

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DSN 140 010

General Purpose Scissors

Stainless steel.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| DSN 140 010 | 150mm | PK2 | £6.45 |
| DSN 140 020 | 175mm | PK2 | £7.81 |



Closed Shank Scissors

Stainless steel scissors with a closed shank and blunt ends.

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|--------------|
| DSN 120 010 | 130mm | PK2 | £4.10 |

Ambidextrous Scissors

Ambidextrous Scissors with a comfortable grip and a level of durability and versatility rarely found at this price. Stainless steel blades and non-cross over handles are guaranteed to cut paper, card and fabric. Suitable for left or right handed use.

All Purpose Scissors Suitable for general use for both pupils and teachers.

Pupil Scissors These scissors have a longer than standard stainless steel blade, non-cross over handles and rounded ends for safety and ease of use. Suitable for the whole class to use.



DSN 360 010



DSN 360 020

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|--------------|
| DSN 360 010 | All Purpose Scissors | EACH | £2.99 |
| DSN 360 020 | Pupil Scissors | EACH | £1.53 |

Glass Cutters



| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|---------------|
| TGC 040 010 | Glass Tubing Cutter (Accepts Tubing up to 30mm Diameter) | EACH | £20.15 |
| TGC 050 010 | Tungsten Carbide Wheel Cutter | EACH | £3.70 |
| TGC 060 010 | Diamond Head Cutter | EACH | £9.92 |
| TGC 044 010 | Spare Cutting Wheel for TGC 040 010 | EACH | £4.68 |



G Clamp

Malleable cast iron frame with chrome plated square thread screw, tommy bar handle and swivel shoe.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|---------------|
| TOQ 060 010 | G Clamp, 100mm | EACH | £12.57 |



Trimming Knife

Trimming knife for heavy duty cutting. With retractable blade.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| TOQ 295 010 | Trimming Knife | EACH | £2.21 |



Retractable Knife

A highly versatile cutting tool, supplied with blade. Takes surgical blades no.10, 10a, 11 and 15. (See Dissection section in biology).

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| TOQ 300 010 | Retractable Knife | EACH | £6.99 |

Pliers Set

General purpose pliers set, manufactured from carbon steel hardened, tempered with induction hardened cutting edges for extra durability. PVC dipped handles.



Contents:

- 160mm Combination Pliers
- 160mm Diagonal Side Cutters
- 160mm Long Nose Pliers

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|---------------|
| TOQ 310 010 | Pliers Set | SET3 | £20.22 |



T Tools

GENERAL



Pliers

Combination pliers, insulated handles, overall length 6".

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TOQ 360 010 | Pliers | EACH | £2.21 |

DATA LOGGING



Long Nose Pliers

Overall length: 150mm

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|--------------|
| TOQ 370 010 | Long Nose Pliers | EACH | £3.99 |

BIOLOGY

Screwdriver Set

Set of 9.

Contents:

- 3x plain slot 63 x 3, 100 x 6 and 150 x 8mm
- 3x cross slot 0, 1 and 2
- 3x Posidriv 0, 1 and 2



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| TOQ 110 010 | Screwdriver Set | SET9 | £28.46 |

CHEMISTRY



Screwdriver Set

Set of 8.

Contents:

- 5x plain slot 38 x 6, 63 x 3, 100 x 5, 100 x 6 and 150 x 8mm
- 2x Posi superdriv No. 1 and 2
- 1x Posi superdriv chubby

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|---------------|
| TOQ 100 010 | Screwdriver Set | SET8 | £20.58 |

PHYSICS

Screwholding Screwdriver Set

With hardened carbon steel blades and a push and pull head to hold and release down screws. Square matte black handles manufactured from high impact plastic. Set of 2.

Contents:

- 1x plain slot (4.5mm tip)
- 1x PZ TYPE No.1



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|--------------|
| TOQ 130 010 | Screwholding Screwdriver Set | EACH | £6.95 |

ENVIRONMENTAL SCIENCE

Precision Screwdriver Set

With hardened tool steel precision ground blades and nickel plated steel bodies with swivel tops. Packed in plastic case. Set of 11.

Contents:

- 6x plain slot size: 1.0, 1.2, 1.4, 1.8, 2.4 and 3.0mm
- 3x cross slot: No.00, 0 and 1
- 1x awl
- 1x pair of tweezers



| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| TOQ 150 010 | Precision Screwdriver Set | SET11 | £8.70 |

FORENSIC SCIENCE

Soldering Iron



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------------|----------|---------------|
| TOQ 080 010 | Soldering Iron, 25W | EACH | £17.33 |
| Accessories | | | |
| | Description | Quantity | Price |
| TOQ 080 500 | Solder, 20g Tube | EACH | £2.86 |
| TOQ 080 520 | Solder, Reel | EACH | £26.73 |
| TOQ 080 530 | Stand for Soldering Iron | EACH | £8.63 |
| TOQ 084 010 | Spare Tip for Soldering Iron | EACH | £4.11 |

CHEMICALS



Adjustable Spanners

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| TOQ 170 010 | 150mm | EACH | £13.34 |
| TOQ 170 040 | 300mm | EACH | £27.94 |

GENERAL LABWARE

SAFETY





Spirit Levels

230mm Spirit Level with Magnetic Base.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|--------------|
| TOQ 250 020 | Spirit Level | EACH | £6.88 |

Wire Strippers

Caution: NOT suitable for use on LIVE circuits.



TOQ 190 020

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| TOQ 190 020 | Wire Stripper, Set Diameter | EACH | £8.43 |
| TOQ 190 030 | Wire Stripper, Automatic | EACH | £10.64 |



Locking Pliers

Carbon steel and nickel plated for corrosion protection. Serrated gripping jaws, adjustable opening with quick release lever.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| TOR 420 010 | Locking Pliers | EACH | £6.59 |

Heavy Duty Torch

Heavy duty torch with rubber casing, ideal for field trips. Krypton bulb, 70% brighter than ordinary tungsten bulbs. Shock proof with wrist strap.



| Cat No. | Description | Quantity | Price |
|--------------------|----------------------------|----------|--------------|
| TOR 060 010 | Heavy Duty Torch, 2D Size | EACH | £1.99 |
| TOR 060 020 | Heavy Duty Torch, 2AA Size | EACH | £4.11 |

LED Handy Torches

Small handheld torches for classroom experiments. Set of 12: 3x red, 3x blue, 3x green, 3x yellow.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|---------------|
| TOR 100 010 | LED Handy Torches | EACH | £15.44 |

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T Trays

GENERAL

Polypropylene Trays

White. Made from High Impact Polystyrene.



TRY 180 010

| Cat No. | Dimensions (LxWxD) | Quantity | Price |
|-------------|--------------------|----------|--------|
| TRY 180 010 | 311 x 242 x 20mm | EACH | £7.09 |
| TRY 180 020 | 355 x 254 x 23mm | EACH | £8.82 |
| TRY 180 030 | 355 x 253 x 51mm | EACH | £10.49 |
| TRY 180 040 | 406 x 305 x 23mm | EACH | £11.49 |
| TRY 180 050 | 457 x 355 x 23mm | EACH | £15.84 |

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Plastic Trays

Flat bottomed trays ideal for general purpose carrying and storage. Dimensions: 400 x 285 x 80mm

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|-------|
| TRY 120 010 | Plastic Trays | PK3 | £6.75 |

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ABS Trays

General containers for lab use. The shallow units being useful as an instrument tray, coaster etc, whilst the deeper units can be used as slop trays, sand baths, for example. The larger units can be used as pipette trays. Not autoclavable. All have ridge 'feet' for stability.

Kartell



| Cat No. | Capacity | Size (WxDxH) | Quantity | Price |
|-------------|----------|---------------|----------|--------|
| TRY 080 010 | 0.4L | 15 x 20 x 2cm | EACH | £5.44 |
| TRY 080 020 | 0.8L | 15 x 20 x 4cm | EACH | £6.10 |
| TRY 080 030 | 1.6L | 15 x 20 x 8cm | EACH | £13.18 |
| TRY 080 040 | 0.7L | 15 x 30 x 2cm | EACH | £6.65 |
| TRY 080 050 | 1.4L | 15 x 30 x 4cm | EACH | £6.99 |
| TRY 080 060 | 2.8L | 15 x 30 x 8cm | EACH | £7.99 |
| TRY 080 110 | 2.7L | 25 x 35 x 4cm | EACH | £11.14 |
| TRY 080 150 | 7.8L | 30 x 40 x 8cm | EACH | £16.15 |



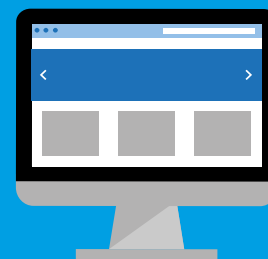
Ice Cube Trays

Made from LDPE.

| Cat No. | Compartments | Quantity | Price |
|-------------|--------------|----------|--------|
| TRY 010 040 | 18 | PK3 | £13.53 |
| TRY 010 050 | 12 | PK3 | £1.23 |

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General Purpose Tripods

| Cat No. | Height | Sides | Quantity | Price |
|--------------------|--------|-------|----------|---------------|
| TRP 010 010 | 200mm | 125mm | PK5 | £15.14 |

Heavy Duty Tripods

Enamelled cast iron tops.



| Cat No. | Height | Sides | Quantity | Price |
|--------------------|--------|-------|----------|---------------|
| TRP 020 011 | 210mm | 125mm | EACH | £9.99 |
| TRP 020 021 | 210mm | 150mm | EACH | £11.74 |

General Purpose Tripods

General purpose tripods made from stainless steel.



| Cat No. | Height | Sides | Quantity | Price |
|--------------------|--------|-------|----------|--------------|
| TRP 030 010 | 150mm | 120mm | EACH | £5.51 |
| TRP 030 020 | 210mm | 120mm | EACH | £5.67 |
| TRP 030 030 | 210mm | 150mm | EACH | £6.18 |
| TRP 030 040 | 260mm | 150mm | EACH | £6.87 |

Budget Tripods

Budget tripods made from stainless steel wire.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TRP 040 010 | 130 x 150mm | EACH | £5.50 |
| TRP 040 020 | 130 x 200mm | EACH | £4.57 |

Tripod Stand with Gauze

Dual position wire gauze burner stand for use with alcohol burners and micro Bunsen burners. The wire mesh is able to be removed and placed on the top or the side to allow multiple burner heights. Dimensions: 125mm tall (approx.) Sides are 88mm and 100mm (approx.)



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|--------------|
| TRP 050 010 | Tripod Stand with Gauze | EACH | £1.70 |

Gauzes

Available as plain gauze or with an asbestos free ceramic centre in two sizes.



| Cat No. | Size | Quantity | Price |
|--|-------------|----------|---------------|
| Iron Wire Gauzes, Plain Mesh | | | |
| GAU 010 010 | 125 x 125mm | PK10 | £7.99 |
| GAU 010 020 | 150 x 150mm | PK10 | £8.99 |
| Iron Wire Gauzes, Ceramic Mesh Centre | | | |
| GAU 020 010 | 125 x 125mm | PK10 | £12.10 |
| GAU 020 020 | 150 x 150mm | PK10 | £13.99 |

Budget Range Gauzes

Available with either plain gauze or with an asbestos free ceramic centre. Individually packed so that you can order the quantity you require.



| Cat No. | Size | Quantity | Price |
|----------------------------|-------------|----------|--------------|
| Plain Mesh | | | |
| GAU 050 010 | 130 x 130mm | EACH | £0.75 |
| GAU 050 020 | 160 x 160mm | EACH | £0.76 |
| Ceramic Mesh Centre | | | |
| GAU 060 010 | 130 x 130mm | EACH | £0.82 |
| GAU 060 020 | 160 x 160mm | EACH | £0.99 |

Pipeclay Triangles

| Cat No. | Sides | Quantity | Price |
|--------------------|-------|----------|--------------|
| TRG 010 010 | 40mm | PK10 | £4.22 |
| TRG 010 020 | 50mm | PK10 | £4.22 |
| TRG 010 030 | 65mm | PK10 | £5.12 |



T Trolleys

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Gratnells Microscope and Power Supply Trolley

This Gratnells storage trolley makes the ideal storage solution for your microscopes and power supplies. With a fully adjustable shelf you can store at least 12 microscopes plus all of their leads and accessories neatly and safely in one place. Also great for transporting equipment around the science department.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------------|----------|----------------|
| TLY 170 010 | Microscope and Power Supply Trolley | EACH | £243.57 |



General Purpose Trolleys

This range of general purpose trolleys is of welded construction with tubular end frames. The work surface base and intermediate shelves can be supplied with edges lipped down if required, but this MUST be specified at time of ordering.

Dimensions (LxWxH): 1060 x 460 x 950mm

Height includes 100mm diameter swivel castors

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| TLY 150 010 | Two Tier | EACH | £243.12 |
| TLY 150 020 | Three Tier | EACH | £270.38 |

Stainless Steel Trolleys

These general purpose trolleys are ideally suitable for use in laboratories or in any environment where hygiene and cleanliness are of the essence.

- Curved square tubular stainless steel end frames
- 18/8 quality stainless steel throughout
- Sound deadening pads below each shelf minimise rattle
- Effortless mobility
- Strong welded rigid construction
- Available as 2 or 3 tiered models
- Stainless steel silent 'K' Karts, with streamlined features reducing dirt-traps and facilitating ease of cleaning



| | Kingston | Kelvin | Kelly |
|----------------------------------|---------------------|-------------------|-------------------|
| Dims. (LxWxH) | 1090 x 630 x 1000mm | 900 x 510 x 900mm | 600 x 425 x 815mm |
| Height to Working Surface | 880mm | 810mm | 730mm |
| Distance Between Tiers: | | | |
| 2 tiers | 605mm | 555mm | 480mm |
| 3 tiers | 300mm | 270mm | 220mm |
| Shelves | 1020 x 575mm | 875 x 480mm | 575 x 400mm |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| Two Tier | | | |
| TLY 040 010 | Kingston | EACH | £405.82 |
| TLY 040 020 | Kelvin | EACH | £300.50 |
| TLY 040 030 | Kelly | EACH | £255.00 |
| Three Tier | | | |
| TLY 050 010 | Kingston | EACH | £508.00 |
| TLY 050 020 | Kelvin | EACH | £388.00 |
| TLY 050 030 | Kelly | EACH | £318.00 |





Deep Ledge Trolleys

- Easy to clean smooth polymer surface with anti-bacterial coating, will not rust or corrode
- Impact resistant surface will not chip, peel or dent
- 70mm deep ledge on shelves contains spillage and adjusts in 25mm increments
- User friendly - ergonomic handle designed for effortless manoeuvrability
- Colour: Blue

Dimensions: 832 x 546 x 1041mm (WxDxH)

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|---------|
| TLY 180 010 | Three Tier Trolley | EACH | £232.82 |



Three Tier Plastic Trolley

- No. of shelves: 3
- Sides/Backs: None
- Dimensions: 850 x 480 x 1000mm (LxWxH)
- Shelf Dimensions: 680 x 450mm (LxW)
- Capacity: 250kg
- Colour: Black
- Supplied fully assembled

Please note that this item is delivered direct from our supplier and may have a delivery charge imposed. Please ask at time of ordering.

| Cat No. | Description | Quantity | Price |
|-------------|--------------------|----------|---------|
| TLY 180 010 | Three Tier Trolley | EACH | £232.82 |



Pneumatic Troughs

Plain cylindrical jars. Manufactured from Soda Glass.

| Cat No. | Diameter | Height | Quantity | Price |
|-------------|----------|--------|----------|--------|
| TPN 010 011 | 200mm | 100mm | EACH | £21.31 |
| TPN 010 021 | 250mm | 125mm | EACH | £22.85 |
| TPN 010 031 | 300mm | 125mm | EACH | £34.31 |

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T

Test Tubes - Rimless

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Test Tubes

| Cat No. | Size (Dia. x H) | Wall | Quantity | Price |
|--|-----------------|--------|----------|---------------|
| TBS 020 010 | 10 x 75mm | 1.0mm | PK100 | £23.00 |
| TBS 020 020 | 12 x 75mm | 1.0mm | PK100 | £24.26 |
| TBS 020 030 | 12 x 100mm | 1.0mm | PK100 | £28.00 |
| TBS 020 040 | 16 x 100mm | 1.2mm | PK100 | £37.00 |
| TBS 020 050 | 16 x 125mm | 1.2mm | PK100 | £39.93 |
| TBS 020 060 | 18 x 150mm | 1.2mm | PK100 | £48.48 |
| TBS 020 070 | 24 x 150mm | 1.2mm | PK50 | £32.11 |
| TES 020 010 | 10 x 50mm | 1.0mm | PK250 | £25.98 |
| TES 020 020 | 10 x 75mm | 1.0mm | PK100 | £11.85 |
| TES 020 030 | 12 x 75mm | 1.0mm | PK100 | £11.99 |
| TES 020 040 | 12 x 100mm | 1.0mm | PK100 | £13.93 |
| TES 020 050 | 16 x 125mm | 1.0mm | PK100 | £18.62 |
| TES 020 060 | 16 x 150mm | 1.0mm | PK100 | £21.00 |
| TES 020 070 | 18 x 150mm | 1.0mm | PK100 | £23.88 |
| TES 020 080 | 24 x 150mm | 1.2mm | PK50 | £18.99 |
| Soda Glass, Light Wall with Rim | | | | |
| TES 010 020 | 10 x 50mm | 0.6mm | PK250 | £26.00 |
| TES 010 030 | 10 x 75mm | 0.6mm | PK100 | £9.96 |
| TES 010 050 | 12 x 100mm | 0.6mm | PK100 | £11.51 |
| TES 010 060 | 16 x 100mm | 0.6mm | PK100 | £14.78 |
| TES 010 070 | 16 x 125mm | 0.6mm | PK100 | £14.85 |
| TBS 010 080 | 24 x 150mm | 1.2mm | PK50 | £24.28 |
| TES 010 090 | 16 x 150mm | 0.6mm | PK100 | £16.96 |
| TES 010 100 | 18 x 150mm | 0.6mm | PK100 | £18.95 |
| TES 010 110 | 24 x 150mm | 0.8mm | PK50 | £15.12 |
| TBS 010 010 | 10 x 75mm | 1.0mm | PK100 | £14.60 |
| TBS 010 020 | 12 x 75mm | 1.0mm | PK100 | £16.22 |
| TBS 010 040 | 16 x 100mm | 1.2mm | PK100 | £23.74 |
| TBS 010 050 | 16 x 125mm | 1.2mm | PK100 | £26.60 |
| TBS 010 060 | 16 x 150mm | 1.2mm | PK100 | £29.89 |
| TBS 010 070 | 18 x 150mm | 1.2mm | PK100 | £33.40 |
| TES 010 080 | 18 x 125mm | 0.6mm | PK100 | £17.23 |
| TES 010 010 | 6.5 x 50mm | 0.45mm | PK250 | £22.48 |

Test Tubes

Simax Test Tubes manufactured to ISO 4112 from borosilicate 3.3 glass to ISO 3585 giving a consistent, even wall thickness and excellent thermal properties



| Cat No. | Size (Dia. x H) | Wall | Quantity | Price |
|--------------------|-----------------|-------|----------|---------------|
| TBS 170 010 | 12 x 75mm | 1.5mm | PK100 | £27.09 |
| TBS 170 020 | 16 x 125mm | 1.8mm | PK100 | £56.55 |
| TBS 170 030 | 16 x 150mm | 1.8mm | PK100 | £58.73 |
| TBS 170 040 | 18 x 150mm | 1.8mm | PK100 | £68.73 |
| TBS 170 050 | 24 x 150mm | 1.8mm | PK50 | £43.00 |
| TBS 160 010 | 10 x 75mm | 1.0mm | PK100 | £19.27 |
| TBS 160 030 | 12 x 100mm | 1.0mm | PK100 | £27.25 |
| TBS 160 040 | 16 x 100mm | 1.2mm | PK100 | £35.54 |
| TBS 160 050 | 16 x 125mm | 1.2mm | PK100 | £31.00 |
| TBS 160 060 | 16 x 150mm | 1.2mm | PK100 | £38.18 |
| TBS 160 070 | 18 x 150mm | 1.2mm | PK100 | £45.27 |
| TBS 160 080 | 24 x 150mm | 1.2mm | PK50 | £24.00 |

Economy Borosilicate Test Tubes with Rim

Kimble Test Tubes are of very high quality, made from borosilicate 3.3 glass complete with rim. Uniform wall thickness, and designed for maximum heat transfer and chemical resistance.



| Cat No. | Dia. x Height | Quantity | Price |
|--------------------|---------------|----------|---------------|
| TBS 060 010 | 10 x 75mm | PK100 | £18.00 |
| TBS 060 020 | 12 x 75mm | PK100 | £21.11 |
| TBS 060 030 | 12 x 100mm | PK100 | £25.56 |
| TBS 060 040 | 16 x 100mm | PK100 | £32.44 |
| TBS 060 050 | 16 x 125mm | PK100 | £34.00 |
| TBS 060 060 | 18 x 150mm | PK100 | £42.00 |
| TBS 060 070 | 24 x 150mm | PK50 | £26.67 |



Screw Neck Vials

Neutral glass vials without closure. Please order screw caps separately.



| Cat No. | Capacity | Height x Dia. | Cap Reference | Quantity | Price |
|-------------------------|--------------------------|---------------|---------------|----------|---------|
| Squat Form | | | | | |
| TVL 050 010 | 7.0ml | 42 x 20mm | TVL 050 530 | PK264 | £41.98 |
| TVL 050 020 | 14.0ml | 58 x 23.25mm | TVL 050 550 | PK190 | £38.83 |
| TVL 050 030 | 28.25ml | 72 x 27.5mm | TVL 050 560 | PK140 | £37.35 |
| Tall Form | | | | | |
| TVL 050 040 | 1.75ml | 36 x 11mm | TVL 050 500 | PK882 | £110.48 |
| TVL 050 060 | 7.0ml | 58 x 17mm | TVL 050 520 | PK399 | £68.14 |
| TVL 050 070 | 10.5ml | 67 x 17mm | TVL 050 520 | PK399 | £71.59 |
| TVL 050 090 | 21.25ml | 86 x 21mm | TVL 050 540 | PK231 | £53.11 |
| TVL 050 100 | 28.25ml | 96 x 23mm | TVL 050 550 | PK190 | £47.98 |
| Accessories | | | | | |
| | Description | | | Quantity | £47.98 |
| Black Screw Caps | | | | | |
| TVL 050 500 | To Fit TVL 050 040 | | | PK882 | £47.98 |
| TVL 050 520 | To Fit TVL 050 060 & 070 | | | PK399 | £47.98 |
| TVL 050 530 | To Fit TVL 050 010 & 080 | | | PK264 | £47.98 |
| TVL 050 540 | To Fit TVL 050 090 | | | PK231 | £47.98 |
| TVL 050 550 | To Fit TVL 050 020 & 100 | | | PK190 | £47.98 |
| TVL 050 560 | To Fit TVL 050 030 | | | PK140 | £47.98 |

Rolled Rim Vials

Neutral glass vials without closure. These vials will accept polythene clip on closures or push in plugs. Please ask for details about the push in plugs.



| Cat No. | Capacity | Height x Dia. | Cap Reference | Quantity | Price |
|--------------------|-----------------------------------|---------------|---------------|----------|--------|
| Squat Form | | | | | |
| TVL 060 010 | 7.0ml | 34 x 23mm | TVL 060 500 | PK190 | £31.87 |
| TVL 060 020 | 10.5ml | 46 x 23.25mm | TVL 060 500 | PK190 | £32.92 |
| TVL 060 030 | 14.0ml | 48 x 25.5mm | TVL 060 510 | PK162 | £33.37 |
| TVL 060 040 | 21.25ml | 66 x 25.5mm | TVL 060 510 | PK162 | £40.31 |
| TVL 060 050 | 28.25ml | 72 x 27mm | TVL 060 520 | PK140 | £39.00 |
| Accessories | | | | | |
| | Description | | | Quantity | £39.00 |
| TVL 060 500 | Clip on Closures to Fit 010 & 020 | | | PK190 | £39.00 |
| TVL 060 510 | Clip on Closures to Fit 030 & 040 | | | PK162 | £39.00 |
| TVL 060 520 | Clip on Closures to Fit 050 | | | PK140 | £39.00 |



Glass Delivery Tubes

Set of 6 Various Angles. Diameter 8mm.

| Cat No. | Description | Quantity | Price |
|-------------|----------------------|----------|-------|
| TDL 010 010 | Glass Delivery Tubes | SET6 | £8.17 |

Specimen Tubes

Soda glass, flat bottom supplied with polyethylene stoppers.



| Cat No. | Size (H x Dia.) | Quantity | Price |
|-------------|-----------------|----------|--------|
| TVL 010 010 | 50 x 12mm | PK100 | £18.53 |
| TVL 010 020 | 50 x 19mm | PK100 | £20.59 |
| TVL 010 030 | 50 x 25mm | PK100 | £28.83 |
| TVL 010 040 | 75 x 19mm | PK100 | £25.74 |
| TVL 010 050 | 75 x 25mm | PK100 | £30.89 |
| TVL 010 060 | 100 x 25mm | PK100 | £32.45 |



T

Tubes - Racks

GENERAL

Z Shape Test Tube Stand

"Z" shape, made from 18 gauge aluminium sheet, anodized and 3 tier. With 5 holes of 23 mm dia., 6 holes of 20 mm dia. and 8 holes of 13 mm dia. Overall height of 75 mm and length of 200 mm.



| Cat No. | No. of Holes | Quantity | Price |
|--------------------|--------------|----------|--------------|
| STT 100 011 | 19 | EACH | £3.18 |

Economy Test Tube Rack

Replacement for wood and metal racks. For six test tubes. Has six openings of 25mm diameter on top plate, with hemispherical wells and drying pins. Open side for clear viewing. Dimensions (LxWxH): 240 x 70 x 90mm



| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| TTR 220 010 | Economy Test Tube Rack | EACH | £0.78 |

DATA LOGGING

Wooden Test Tube and Boiling Tube Rack

A Range Suitable for both test tubes and boiling tubes.



| Cat No. | No. of Holes | Hole Diameter | Quantity | Price |
|--------------------|--------------|-------------------------|----------|--------------|
| STT 050 010 | 6 | 32mm | EACH | £5.14 |
| STT 010 010 | 6 | 22mm | EACH | £4.90 |
| STT 010 020 | 12 | 22mm | EACH | £5.99 |
| STT 030 010 | 6 | 2x 32mm & 4x 22mm Holes | EACH | £5.91 |

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Wooden Test Tube and Boiling Tube Rack

With drying pegs for both test tubes and boiling tubes.



STT 040 010

| Cat No. | No. of Holes | Hole Diameter | Quantity | Price |
|--------------------|--------------|-------------------------|----------|---------------|
| STT 020 020 | 12 | 22mm | EACH | £12.26 |
| STT 040 010 | 6 | 2x 32mm & 4x 22mm Holes | EACH | £8.55 |

Wooden Test Tube Rack

Has 6 test tube openings and 6 drying pins. Dimensions: 240 x 70 x 90mm



| Cat No. | No. of Holes | Hole Diameter | Quantity | Price |
|--------------------|--------------|---------------|----------|--------------|
| STT 120 010 | 6 | 24mm | EACH | £6.47 |

ENVIRONMENTAL SCIENCE

FORENSIC SCIENCE



Wooden Test Tube Rack

Nuffield style with 10 holes. Dimensions: 170 x 60 x 25mm

| Cat No. | No. of Holes | Hole Diameter | Quantity | Price |
|--------------------|--------------|-------------------|----------|--------------|
| STT 060 010 | 10 | 4x 25mm & 6x 17mm | EACH | £9.89 |

CHEMICALS

Polypropylene Test Tube Racks

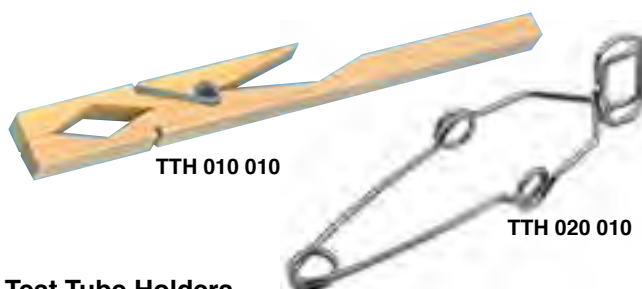
Very popular conventional test tube racks. Autoclavable. Will withstand temperatures up to 120°C. Indentations on base area to hold test tubes in position.



| Cat No. | No. of Tiers | Hole Dia. | No. of Places | Hole Format | Quantity | Price |
|--------------------|--------------|-----------|---------------|-------------|----------|---------------|
| STT 080 010 | 2 | 18mm | 10 | 1x10 | EACH | £8.24 |
| STT 080 030 | 3 | 20mm | 12 | 2x6 | EACH | £9.48 |
| STT 080 040 | 3 | 20mm | 24 | 2x12 | EACH | £18.56 |

GENERAL LABWARE

SAFETY



Test Tube Holders

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------------|----------|--------------|
| TTH 020 010 | Metal Test Tube Holder | EACH | £0.72 |
| TTH 010 020 | All Metal | PK10 | £4.20 |
| TTH 010 030 | Brass with Wooden Handle | EACH | £5.75 |
| TTH 010 010 | Wooden Peg Type | PK10 | £6.12 |



Polypropylene Test Tube Racks

Large capacity racks. Autoclavable at 121°C for 20 mins. Can be used dry, wet, in water baths. Will not float. Can be used in freezers without going brittle. Will not rot, rust or deform. Grid reference on top tier for easy identification of samples. Stackable when empty.



| Cat No. | Colour | No. of Holes | Hole Diameter | Quantity | Price |
|-------------------------|--------|--------------|---------------|----------|---------------|
| 246 x 105 x 64mm | | | | | |
| TTR 020 010 | White | 90 | 13mm | EACH | £10.32 |
| 246 x 105 x 72mm | | | | | |
| TTR 030 010 | White | 60 | 16mm | EACH | £9.97 |
| TTR 030 020 | Blue | 60 | 16mm | EACH | £9.97 |
| TTR 030 030 | Yellow | 60 | 16mm | EACH | £9.97 |
| TTR 030 040 | Red | 60 | 16mm | EACH | £9.97 |
| TTR 040 010 | White | 40 | 20mm | EACH | £9.97 |
| TTR 040 020 | Blue | 40 | 20mm | EACH | £9.97 |
| TTR 040 040 | Red | 40 | 20mm | EACH | £9.97 |
| 295 x 125 x 85mm | | | | | |
| TTR 050 010 | White | 40 | 25mm | EACH | £11.72 |
| TTR 050 020 | Blue | 40 | 25mm | EACH | £11.72 |
| TTR 050 030 | Yellow | 40 | 25mm | EACH | £11.72 |
| TTR 050 040 | Red | 40 | 25mm | EACH | £11.72 |
| 300 x 112 x 85mm | | | | | |
| TTR 060 010 | White | 40 | 30mm | EACH | £12.63 |
| TTR 060 020 | Blue | 40 | 30mm | EACH | £12.63 |
| TTR 060 030 | Yellow | 40 | 30mm | EACH | £12.63 |
| TTR 060 040 | Red | 40 | 30mm | EACH | £12.63 |

Polyketone Test Tube Half Racks



- Constructed with Thermo Scientific™ Resmer™ Manufacturing Technology
- Racks are repeatedly autoclavable
- No assembly is required
- Smooth finish leaves fewer places for contaminants to lodge; no welds to break, no sharp edges
- Endplates accept large labels
- Rack withstands most lab chemicals and temperatures up to 121°C for a variety of lab procedures
- 15ml conical tubes fit 20mm racks; 50ml conical tubes fit 30mm racks



| Cat No. | Colour | Tube Dia. | Layout | Quantity | Price |
|-------------------------|--------|-----------|--------|----------|---------------|
| 127 x 127 x 68mm | | | | | |
| TTR 160 020 | White | 16mm | 6x6 | EACH | £15.93 |
| TTR 160 070 | Blue | 16mm | 6x6 | EACH | £15.93 |
| 122 x 122 x 76mm | | | | | |
| TTR 160 040 | White | 25mm | 4x4 | EACH | £16.36 |

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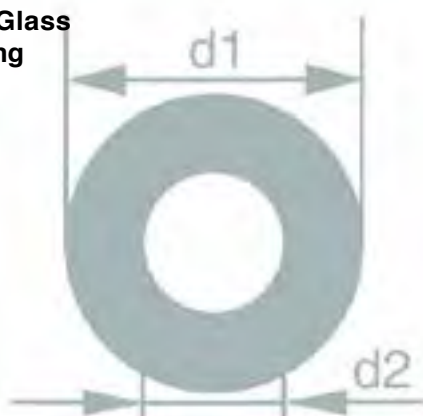


T Tubing

GENERAL

Borosilicate Glass Capillary Tubing

0.5m lengths.



| Cat No. | Outside Dia x Bore | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| TCB 010 011 | 4 x 0.8mm | PK10 | £12.88 |
| TCB 010 021 | 5 x 1.2mm | PK10 | £12.19 |
| TCB 010 031 | 6 x 1.2mm | PK10 | £12.98 |
| TCB 010 041 | 6 x 2.2mm | PK10 | £13.75 |
| TCB 010 051 | 7 x 1.2mm | PK10 | £11.25 |



Soda Glass Tubing

0.5m lengths.

| Cat No. | Outside Diameter | Quantity | Price |
|--------------------|------------------|----------|---------------|
| TSG 010 010 | 4mm | PK30 | £8.63 |
| TSG 010 020 | 5mm | PK30 | £8.63 |
| TSG 010 030 | 6mm | PK30 | £8.63 |
| TSG 010 040 | 7mm | PK30 | £8.91 |
| TSG 010 050 | 8mm | PK30 | £9.70 |
| TSG 010 060 | 10mm | PK30 | £10.85 |
| TSG 010 110 | 26mm | PK15 | £28.91 |

DATA LOGGING

BIOLOGY

CHEMISTRY

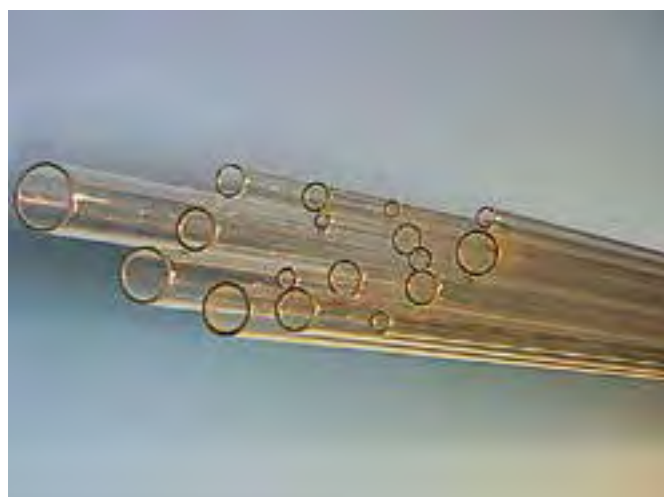
PHYSICS

ENVIRONMENTAL SCIENCE

Borosilicate Glass Tubing

0.5m lengths.

| Cat No. | Outside Diameter | Quantity | Price |
|--------------------|------------------|----------|---------------|
| TBG 010 010 | 5mm | PK30 | £16.61 |
| TBG 010 020 | 6mm | PK30 | £17.32 |
| TBG 010 030 | 7mm | PK30 | £20.36 |
| TBG 010 040 | 8mm | PK30 | £20.68 |
| TBG 010 050 | 10mm | PK30 | £26.19 |
| TBG 010 060 | 12mm | PK30 | £27.76 |
| TBG 010 080 | 19mm | PK15 | £27.74 |
| TBG 010 100 | 24mm | PK15 | £24.00 |
| TBG 010 110 | 28mm | PK6 | £22.35 |
| TBG 010 120 | 32mm | PK6 | £26.78 |
| TBG 010 140 | 40mm | PK3 | £19.15 |
| TBG 010 150 | 50mm | PK3 | £28.36 |



FORENSIC SCIENCE

CHEMICALS

GENERAL LABWARE

SAFETY



Bunsen Tubing

Nitrile tubing with reinforced ends.

- Tube ID: 5mm
- Tube OD: 8mm
- Ends ID: 8mm
- Ends OD: 14mm

| Cat No. | Length | Quantity | Price |
|--------------------|--------|----------|---------------|
| TBN 010 010 | 450mm | PK5 | £24.24 |
| TBN 010 020 | 600mm | PK5 | £26.65 |
| TBN 010 030 | 750mm | PK5 | £32.70 |
| TBN 010 040 | 900mm | PK5 | £32.75 |



Visking Dialysis Tubing

Sold in rolls of 30 metres. Other sizes of Visking tubing available if required.

| Cat No. | Flat Width | Inflated Dia. | Size No. | Length | Quantity | Price | |
|--------------------|------------------------------|---------------|----------|--------|-------------|---------------|--------------|
| TVK 010 041 | 24-26mm | 14.3mm | 2 | 30m | EACH | £30.89 | |
| TVK 010 051 | 25-27mm | 15.9mm | 3 | 30m | EACH | £30.89 | |
| TVK 010 061 | 31-33mm | 19.0mm | 5 | 30m | EACH | £30.89 | |
| Accessories | | | | | Description | Quantity | Price |
| TVK 010 501 | Medi Clips for Viking Tubing | | | PK10 | | £7.20 | |



Platinum Cured Silicone Tubing

Maintaining standard silicone's excellent ozone, temperature and electrical properties, additionally Platinum cured silicone tubing has no smell, taste taint or reaction with Chlorine. It has higher tear strength with less vulnerability to splitting or mechanical damage, making it ideal for peristaltic pump use. Due to process advantages there is less likelihood of extrusion lines on both inner and outer surfaces and therefore less bacteriological build up. The Platinum cure system also creates a much higher clarity with no yellowing, as experienced with peroxide cured materials.

• High Clarity Silicone Tubing

• 60° RHD +- 5°

• FDA, BGA & WRC Approved

| Cat No. | Bore | Wall | Length | Quantity | Price |
|--------------------|--------|--------|--------|----------|---------------|
| TSR 020 010 | 1mm | 1mm | 10m | 10MTR | £7.87 |
| TSR 020 020 | 2mm | 1mm | 10m | 10MTR | £10.53 |
| TSR 020 030 | 3mm | 0.75mm | 10m | 10MTR | £10.53 |
| TSR 020 040 | 3mm | 1mm | 10m | 10MTR | £10.99 |
| TSR 020 050 | 4mm | 1mm | 10m | 10MTR | £14.13 |
| TSR 020 060 | 4mm | 1.6mm | 10m | 10MTR | £13.70 |
| TSR 020 070 | 5mm | 1.5mm | 10m | 10MTR | £15.16 |
| TSR 020 080 | 6mm | 1.5mm | 10m | 10MTR | £24.29 |
| TSR 020 090 | 6.5mm | 1.5mm | 10m | 10MTR | £16.99 |
| TSR 020 100 | 8mm | 2.0mm | 10m | 10MTR | £25.17 |
| TSR 020 120 | 10mm | 2.0mm | 10m | 10MTR | £29.95 |
| TSR 020 130 | 12.5mm | 2.25mm | 5m | 5MTR | £22.35 |



Red Rubber Tubing

To BS 2775.

| Cat No. | Size | Bore | Wall | Length | Quantity | Price |
|--------------------|-------|--------|--------|--------|----------|---------------|
| TRR 010 010 | N3 | 3mm | 0.75mm | 10m | 10MTR | £11.19 |
| TRR 010 021 | N5 | 5mm | 1.5mm | 10m | 10MTR | £9.24 |
| TRR 010 030 | N6.5 | 6.5mm | 1.5mm | 10m | 10MTR | £14.19 |
| TRR 010 041 | N8 | 8mm | 2.0mm | 10m | 10MTR | £14.26 |
| TRR 010 050 | N10 | 10mm | 2.0mm | 10m | 10MTR | £33.89 |
| TRR 010 060 | N12.5 | 12.5mm | 2.25mm | 5m | 5MTR | £22.00 |
| TRR 010 070 | N16 | 16mm | 3.25mm | 5m | 5MTR | £37.82 |



Red Rubber Tubing, Heavy Wall

To BS 2775.

| Cat No. | Size | Bore | Wall | Length | Quantity | Price |
|-----------------------|-------|--------|--------|--------|----------|---------------|
| TPR 010 020 | H5 | 5mm | 4mm | 5m | 5MTR | £17.30 |
| TPR 010 030 | H6.5 | 6.5mm | 5mm | 5m | 5MTR | £25.83 |
| TPR 010 040 | H8 | 8mm | 6mm | 2m | 2MTR | £14.67 |
| TPR 010 050 | H10 | 10mm | 7mm | 2m | 2MTR | £20.13 |
| TPR 010 060 | H12.5 | 12.5mm | 8.5mm | 1m | EACH | £16.62 |
| Imperial Sizes | | | | | | |
| TPR 020 020 | - | 7.94mm | 3.18mm | 5m | 5MTR | £21.28 |
| TPR 020 030 | - | 9.53mm | 3.18mm | 5m | 5MTR | £24.00 |



Black Neoprene Tubing

To BS 2775.

| Cat No. | Size | Bore | Wall | Length | Quantity | Price |
|--------------------|------|-------|--------|--------|----------|---------------|
| TNR 010 010 | N3 | 3mm | 0.75mm | 10m | 10MTR | £11.97 |
| TNR 010 020 | N5 | 5mm | 1.5mm | 10m | 10MTR | £17.72 |
| TNR 010 030 | N6.5 | 6.5mm | 1.5mm | 10m | 10MTR | £18.85 |
| TNR 010 040 | N8 | 8mm | 2.0mm | 10m | 10MTR | £29.75 |
| TNR 010 050 | N10 | 10mm | 2.0mm | 5m | 5MTR | £18.85 |



Transparent PVC Tubing

To BS 2571.

| Cat No. | Bore | Wall | Length | Quantity | Price |
|--------------------|--------|--------|--------|----------|---------------|
| TPC 020 010 | 3mm | 0.75mm | 30m | PK30M | £7.77 |
| TPC 020 020 | 5mm | 1.5mm | 30m | PK30M | £10.44 |
| TPC 020 030 | 6.5mm | 1.5mm | 30m | PK30M | £12.88 |
| TPC 020 040 | 8mm | 2.0mm | 30m | PK30M | £21.26 |
| TPC 020 050 | 10mm | 2.0mm | 30m | PK30M | £22.76 |
| TPC 020 070 | 12.5mm | 2.25mm | 30m | PK30M | £42.44 |



T

Tubing - Clips | Connectors

GENERAL

Mohr Clip

Made from nickel-plated steel. Can be used for up to 15mm tubes.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| TCL 090 010 | Mohr Clip | EACH | £0.50 |



Hoffman Tubing Clips

Screw, Hoffman type, plastic clips.

| Cat No. | Size | Quantity | Price |
|--------------------|------|----------|---------------|
| TCL 060 010 | 14mm | PK10 | £12.34 |

DATA LOGGING

BIOLOGY

Tapered Tubing Connectors

For straight connection of different diameter tubing. Autoclavable polypropylene.

Kartell



| Cat No. | Outside Diameter | Bore | Quantity | Price |
|--------------------|------------------|-------|----------|---------------|
| TAC 070 010 | 4/5/6mm | 2.0mm | PK10 | £5.77 |
| TAC 070 020 | 6/7/8mm | 2.5mm | PK10 | £6.59 |
| TAC 070 030 | 8/9/10mm | 4.5mm | PK10 | £7.54 |
| TAC 070 040 | 10/11/12mm | 6.5mm | PK10 | £9.89 |
| TAC 070 050 | 12/13/14mm | 8.5mm | PK10 | £10.92 |

CHEMISTRY

PHYSICS

Unequal Straight Tubing Connectors

For connecting tubing of various sizes. Autoclavable polypropylene. Inlet and outlet have different diameters. Dimensions shown indicate the range of tubing internal diameters accommodated at each end of the connector.

Kartell



| Cat No. | Outside Diameter | Quantity | Price |
|--------------------|------------------|----------|---------------|
| TAC 040 010 | 4/8 to 8/12mm | PK10 | £12.36 |
| TAC 040 020 | 4/8 to 12/16mm | PK10 | £13.80 |
| TAC 040 030 | 8/12 to 14/16mm | PK10 | £15.45 |

ENVIRONMENTAL SCIENCE

T-Shape Tubing Connectors

Autoclavable polypropylene. Dimensions are nominal.

Kartell



| Cat No. | Outside Diameter | Bore | Quantity | Price |
|--------------------|------------------|-------|----------|--------------|
| TAC 080 010 | 4mm | 1.6mm | PK10 | £4.33 |
| TAC 080 020 | 6mm | 2.8mm | PK10 | £5.77 |
| TAC 080 030 | 8mm | 4.4mm | PK10 | £5.35 |
| TAC 080 040 | 10mm | 6.3mm | PK10 | £6.99 |
| TAC 080 050 | 12mm | 8.2mm | PK10 | £8.99 |

FORENSIC SCIENCE

Y Shape Tubing Connectors

Autoclavable polypropylene. Dimensions are nominal.

Kartell



| Cat No. | Outside Diameter | Bore | Quantity | Price |
|--------------------|------------------|-------|----------|---------------|
| TAC 090 010 | 4mm | 2.0mm | PK10 | £6.39 |
| TAC 090 020 | 6mm | 2.7mm | PK10 | £8.65 |
| TAC 090 030 | 8mm | 4.6mm | PK10 | £7.90 |
| TAC 090 040 | 10mm | 5.5mm | PK10 | £10.51 |

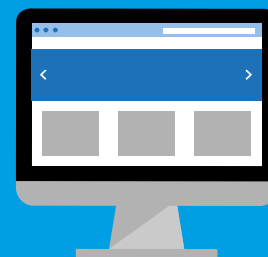
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Ostwald Viscometer

For the determination of relative viscosities of liquids.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| VIS 020 010 | Ostwald Viscometer | EACH | £31.99 |

Elga Deioniser

The Elga B114 Deioniser produces ultra-pure water which is almost entirely free of dissolved mineral salts, including silica, and will have a neutral pH since the dissolved CO₂ will have been removed. This is a compact wall-mounted unit, ideal for users who require low volumes of ultra-pure water. It features a 9V battery operated colour coded conductivity meter operated by depressing the 'Water Test' switch allowing instant monitoring of the treated water quality. When the ion exchange resins are exhausted, it is simple to replace the cartridge. Supplied with 4 disposable cartridges. Battery supplied separately; spare cartridges available on request.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|----------------|
| WPU 030 010 | Elga Deioniser | EACH | £980.00 |
| BAT 010 050 | PP3 - 9V | EACH | £3.29 |
| Accessories | Description | Quantity | £109.99 |
| WPU 034 010 | Spare Cartridge | PK4 | £109.99 |

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W

Water Deionisers | Water Stills

GENERAL

Labwater Water Deioniser

These simple, easy-to-use deionisers are suitable for users of 5-10 litres per day of laboratory water for general use such as media preparation.

- Wall mounted to save bench space
- Water available at up to 1 litre per minute
- Deionised water quality better than 1 MΩ/cm
- No electricity required
- Operate on a normal mains water supply & pressure

Deioniser cartridge indicates cartridge exhaustion via a resin colour change window turning from blue (good) to brown (bad) Both models are supplied with an inlet hose adaptor, flow control valve, deioniser cartridge, quick release cartridge fittings, choice of 2 outlet tubes (spout or flexible hose), wall mounting bracket and instructions.

Requires a 12mm braided hose (not supplied) to connect the Labwater to a tap or stopcock.



| Cat No. | Model | Flow Rate | Quantity | Price |
|--------------------|--------------------------------|-----------|----------|----------------|
| WPU 100 010 | Labwater 1 | 30L/Hour | EACH | £384.96 |
| Accessories | Description | | Quantity | £384.96 |
| WPU 124 050 | Labwater 1 Deioniser Cartridge | | EACH | £110.73 |
| WPU 124 060 | Labwater 2 Deioniser Cartridge | | EACH | £168.66 |

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Water Still

This water still has been produced to meet educational requirements, providing 4 litres of distillate per hour from a 3 kW chromium plated heater.

Features Include:

- Constant level device for safe and efficient boiler operation
- PTFE tap for easy draining and cleaning
- Screw threaded boiler and hose connections for easy assembly and maintenance
- Safety thermostatic cut out on heater to prevent overheating
- Stand suitable for wall or bench mounting
- Complete with fitted 13 amp plug

| | |
|-------------------|-------------------|
| pH | 5.5 - 6.0 |
| Flow Rate | 4L / Hour |
| Dimensions | 500 x 150 x 450mm |

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|----------------|
| WPU 060 010 | Water Still | EACH | £679.00 |

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Merit® W4000 Water Still

The Merit Water Still combines economy, high performance and a host of features in a way that comparable stills cannot match. Up to 4 litres/hour of distilled water are produced from the horizontal borosilicate glass boiler fitted with a 3kW long life chromium plated heater. Can be either bench or wall mounted. Easily cleaned without dismantling.

NB: No 13 amp plug supplied, needs hardwire connection direct to electricity system.

| | |
|------------|-------------------|
| pH | 5.0 - 6.0 |
| Flow Rate | 4L / Hour |
| Dimensions | 500 x 150 x 450mm |

| Cat No. | Model | Quantity | Price |
|--------------------|-----------------|----------|---------|
| WPU 080 010 | Merit® W4000 | EACH | £949.00 |
| Accessories | Description | Quantity | £949.00 |
| WPU 080 510 | Gasket Kit | EACH | £70.67 |
| WL4 24. 08 | Boiler | EACH | £313.72 |
| WL4 37. 08A | Heating Element | EACH | £430.46 |



Distinction® D4000 Water Still

For the convenience of unattended operation the Distinction is supplied complete with a level control device which clips into the collecting reservoir and will turn off the heater when the reservoir is full. All glass construction, including a silica sheathed heating element, and a highly efficient condenser ensure a top quality cool distillate, ready for immediate use. Cleaning the Distinction is particularly simple. A built in PTFE drainage stopcock and acid funnel allow cleaning without dismantling. Screwthread connectors make hose fitting and removal quick, easy and safe and there are not one, but two thermostats for extra security.

NB: No 13 amp plug supplied, needs hardwire connection direct to electricity system.

| | |
|------------|-------------------|
| pH | 5.0 - 6.5 |
| Flow Rate | 4L / Hour |
| Dimensions | 540 x 160 x 410mm |

| Cat No. | Model | Quantity | Price |
|--------------------|--------------------|----------|----------|
| WPU 090 010 | Distinction® D4000 | EACH | £1376.00 |
| Accessories | Description | Quantity | £1376.00 |
| WL4 64. 20 | Boiler | EACH | £480.00 |
| WPU 090 500 | Heating Element | EACH | £226.28 |



Aquatron® Water Still

Aquatron Water Stills offer you an unbeatable combination of elegant styling, high purity, versatility and ease of use - designed to ensure problem-free distillation. The latest Aquatron models feature an updated electrical specification and improved safety cut-out devices.

NB: No 13amp plug supplied, needs hardwire connection direct to electricity system.



| Cat No. | Model | Output | Distillation | Quantity | Price |
|-------------|--------|---------|--------------|----------|----------|
| WPU 050 010 | A4000 | 4L/Hour | Single | EACH | £2646.00 |
| WPU 050 020 | A8000 | 8L/Hour | Single | EACH | £4120.00 |
| WPU 050 030 | A4000D | 4L/Hour | Double | EACH | £4120.00 |



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679 - 711



| | |
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| Cleaning | 680 |
| First Aid | 684 |
| PPE | 687 |
| Signage | 690 |

| | |
|----------------------|-----|
| Spillage | 669 |
| Storage | 705 |
| Waste Disposal | 711 |

Cleaning

Towels

GENERAL

Paper Towels

Barrel roll / centrefeed wipes.



| Cat No. | Colour | Size | Sheets Per Roll | Quantity | Price | |
|--------------------------|--------|-----------------------------------|-----------------|-------------|----------|-------|
| WYPALL L10, 1 Ply | | | | | | |
| PPR 240 010 | Blue | 20.6 x 38cm | 600 | PK6 | £32.99 | |
| PPR 240 020 | White | 20.6 x 38cm | 600 | PK6 | £32.99 | |
| WYPALL L30, 2 Ply | | | | | | |
| PPR 270 010 | Blue | 20.5 x 38cm | 300 | PK6 | £77.99 | |
| PPR 270 020 | White | 20.5 x 38cm | 300 | PK6 | £49.99 | |
| PPR 280 010 | Blue | 51 x 46cm | 82 | PK12 | £129.99 | |
| PPR 280 020 | Blue | 24 x 86cm | 82 | PK24 | £124.99 | |
| Accessories | | | | Description | Quantity | Price |
| PPR 100 500 | | Dispenser for Kimwipe barrel roll | | EACH | £42.00 | |

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Paper Hand Towels

Approx. 150 sheets per pack.

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------|----------|--------|
| PPR 220 013 | Paper Hand Towels | PACK | £1.99 |
| PPR 220 500 | Paper Towel Dispenser | EACH | £22.15 |



Kleenex® Tissues

Kleenex facial tissues, 2 ply, white.Ú
Size: 20 x 21cm (100 sheets per box).

| Cat No. | Description | Quantity | Price |
|-------------|-----------------|----------|-------|
| PPR 130 010 | Kleenex Tissues | EACH | £2.50 |



Kimtech Science Delicate Task Wipes

A range of high-performance wipes, suitable for laboratory environments. Ideal for: cleaning of delicate glassware, instruments and surface/parts; wiping liquids, with multi-ply absorbency and low lint content for intricate dusting. Dispensed from a pop-up box system, giving controlled access to hygienically protected wipes when you're cleaning or wiping on the move.

Please note: These are dry (not wet) wipes.

Size: 21 x 20cm
100 Sheets per box

| Cat No. | Description | Quantity | Price |
|-------------|---------------------|----------|-------|
| PPR 070 011 | Delicate Task Wipes | EACH | £2.86 |



Kimcare® Medical Wipes

These Medical Wipes offer a unique combination of low-lint soft tissue with multi-ply absorbency that is ideal for a multitude of tasks.
Size: 21 x 11cm
Each box contains 80 wipes.

| Cat No. | Description | Quantity | Price |
|-------------|------------------------|----------|-------|
| PPR 050 011 | Kimcare® Medical Wipes | EACH | £1.49 |





70% Alcohol Hand Sanitising Gel

70% Alcohol Antibacterial Hand Sanitiser Gel (v/v Isopropyl alcohol) with moisturiser. 70% Alcohol Hand Gel kills 99.9% of germs in less than 30 seconds & is a rapid broad spectrum biocide used by professionals. Economical in use - each 500ml pump gives approx 150 applications.

Passes EN1500, EN1040, EN1275

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|------------|
| CLN 600 010 | 70% Alcohol Hand Sanitising Gel | 500ML | POA |



Tufanega (Swarfega) Hand Cleanser

- Effective cleaning action
- Leaves hands clean & fresh
- Removes oils, greases & grime

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| CLN 080 010 | Tufanega Hand Cleanser | KG | £9.62 |

Gojo® Forestberry Foam Hand Wash

Spa inspired foam hand soap offers luxurious lather and a pleasant botanical fragrance with a vibrant green colour. Enriched with moisturisers, natural extracts and skin conditioners. Delights users while supporting a healthy environment. 1250ml.



ADX-12™ Dispenser

Ideal for high traffic areas. Large sight window, skylight and crystal clear refill bottles make it easy to check fill status. Converts to a locking dispenser at any time by simply removing the key from inside the dispenser.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|------------|
| HYG 700 011 | Foam Hand Wash | EACH | POA |
| Accessories | | Quantity | Price |
| HYG 700 501 | ADX-12™ Dispenser | EACH | POA |

Purell® Advanced Hygienic Hand Rub

An unprecedented combination. Combining both antimicrobial efficacy and clinically proven maintenance of skin health. PURELL® ADVANCED spearheads a total hand hygiene system that promotes infection control by maximising compliance. A gel that feels great to use with exceptional antimicrobial efficacy. 1200ml.



ADX-12™ Dispenser, White

High capacity 1200ml PURELL® dispenser is ideal for high traffic areas. Large sight window, skylight and crystal clear refill bottles make it easy to check fill status. Converts to a locking dispenser at any time by simply removing the key from inside the dispenser.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|------------|
| HYG 710 011 | Hygienic Hand Rub | EACH | POA |

Gojo® HAND MEDIC® Professional Skin Conditioner

Specifically formulated for professional technicians for use in their work environments. Quickly absorbs, with no greasy after feel. Use before work, after hand washing and at night to help maintain the skin's natural protective barrier. Silicone and fragrance free.

HAND MEDIC® Dispenser

500ml bag-in-box dispenser designed for exclusive use with GOJO HAND MEDIC.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|------------|
| HYG 720 011 | Professional Skin Conditioner | 500ML | POA |



Cleaning

Detergents

GENERAL

Decon 90

Decon 90

The leading surface active cleaning agent / radioactive decontaminant, for laboratory applications. DECON 90 is biodegradable, phosphate-free, non-flammable and totally rinsable. Supplied as a liquid concentrate, for dilution with water, for cleaning by hand or for use in an ultrasonic cleaning bath.

Applications

For the safe and total cleaning and/or decontamination of glassware, ceramics, plastics (NOT polycarbonate), rubbers, stainless steel and ferrous metals.

NB: Being alkaline, DECON 90 is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).

Decomatic

A liquid surface active cleaning agent / decontaminant, specially formulated for use in automatic glassware washing machines, for laboratory applications. DECOMATIC is biodegradable, phosphate-free, non-foaming, non-flammable and totally rinsable. Supplied as a liquid concentrate for use in automatic glassware washing machines. May also be used as a pre-soak solution, prior to machine cleaning.

Applications

DECOMATIC is safe and effective for cleaning/decontaminating glassware, ceramics, plastics (NOT polycarbonate), rubbers, stainless steel and ferrous metals.

NB: Being alkaline, DECOMATIC is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).

Decon Acid Rinse

A highly effective acid rinse (neutraliser) and/or preliminary cleaner (prewash), for use in automatic glassware washing machines, for laboratory applications. DECON ACID RINSE is biodegradable, nonfoaming, non-flammable and totally rinsable. Supplied as a liquid concentrate, for use in automatic glassware washing machines, in conjunction with a 'main wash detergent' (see DECOMATIC).

Applications

DECON ACID RINSE is safe and effective for use on glassware, ceramics, plastics, rubbers, stainless steel and ferrous metals.

NB: Being acidic, DECON ACID RINSE is **NOT** suitable for use on non-ferrous metals, notably aluminium and zinc (see NEUTRACON).

Decon Neutracon

A specialised surface active cleaning agent / decontaminant, for use on materials which may be corroded, etched, discoloured or weakened by acidic or alkaline cleaning agents. NEUTRACON is biodegradable, phosphate-free, non-corrosive, nonflammable and totally rinsable. Supplied as a viscous liquid concentrate for dilution with water, for cleaning by hand or for use in an ultrasonic cleaning bath.

Applications

NEUTRACON has been specially formulated for cleaning non-ferrous metals such as aluminium, zinc, copper, etc, 'soft' or coated glass, polymers and other sensitive materials. May also be used for cleaning glassware, ceramics, plastics, rubbers, stainless steel and ferrous metals.



CLN 010 020



CLN 030 010



CLN 040 010



CLN 050 020

DATA LOGGING

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SAFETY

| Cat No. | Description | Quantity | Price |
|-------------|------------------|----------|--------|
| CLN 010 010 | Decon 90 | LTR | £12.89 |
| CLN 010 020 | Decon 90 | 5LTR | £44.00 |
| CLN 030 010 | Decomatic | 5LTR | £26.47 |
| CLN 030 020 | Decomatic | 10LTR | £50.88 |
| CLN 040 010 | Decon Acid Rinse | 5LTR | £54.33 |
| CLN 050 010 | Neutracon | LTR | £8.55 |
| CLN 050 020 | Neutracon | 5LTR | £35.69 |





D ContaminEx

Concentrated hard surface cleaning agent & radioactive decontaminant:

- Fast Rinsing
- Biodegradable
- Non-Flammable
- Phosphate Free
- Tap (potable) or demineralised water compatible
- Safe with warm water and/or ultrasonic bath
- Dilutable For laboratory use.

| Cat No. | Description | Quantity | Price |
|--------------------|--------------|----------|---------------|
| CLN 300 010 | D ContaminEx | 5LTR | £30.28 |



Virkon Virucidal Disinfectant

An easy-to-use wide spectrum disinfectant which has been proven, in independent tests, to be effective against all 17 virus families affecting man and animals, including AIDS (HIV) and Hepatitis B.

- Excellent bactericide and fungicide
- Can be applied in powder form, direct to spillages of blood and other body fluids
- Easily dissolves to make an inexpensive liquid disinfectant
- Non-corrosive, non-bleaching, bio-degradable
- Use 1% solution

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|----------------|
| CLN 140 011 | 50g Sachet | EACH | £2.99 |
| CLN 140 020 | Squeeze Puff Pack | 500GM | £19.99 |
| CLN 140 030 | Drum | 5KG | £129.99 |



SciChem Hard Surface Wipes

70% Isopropyl alcohol (IPA) Impregnated Wipes. Kill 99.9% Germs in 30 Seconds on all hard surfaces. Effective against all Food Poisoning Bacteria, MRSA, E.coli & a wide range of other micro-organisms.

Avoid prolonged use on clear plastics. Foil Sealed tubs for extended shelf life.

Wipe dimensions: 200 x 200mm

Available in White and Blue

200 wipes per dispenser; 12 dispensers per case

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|------------|
| HYG 050 011 | White | CS12 | POA |
| HYG 050 021 | Blue | CS12 | POA |

Bactericidal Wipes

For disinfection of surfaces using wipes impregnated with 70% w/v denatured ethanol B and chlorhexidine digluconate.

Dispenser tub of 160 wipes.

Size: 200 x 200mm



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|--------------|
| HYG 030 010 | Bactericidal Wipes | PK160 | £5.99 |



First Aid

GENERAL

First Aid Kit

Contained with a high impact plastic box.
Wall bracket for 20 & 50 person kits is available on request.



| | 10 Person | 20 Person | 50 Person |
|---------------------------------------|-----------|-----------|-----------|
| Blue Assorted Plasters | 20 | 40 | 60 |
| HSE Medium Dressings (12x12cm) | 6 | 9 | 12 |
| Large Dressing (18x18cm) | 2 | 3 | 4 |
| Sterile Eye Pads | 2 | 4 | 6 |
| Triangular Bandages | 4 | 6 | 8 |
| Alcohol Free Cleansing Wipes | 6 | 10 | 20 |
| Blue Disposable Gloves (Pair) | 1 | 2 | 3 |
| Safety Pins | 6 | 12 | 12 |
| First Aid Guidance Leaflet | 1 | 1 | 1 |

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| SFA 540 020 | 10 Person | EACH | £12.99 |
| SFA 540 030 | 20 Person | EACH | £18.44 |
| SFA 540 040 | 50 Person | EACH | £29.61 |
| Accessories | Description | Quantity | £29.61 |
| SFA 350 500 | Refill 10 person | EACH | £8.12 |
| SFA 350 510 | Refill 20 person | EACH | £13.37 |
| SFA 350 520 | Refill 50 person | EACH | £19.62 |

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2 in 1 First Aid Kit

The 2 in 1 First Aid kit is packed full of content. Being multi-purpose, it has been designed to deal with a variety of accidents. A handy grab & go section means you don't have to take the full kit with you. Individually zipped compartments keep the contents dry, and enable the user to easily locate the right product.

Features:

- Multi-Purpose
- Removable Grab & Go Section
- Wall Mountable (open is highly visual)
- Individually zipped transparent sections

Main Kit Contents

- 1x Blue Dot Crepe Bandage, 7.5cm x 4.5m
- 1x Blue Dot Conforming Bandage, 7.5cm x 4.5m
- 1x Blue Dot Conforming Bandage, 5cm x 4.5m
- 1x Blue Dot P E Tape, 2.5cm x 10m
- 1x Pharmatull Paraffin Gauze Dressing, 10 x 10cm
- 1x Advapore Self-Adhesive Wound Dressing, 7.5 x 10cm
- 4x Blue Dot Sterile Saline Wipes
- 1x Bag of 20 Blue Dot Fabric Assorted Plasters
- 2x Advapore Self-Adhesive Wound Dressings, 5 x 7.5cm
- 1x Blue Dot Finger Dressing, 3.5 x 3.5cm
- 1x Blue Dot Emergency Thermal Blanket, 204 x 140cm
- 3x Packs of 3 Blue Dot Childrens Plasters, 7 x 2cm
- 1x Blue Dot Eye Pad & Bandage, Looped
- 1x Pack of 5 Rociale Sterile Cotton Wool Balls BP
- 1x MyWipe Insect Repellent Citrepele 75 Wipes
- 1x Easy Ice Disposable Instant Ice Pack
- 1x Pack of 10 Blue Dot Double Ended Cotton Buds, 7cm
- Pair of Tuff Cut Scissors Small With Black Handle, 6"
- Pair of Green Plastic Tweezers
- 1x 20ml Sterile Emergency Eye Wash Pod



Grab & Go Section Contents

- 1x Blue Dot First-Aid Guidance Leaflet
- 1x Blue Dot Non-Woven Triangular Bandage, 90 x 90 x 127cm
- 1x Blue Dot Eye Pad & Bandage, Looped
- 1x Blue Dot Finger Dressing, 3.5 x 3.5cm
- 1x Bag of 10 Blue Dot Fabric Assorted Plasters
- Pair of Blue Dot Large Vinyl Powder-Free Gloves
- 1x MyWipe Insect Repellent Citrepele 75 Wipes
- 2x Blue Dot Sterile Saline Wipes
- 2x Advapore Self-Adhesive Wound Dressings, 5 x 7.5cm
- 1x Pharmatull Paraffin Gauze Dressing, 5 x 5cm
- 1x Pack of 5 Blue Dot Skin Closures, 75 x 3mm
- 1x Blue Dot Medium Flow Wrapped Dressing, 12 x 12cm
- 1x 20ml Sterile Emergency Eye Wash Pod
- 1x Pack of 6 Safety Pins

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| SFA 700 010 | 2 in 1 First Aid Kit | EACH | £23.00 |





Emergency Burn Kit

- Supplied in a translucent, red, compartmentalised box
- Cools, soothes and helps relieve pain

Contents:

- 1x Burn Dressing, 20cm x 2cm
- 2x Burn Dressings, 10cm x 10cm
- 2x Low adherent dressing, 10cm x 10cm
- 1x Low adherent dressing, 10cm x 20cm
- 8x Burn blott sachets
- 5x Eyewash pods
- 1x Crepe bandage, 10cm x 4.5m
- 2x Conforming bandages, 7.5cm x 4.5m
- 2x Pairs vinyl gloves
- 1x Microporous tape
- 1x Scissors

| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| SFA 530 010 | Emergency Burn Kit | EACH | £26.28 |

Plasters

Supplied in packs of assorted sizes.



| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SFA 550 011 | Washproof | PK100 | £3.48 |
| SFA 550 021 | Elastic | PK100 | £4.32 |

Fire Blanket - The POD

Single piece design for long lasting service with no endcaps to lose and a hinged lid for easy extraction.

Manufactured to BSEN 1869:1997 and kitemarked.



| Cat No. | Size | Quantity | Price |
|--------------------|-------------|----------|---------------|
| SAF 100 010 | 100 x 100cm | EACH | £14.32 |
| SAF 100 020 | 120 x 120cm | EACH | £16.04 |
| SAF 100 030 | 120 x 180cm | EACH | £30.80 |



Emergency Foil Blanket

Easy-to-use protective sheet to minimise loss of body heat.
Size: 204 x 140cm

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|--------------|
| SFA 430 010 | Emergency Foil Blanket | EACH | £1.03 |

Cotton Wool Buds

Single Ended Buds

These are made from 15cm splinter resistant wooden sticks with good tensile strength, and with a generous tip of absorbent cotton wool. Supplied in a re-sealable polythene bag.



Double Ended Buds

Made from plastic sticks with a generous tip of absorbent cotton wool at each end. Supplied in a re-sealable polythene bag.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------------|----------|--------------|
| COT 030 010 | Single Ended Buds | PK100 | £1.92 |
| COT 030 024 | Double Ended Cotton Wool Buds | PK200 | £1.14 |

Injury Packs

Great for fast response, especially to sports injuries.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|--------------|
| SFA 560 010 | Disposable Instant Ice Pack | EACH | £0.91 |
| SFA 560 020 | Reusable Hot & Cold Pack | EACH | £2.71 |

Cotton Wool

500g approx.



| Cat No. | Description | Quantity | Price |
|--------------------|--------------------|----------|---------------|
| COT 020 020 | Cotton Wool | PK | £5.67 |
| COT 020 010 | Non Absorbent Roll | PK | £16.47 |



First Aid

Eye Wash

GENERAL

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Eye Wash Station

This eye wash station comes complete with 2 x 500ml sterile saline solutions and a built in mirror.



Eye Care Pod Station

Highly visible, hard wearing, wall fixing with display board giving instruction on use. Includes 8 Eye Wash Pods and 2 No.16 Sterile Eye Pads.

Eye Wash Pods

Sterile, Single use emergency eye wash solution for ocular, topical irrigation and wound cleansing. Ready to use, twist off top for ease of use.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|---------------|
| SFA 400 010 | Eye Wash Station | EACH | £16.10 |
| Accessories | Description | Quantity | £2.37 |
| SFA 390 500 | Eye Wash | 500ML | £2.37 |

| Cat No. | Description | Quantity | Price |
|--------------------|----------------------|----------|---------------|
| SFA 570 011 | Eye Care Pod Station | EACH | £16.10 |
| Accessories | Description | Quantity | £9.66 |
| SFA 380 012 | Eye Wash Pods, 20ml | PK25 | £9.66 |

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B-Brand Boston Spectacles

- Wraparound clear visitors spectacle
- Polycarbonate lens
- Ventilated side arms
- Low impact and 99.9% UV protected

Width 157mm

Conform to EN166 - Optical Class:1, F (Low impact energy at extreme temperatures) ANSI Z87.1.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|------------|
| SAM 065 011 | B-Brand Boston Spectacles | PAIR | POA |



Kansas Anti-Mist Safety Spectacles

Economical stylish nylon frame with integral browguard. Wrap around polycarbonate lens, integral side shields with adjustable arm length settings for increased wearer comfort. Safety and style at an affordable price. Approved to EN166 1F.

| Cat No. | Description | Quantity | Price |
|--------------------|--|----------|------------|
| SAM 065 031 | B-Brand Kansas Anti-Mist Safety Spectacles | PAIR | POA |



Junior Eyeshield

Univet children's clear lens safety spectacles.

| Cat No. | Description | Quantity | Price |
|--------------------|------------------|----------|------------|
| SAM 345 021 | Junior Eyeshield | EACH | POA |



Contour Safety Spectacles

The Contour weighs in at an incredibly lightweight 21g, making it one of the lightest safety eyeshields ever made, which is due to Bollé's use of advanced material technology combined with their design and manufacturing expertise. The Bollé design team have also made sure that the style and bronze frame appeal to everyone and provides all wearers with market leading levels of fit, comfort and protection. Although the Contour is extremely lightweight it is fully approved to the highest European safety standards and also incorporates the unique Bollé lens expertise guaranteeing class 1 optical performance and quality. The polycarbonate lens design ensures an exceptional field of view of over 180° combined with high performance anti scratch and anti fog coatings as standard. Available in either clear or ESP lens. Tested and approved to CE standard EN 166/170/172 1F.

| Cat No. | Lens Type | Quantity | Price |
|--------------------|-----------|----------|--------------|
| SAM 350 010 | Clear | EACH | £7.71 |
| SAM 350 020 | ESP | EACH | £8.74 |



PPE

Safety Spectacles

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Portland Spectacles

Wrap around spectacle. Scratch resistant lens. Adjustable side arms. Low impact and 99.9% UV protected Nylon frame. Conforms to EN166.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|------------|
| SAM 290 011 | Protostar Safety Spectacles | PAIR | POA |



Bandido Safety Spectacles

Ultra lightweight, sports style wrap that provides the wearer with comfort and a panoramic field of view at a very competitive price. Market leading, optical class 1 anti-scratch/anti-fog polycarbonate lens with integrated side shields as standard. Tested and approved to CE standard EN 166 1F. Now with free sports cord. Crystal frame.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SAM 330 010 | Bandido | EACH | £4.99 |



Targa II Safety Spectacles

New improved design of this modern, lightweight, stylish, close fitting eye shield offers the wearer increased protection and comfort. The optical class 1 anti scratch/anti fog polycarbonate lens provides an excellent field of view. The temples now adjust for both length and angle and also feature Bollé's new integrated 'Tip Grip' system for improved fit. Tested and approved to CE standard EN166 1F. Yellow frame.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SAM 340 010 | Targa II | EACH | £8.75 |



Adult Visiteur Eyseshield

Lightweight (36g) onepiece optical class 1 polycarbonate lens with integral brow guard and side shields. Will fit over most prescription spectacles. Tested and approved to CE standard EN166 1F.

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------|----------|--------------|
| SAM 345 010 | Adult Visiteur Eyseshield | EACH | £3.73 |



Viper Safety Spectacles

Ultra modern, ultra lightweight, sports style wrap providing ultra close fitting protection with panoramic vision. Fitted with an optical class 1 polycarbonate lens, with a choice of lens coatings, the Viper also has adjustable side arms and integral side shields.

Clear anti-scratch/anti-fog coating. Tested and approved to CE standard EN166 1F. Blue frame.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SAM 335 010 | Viper | EACH | £6.70 |



Bollé Silium Spectacles

Bollé safety, the creators of safety eyewear have designed the Silium eyeshield in a distinctively modern technologically advanced style. The pure curves of the metal frame offer a design that is sleek and attractive while providing the wearer with optimal protection and panoramic vision. Fitted with an optical class 1 anti-scratch/anti-fog polycarbonate lens, the Silium also has integrated side shields, flexible temples, soft adjustable nose pads and Bollé's 'Tip Grip' system for improved fit. Available with a clear or smoke lens. Tested and approved to CE EN166/170/172 1F.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|--------------|
| SAM 325 010 | Silium Spectacles | EACH | £8.23 |





Axis Safety Spectacles

With its athletic styling, wrap-around protection and integrated side shields it provides the wearer with the ultimate in safety. Fitted with a panoramic optical class 1 polycarbonate lens, with a choice of lens coatings, the Axis also has unique soft adjustable nose pads and pivoting temples, which are co-injected for improved fit and comfort. Tested and approved to CE standard EN166 1F. Crystal frame.

| Cat No. | Lens Type | Quantity | Price |
|--------------------|-----------|----------|--------------|
| SAM 320 010 | Clear | EACH | £7.96 |
| SAM 320 020 | Contrast | EACH | £8.61 |



B-Line Safety Spectacles

An economical safety spectacle offering impact protection with a clear, anti-scratch, polycarbonate lens.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SAM 360 010 | B-Line | EACH | £3.40 |

Economy Goggles

General Purpose Goggle

- Polycarbonate lens with PVC frame
- Comfortable and lightweight
- Direct vent
- Optical class 1, Impact B (medium Energy), Conforms to ANSI Z87.1
- Conform to EN166 - Optical Class:1, B (Medium impact energy at extreme temperatures)
- Fields of use: - 3 Liquids

Chemical Goggle

- Polycarbonate lens with PVC frame
- Comfortable and lightweight
- Indirect vent
- Conform to EN166 - Optical Class:1, B (Medium impact energy at extreme temperatures)
- Fields of use: - 3 Liquids



SAP 010 011



SAP 010 021

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|------------|
| SAP 010 011 | General Purpose Goggles | PAIR | POA |
| SAP 010 021 | Chemical Goggles | PAIR | POA |



PPE

Safety Goggles

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SAFETY



Coverall Goggles

The Coverall goggle with clear vision lenses, offers protection against impact, dust particles, molten metal and hot solids. They feature anti static and anti fog coatings and come with an adjustable strap. Has a PVC frame and a polycarbonate lens. They are suitable for wearing over prescription glasses. Supplied with 4 indirect ventilations or sealed. Tested and approved to EN166-1B-349T CE.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|--------------|
| SAP 170 010 | Ventilated | EACH | £5.65 |
| SAP 170 020 | Sealed | EACH | £6.89 |



Blast Goggle

The unique shape of the goggle ensures a perfect fit with all respirators and with the face providing maximum comfort and protection, it has also been designed to fit over prescription spectacles. Fitted with a wide adjustable headband and an optical class 1 anti-scratch and anti-fog polycarbonate lens, the Blast goggle provides protection against impact, chemicals, dust, gas and molten metal. Available in sealed and foam versions. Tested and approved to EN 166 1B3459 CE (depending on version).

Face Guard

Fits to all versions of the Blast goggle and when combined serves the same purpose as a visor but provides even more protection for the wearer's eyes. Tested and approved to EN 166 B.

| Cat No. | Description | Quantity | Price | |
|--------------------|------------------------------|-------------|---------------|-------|
| SAP 130 010 | Sealed Frame | EACH | £9.89 | |
| SAP 130 020 | Vented Frame/Foam Seal | EACH | £11.90 | |
| Accessories | | Description | Quantity | Price |
| SAP 130 500 | Face Guard for Blast Goggles | EACH | £6.47 | |



B-Line Goggles

These safety goggles with ventilated crystal PVC frame and clear polycarbonate lens offer impact protection.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|--------------|
| SAP 180 010 | B-Line Goggles | EACH | £1.99 |



Junior Safety Goggles

Polycarbonate lens and body offer protection against medium energy high-speed particles at 120 m/s (270 mph). The optical qualities of the lens comply with the requirements of optical class 1. EN 166 1.B.3.4

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|------------|
| SAP 120 010 | Junior Safety Goggles | EACH | POA |





Clearways Browguard

Browguard with elastic headband. Safe, practical, economical. The integral visor fitting ensures extra protection against chemicals. The Clearways combination offers both strength and durability. Light weight, it is comfortable enough to wear all day.

NB: Visor must be purchased separately.

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------------|-------------|------------|-------|
| SAT 020 010 | Browguard with Headband | EACH | POA | |
| Accessories | | Description | Quantity | Price |
| SAT 024 020 | 200mm Clear Acetate Visor | EACH | POA | |
| SAT 024 030 | 200mm Clear Polycarbonate Visor | EACH | POA | |

bolle
SAFETY



B Line Face Shield

This complete face shield with browguard and clear polycarbonate visor offers impact protection. Lightweight and economical. Fully adjustable.

| Cat No. | Description | Quantity | Price | |
|--------------------|---------------------------|-------------|--------------|-------|
| SAT 050 010 | B Line Face Shield | EACH | £7.56 | |
| Accessories | | Description | Quantity | Price |
| SAT 050 500 | Spare Polycarbonate Visor | EACH | £3.59 | |

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PPE

Safety Spectacle Holders

GENERAL



Safety Spectacle Holder

Made of heavy duty PVC with 4 reinforced hanging holes at the top and supplied with 4 over door type hooks, this safety spectacle holder will cleanly and tidily store 30 pairs. Each pocket measures 9cm x 6cm at the opening and is 18cm deep. In addition each row of pockets has a dust flap over the top.
Size: 52 x 140cm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| SAY 065 010 | Safety Spectacle Holder | EACH | £20.59 |

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Goggle Bag

Protects and increases the life span of all goggles. It is made of nylon with a drawstring closure.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|------------|
| SAY 050 010 | Goggle Bag | EACH | POA |



Spectacle Case

Protect and increase the life span of spectacles. Made from soft vinyl with a stud fastening closure.

| Cat No. | Description | Quantity | Price |
|--------------------|----------------|----------|------------|
| SAY 010 011 | Spectacle Case | EACH | POA |



Eyewear Accessories

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|--------------|
| SAY 070 010 | Microfibre Bag for Spectacles | EACH | £1.45 |
| SAY 070 020 | Microfibre Bag for Goggles | EACH | £2.37 |
| SAY 070 030 | Polyester Banana Spectacle Case | EACH | £3.62 |

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Disposable Aprons

- White colour
- Halter neck and ties around the waist
- Bacteria and fluid penetration resistant
- Aprons measure 42" x 27" (107x69mm) approx.

| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|------------|
| SAC 130 013 | White | PK1000 | POA |

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PPE

Gloves - Nitrile

GENERAL

Changes to the PPE regulations, what does it mean for gloves?

- You will be aware that changes to the PPE regulations have come into force, which include the markings on gloves.
- It is our understanding that the sale of gloves classified and labelled under the previous directive that have been placed on the market before 21st April 2019 can continue to be sold until 21st April 2023. This means you may be supplied with gloves with the older markings until 2023 or until stocks are depleted, whichever comes sooner.
- Some manufacturers have already moved over to the new markings and more will do so as stocks reduce.
- Please continue to refer to CLEAPSS or SSERC guidance regarding the suitability of gloves for use in Science laboratories and prep rooms.



PPE REGULATIONS

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Nitrile Touch & Tuff Gloves

Enhanced splash protection against a wide array of chemicals. Very comfortable soft nitrile formulation for increased comfort. Silicone free. Antistatic according to EN1149.

Ansell Edmont



| Cat No. | Size | Quantity | Price |
|-------------------------|---------|----------|------------|
| Powder Free | | | |
| SAH 140 011 | Small | PK100 | POA |
| SAH 140 021 | Medium | PK100 | POA |
| SAH 140 031 | Large | PK100 | POA |
| Lightly Powdered | | | |
| SAH 150 011 | Small | PK100 | POA |
| SAH 150 021 | Medium | PK100 | POA |
| SAH 150 031 | Large | PK100 | POA |
| SAH 150 041 | X Large | PK100 | POA |

Nitrile Disposable Gloves

- Powder Free blue Nitrile Gloves
- CE category III
- CE class I examination glove
- Specially developed formulation and innovative production process
- Excellent elasticity for comfort
- Tested and certified according to 1935/2004 - suitable for food contact
- Free from phthalates/softeners and allergenic latex proteins
- Textured fingers
- Medical device class 1, AQL 1.5, EN420: 2003 +A1:2009, EN 374-2:2003, EN 374-3: 2003, EN455, EN 388: 2003



| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAH 320 011 | Small | PK100 | POA |
| SAH 320 021 | Medium | PK100 | POA |
| SAH 320 031 | Large | PK100 | POA |
| SAH 320 041 | X Large | PK100 | POA |

Purple Nitrile™ Gloves



Kimberly-Clark

- Powder free nitrile
 - Textured finger tips for improved grip
 - Latex free for individuals sensitised to latex protein
 - Low in chemicals and chemical contact sensitisers
 - Tested for permeation to ten chemotherapy drugs and 4% glutaraldehyde
 - Ideal for procedures requiring grip and tactile sensitivity, where optimum barrier protection is required in wet and dry conditions.
- Length 242 mm



| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAH 220 010 | X Small | PK100 | POA |
| SAH 220 020 | Small | PK100 | POA |
| SAH 220 030 | Medium | PK100 | POA |
| SAH 220 040 | Large | PK100 | POA |

SHIELDskin CHEM™ Gloves

SHIELDskin CHEM™ safety gloves offer a level of compliance, comfort and protection that has never before been achieved. SHIELDskin CHEM™ gloves have been specially designed for laboratory use and to protect you from chemical hazards.

Features:

- Category III PPE gloves
- Nitrile glove with a blend of Polychloroprene - Powder Free
- Offer protection against chemical, micro-biological and mechanical hazards
- Ambidextrous - Textured finger tips
- Maximum comfort by virtue of the Skin Nitrile™ technology
- Double protection afforded by the twinSHIELD™ technology
- Compliance with the latest European standards
- Extensively tested for chemical permeation according to EN16523-1:2015 (supersedes EN374-3)
- Latex free

| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAH 400 010 | Small | PK40 | POA |
| SAH 400 020 | Medium | PK40 | POA |
| SAH 400 030 | Large | PK40 | POA |



Latex Disposable Gloves

- Disposable gloves
- Allows touch sensitive work to be carried out with ease
- Ambidextrous
- Easy to pull on beaded cuff
- EN455-1 (ALQ - 1.5)
- Minimal Risk
- Pre Powdered



| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAH 120 011 | Small | PK100 | POA |
| SAH 120 021 | Medium | PK100 | POA |
| SAH 120 031 | Large | PK100 | POA |

Natural Latex Gloves

Ambidextrous natural latex disposable gloves.

- Natural colour
- Non-sterile
- Powder free
- CE marked.



| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAH 270 041 | Small | PK100 | POA |
| SAH 270 051 | Medium | PK100 | POA |
| SAH 270 061 | Large | PK100 | POA |
| SAH 270 072 | X Large | PK100 | POA |



Polyvinyl Gloves

Latex free disposable gloves. Ambidextrous, powder-free, non-sterile polyvinyl gloves. Length 240mm. CE marked.

| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAH 260 011 | Small | PK100 | POA |
| SAH 260 021 | Medium | PK100 | POA |
| SAH 260 031 | Large | PK100 | POA |
| SAH 260 041 | X Large | PK100 | POA |



Polythene Gloves

These disposable, polythene, ambidextrous, un-powdered gloves provide adequate covering for light work. Non sterile.

| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAH 110 010 | Small | PK100 | POA |
| SAH 110 020 | Medium | PK100 | POA |
| SAH 110 030 | Large | PK100 | POA |

Rubber Gloves

- Manufactured from natural rubber latex
- Cotton flock lined
- Flexible and comfortable to wear
- Offers a high degree of sensitivity
- Suitable for food handling
- Minimal risk



| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAJ 025 021 | Small | EACH | POA |
| SAJ 025 041 | X Large | EACH | POA |

Rubber Gloves

- Manufactured from natural rubber latex
- Cotton flock lined
- Flexible and comfortable to wear
- Offers a high degree of sensitivity
- Suitable for food handling
- Minimal risk



| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAJ 030 011 | Small | EACH | POA |
| SAJ 030 021 | Medium | EACH | POA |
| SAJ 030 031 | Large | EACH | POA |



PPE

Gloves - Heavyweight

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Rubber Bi-Colour Gloves

- Heavy weight rubber glove
- Withstands repeated rubbing and scuffing
- Neoprene blended natural latex
- Offers sensitivity and comfort
- Remains flexible and wearer friendly throughout the life of the product
- Resistant to some chemicals and acids
- EN388: 2003
- Level 2 - Abrasion; Level 0 - Cut Resistance; Level 1 - Tear Resistance; Level 0 - Puncture
- EN 374-2: 2003
- EN 374-3: 2003

| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAJ 015 022 | Medium | PK10 | POA |
| SAJ 015 041 | Large | PK10 | POA |



Nitrile Gauntlets

- Unsupported nitrile glove
- Flocklined
- Overall Length 31.5cm
- A high level of resistance to abrasion, solvents and animal fats
- Embossed pattern to palm
- Silicon and wax free
- EN388: 2003, Level 4 - Abrasion, Level 0 - Cut

| Cat No. | Size | Quantity | Price |
|--------------------|---------|----------|------------|
| SAH 330 011 | Small | EACH | POA |
| SAH 330 021 | Medium | EACH | POA |
| SAH 330 031 | Large | EACH | POA |
| SAH 330 041 | X Large | EACH | POA |

Ansell Edmont



'Crusader Flex' Heat Protection Gloves

- Nitrile dip coating on a felt liner
- Superior heat resistance
- Heat protective coating that extends the entire length of the glove, both front and back
- Hard wearing
- Designed for intermittent handling of medium to hot objects up to 200°C.
- Excellent grip.
- Length: 330mm

| Cat No. | Size | Quantity | Price |
|--------------------|------|----------|------------|
| SAJ 150 010 | 9 | PR | POA |
| SAJ 150 020 | 10 | PR | POA |



Micro Foam Nitrile Gloves

- Kutstop system
- Cut 5 green highest cut protection
- 15g HPPE plus fibre and spandex liner
- Black nitrile coated palm
- Excellent dexterity and comfort
- Ideal for the construction industry, automotive industry, electrical industry and handling glass or sheet metal
- Conforms to EN388:2003 - 4,5,4,4

| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|------------|
| SAJ 230 011 | Small | EACH | POA |
| SAJ 240 011 | Medium | EACH | POA |





PVC Coated Knitwrist Gloves

Fully coated pvc glove. Stockinette liner. Elasticated cuff. EN388: 2003, Level 3 - Abrasion, Level 1 - Cut Resistance, Level 1 - Tear Resistance, Level 1 - Puncture.

| Cat No. | Size | Quantity | Price |
|-------------|--------|----------|-------|
| SAJ 340 011 | Medium | EACH | POA |



Rubber Gripper

The Rubber Gripper allows you to safely hold hot beakers in your hand. One size fits all.

| Cat No. | Description | Quantity | Price |
|-------------|----------------|----------|--------|
| SAJ 370 010 | Rubber Gripper | EACH | £13.91 |

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PPE

Masks | Laboratory Coats

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Economy Dust Respirator Masks

- Fibreglass free
- Odourless shell
- Low breathing resistance and non-irritating to the skin
- Soft flexible nosepiece permits individual facial adjustment
- Nuisance masks are not CE marked

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|------------|
| SAR 140 011 | Dust Masks | PK50 | POA |



Dust Respirator Masks

The lightweight 8710E provides comfortable, effective respiratory protection against fine dusts. The convex shape twin-strap design and nose-clip ensure a good fit over a wide range of face sizes. EN149 FFP1S Particulates: Assigned protection factor; 4 x OEL (NPF 4 x OEL)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------|----------|------------|
| SAR 010 021 | Dust Masks | PK20 | POA |



Valved Dust Respirator Masks

The valved 8812 provides comfortable, effective respiratory protection against fine dusts. The convex shape and 3M Cool Flow valve reduce heat build-up to offer comfortable protection particularly in hot and humid conditions.

EN149 FFP1S

Particulates: Assigned protection factor: 4 x OEL (NPF 4 x OEL)

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------|----------|------------|
| SAR 010 041 | Valved Dust Masks | PK10 | POA |



Dust/Mist Respirator Masks

The lightweight 3M 8810 provides comfortable, effective respiratory protection against fine dusts and water-based mists. The convex shape, twin-strap design and noseclip ensure a good fit over a wide range of face sizes.

EN149 FFP2S.

Particulates: Assigned protection factor: 10 x OEL (Nominal protection factor 12 x OEL)

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------|----------|------------|
| SAR 012 021 | Dust/Mist Masks | PK20 | POA |



Valved Dust/Mist Respirator Masks

The valved 8822 provides comfortable. Effective respiratory protection against fine dusts and water-based mists. The convex shape and 3M Cool Flow valve reduce heat build-up to offer comfortable protection particularly in hot and humid conditions.

EN149 FFP2S.

Particulates: Assigned protection factor: 10 x OEL (Nominal protection factor 12 x OEL)

| Cat No. | Description | Quantity | Price |
|--------------------|------------------------|----------|------------|
| SAR 012 041 | Valved Dust/Mist Masks | PK10 | POA |

Rainbow Lab Coats

Premium lab coat is pre-shrunk, 100% heavyweight cotton twill for extra durability, hand dyed rainbow Tye-Dye, knee length with full sleeves, two roomy lower pockets, and side slit openings for easy access to trouser pockets.

Unisex.

Available in 2 sizes.



| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|---------------|
| SAC 930 020 | Medium | EACH | £39.99 |
| SAC 930 030 | Large | EACH | £39.99 |



Polyester Cotton Lab Coat

White polyester/cotton laboratory coats for men and women, with two side and one top pocket and concealed stud front fasteners. Men's coat features a centre back vent.

NB: Coloured lab coats available on request, please contact customer services for details.



| Cat No. | Chest Size | Length | Quantity | Price |
|--------------------|------------|--------|----------|---------------|
| Men's | | | | |
| SAC 150 010 | 96cm | 100cm | EACH | £13.38 |
| SAC 150 020 | 100cm | 100cm | EACH | £13.38 |
| SAC 150 030 | 108cm | 100cm | EACH | £13.38 |
| SAC 150 040 | 112cm | 100cm | EACH | £13.38 |
| SAC 150 050 | 116cm | 100cm | EACH | £13.38 |
| SAC 150 060 | 124cm | 100cm | EACH | £13.38 |
| SAC 150 070 | 128cm | 100cm | EACH | £13.38 |
| Ladies | | | | |
| SAC 160 010 | 88cm | 110cm | EACH | £13.38 |
| SAC 160 020 | 92cm | 110cm | EACH | £13.38 |
| SAC 160 030 | 96cm | 110cm | EACH | £13.38 |
| SAC 160 040 | 100cm | 110cm | EACH | £13.38 |
| SAC 160 050 | 108cm | 110cm | EACH | £13.38 |
| SAC 160 060 | 112cm | 110cm | EACH | £13.38 |
| SAC 160 070 | 116cm | 110cm | EACH | £13.38 |
| SAC 160 080 | 124cm | 110cm | EACH | £13.38 |

Laboratory Coats

The KIMTECH SCIENCE[®] A7 Lab Coat provides the vital body protection and comfort needed in the laboratory environment.

- Offering Type 6 limited chemical splash protection
- 100% Polypropylene Breathable SMS Fabric
- Cloth-like low lint fabric
- Three layers of fabric offering strength, durability and protection
- High strength seams with triple overlock stitching provide additional protection
- Silicon-free



| Cat No. | Code | Size | Quantity | Price |
|--------------------|------|------|----------|------------|
| SAC 650 020 | 9671 | M | PK15 | POA |
| SAC 650 030 | 9672 | L | PK15 | POA |
| SAC 650 040 | 9673 | XL | PK15 | POA |

PVC Apron

Waterproof and easy to clean with good resistance to oils and fats.



| Cat No. | Colour | Quantity | Price |
|--------------------|--------|----------|------------|
| SAC 140 022 | Green | EACH | POA |

Polypropylene Overall

Fabric disposable boilersuit. Non woven fabric. 33gsm SMS (spunbond + meltblown + spunbond nonwovens). Elasticated hood. Elasticated waistband and ankles. No.3 nylon spiral one-way zip front opening. Zip colour matches garment shell fabric.



| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------|----------|------------|
| SAC 600 011 | Polypropylene Overall | EACH | POA |

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Signage

Safety Labels

GENERAL



Warning



Oxidising



Flammable



Explosive



Toxic



Corrosive



Gas



Health



Environment

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GHS Labels

New GHS hazard symbols for use on their own or for application with the supply and conveyance labels.

Peel off individually from wax back paper for ease of use.

Compliant with the new International Labelling Regulations.

Material: Vinyl/Polyethylene

| Cat No. | Description | Size | Quantity | Price |
|---------------------------|-------------|-----------|----------|--------|
| Individual Labels | | | | |
| SHW 440 090 | Warning | 100x100mm | EACH | £1.99 |
| Roll of 250 Labels | | | | |
| SHW 440 200 | Oxidising | 25x25mm | ROLL | £9.89 |
| SHW 440 210 | Flammable | 25x25mm | ROLL | £9.89 |
| SHW 440 220 | Explosive | 25x25mm | EACH | £9.89 |
| SHW 440 230 | Toxic | 25x25mm | ROLL | £9.89 |
| SHW 440 240 | Corrosive | 25x25mm | ROLL | £9.89 |
| SHW 440 250 | Gas | 25x25mm | ROLL | £9.89 |
| SHW 440 260 | Health | 25x25mm | EACH | £9.89 |
| SHW 440 270 | Environment | 25x25mm | ROLL | £9.89 |
| SHW 440 280 | Warning | 25x25mm | ROLL | £9.89 |
| SHW 440 100 | Oxidising | 50x50mm | ROLL | £13.80 |
| SHW 440 110 | Flammable | 50x50mm | ROLL | £14.83 |
| SHW 440 130 | Toxic | 50x50mm | ROLL | £14.83 |
| SHW 440 140 | Corrosive | 50x50mm | ROLL | £14.83 |
| SHW 440 160 | Health | 50x50mm | ROLL | £13.44 |
| SHW 440 170 | Environment | 50x50mm | ROLL | £14.83 |
| SHW 440 180 | Warning | 50x50mm | ROLL | £14.83 |



Hazardous Substance Warning Tapes

Self-adhesive - single ply tapes pre-printed with Globally Harmonised System of Classification symbols & identification text.
Colour: White tape with red & black print
Roll size: 25mm x 66m



| Cat No. | Description | Quantity | Price |
|-------------|------------------------------|----------|-------|
| SHW 120 016 | Toxic | ROLL | £5.14 |
| SHW 120 026 | Irritant | ROLL | £5.14 |
| SHW 120 036 | Flammable | ROLL | £5.14 |
| SHW 120 046 | Harmful | ROLL | £5.14 |
| SHW 120 056 | Oxidising | ROLL | £5.14 |
| SHW 120 066 | Corrosive | ROLL | £5.14 |
| SHW 120 076 | Biohazard | ROLL | £5.14 |
| SHW 120 086 | Radioactive | ROLL | £5.14 |
| SHW 120 096 | Explosive | ROLL | £5.14 |
| SHW 120 106 | Serious Health Hazard | ROLL | £5.14 |
| SHW 120 116 | Hazardous to the Environment | ROLL | £5.14 |
| SHW 120 126 | Gas Under Pressure | ROLL | £5.14 |



SHW 410 030



SHW 410 110



SHW 410 150

Hazard Diamonds

Self-Adhesive.

| Cat No. | Description | Size | Quantity | Price |
|-------------|------------------|-------------|----------|-------|
| SHW 410 250 | Corrosive | 100 x 100mm | EACH | £1.99 |
| SHW 410 030 | Flammable Liquid | 100 x 100mm | EACH | £1.99 |
| SHW 410 110 | Toxic | 100 x 100mm | EACH | £1.99 |

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Signage

Safety Posters

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GHS Chemical Warnings Guide

Rigid plastic. Size: 400 x 600mm

| Cat No. | Description | Quantity | Price |
|-------------|-----------------------------|----------|--------|
| SHW 460 095 | GHS Chemical Warnings Guide | EACH | £25.25 |

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Laboratory Safety Chart

An illustrated 'safety bible' for your wall. Vital safety information - instantly. Full time reinforcement of safe lab conduct. Nowhere is 'an ounce of prevention' of more vital concern than in the educational laboratory, especially when chemicals are present. Addressing that concern, this wall reference employs full-colour high impact illustrations, with crisp no-nonsense captions to provide reliable safety information instantly! Forming the central focus of the presentation is a common sense set of safety rules, which, if heeded, can prevent tragedy in your lab. 23 illustrated panels are positioned around the rules. Each dramatises a significant safety practice, a correct use of safety equipment or a caution against an improper technique. Think of it as an illustrated 'safety bible' for your wall. Always on duty, the chart, with its visual message in brilliant colours, commands attention while it continuously reinforces safe laboratory conduct. Printed on tear-proof synthetic stock, the 91 x 112cm chart is mounted with stiffening rods top and bottom and is complete with eyelets for hanging. For maximum impact, place Laboratory Safety Charts at several strategic locations around your laboratory.



| Cat No. | Description | Quantity | Price |
|-------------|-------------|----------|---------|
| SHW 060 010 | Lab Safety | EACH | £62.12 |
| SHW 060 030 | Lab Safety | PK3 | £158.47 |



First Aid and Safe Condition Signs



| Cat No. | Description | Size | Quantity | Price |
|----------------------|-----------------------|-----------|----------|-------|
| Self-Adhesive | | | | |
| SHW 350 020 | Emergency Stop (Red) | 150x200mm | EACH | £2.32 |
| SHW 350 235 | Emergency Spill Kit | 250x300mm | EACH | £6.39 |
| SHW 350 130 | Eye Wash Station | 250x300mm | EACH | £6.39 |
| SHW 350 080 | First Aid with Symbol | 250x300mm | EACH | £6.39 |

Warning Signs



| Cat No. | Description | Size | Quantity | Price |
|----------------------|---------------------------|-----------|----------|-------|
| Rigid | | | | |
| SHW 390 515 | Caution Hot Surface | 300x100mm | EACH | £3.58 |
| Self-Adhesive | | | | |
| SHW 390 040 | Warning Corrosive | 150x200mm | EACH | £2.73 |
| SHW 390 070 | Warning Toxic | 150x200mm | EACH | £2.73 |
| SHW 390 130 | Danger Biohazard | 150x200mm | EACH | £2.73 |
| SHW 390 520 | Caution Hot Surface | 300x100mm | EACH | £2.99 |
| SHW 390 510 | Danger Chemicals | 300x100mm | EACH | £2.99 |
| SHW 390 540 | Warning Harmful Chemicals | 300x100mm | EACH | £2.99 |
| SHW 390 530 | Warning Chemical Store | 300x100mm | EACH | £2.99 |

Personal Protection Signs



| Cat No. | Description | Size | Quantity | Price |
|----------------------|-----------------------------|-----------|----------|-------|
| Rigid | | | | |
| SHW 360 225 | Eye Protection Must Be Worn | 150x200mm | EACH | £5.80 |
| Self-Adhesive | | | | |
| SHW 360 230 | Eye Protection Must Be Worn | 150x200mm | EACH | £2.73 |



Signage

Safety Signs | Spillage Containment

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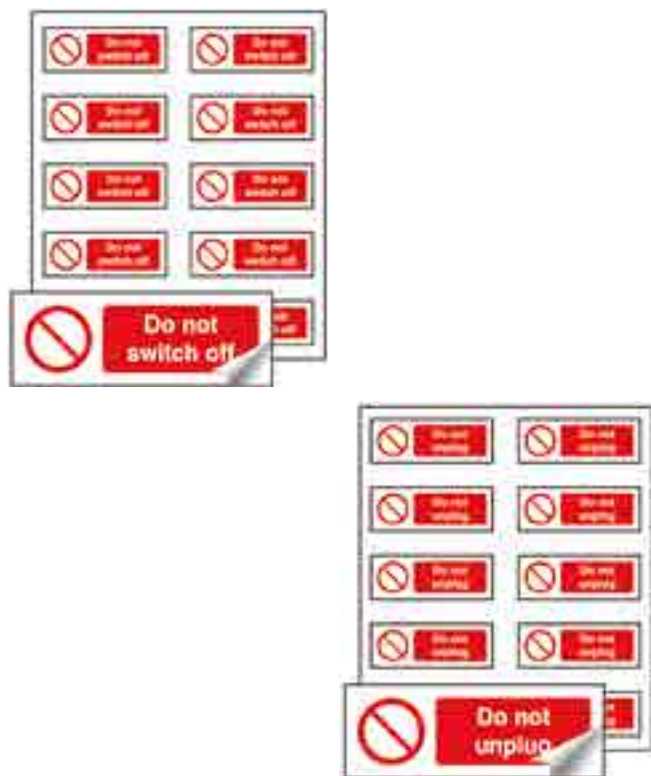
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Prohibition Signs



| Cat No. | Description | Size | Quantity | Price |
|--------------------|-------------------|-----------|----------|--------|
| Sheet of 10 | | | | |
| SHW 380 370 | Do Not Switch Off | 40 x 18mm | PK10 | £12.75 |
| SHW 380 380 | Do Not Unplug | 40 x 18mm | PK10 | £12.75 |



Oil And Chemical Binder

The Uni-Safe™ Chemical Binder is the only chemical binder applicable on land for all liquids without restriction. The composition of Uni-Safe™ does not allow any dangerous reaction even with strongly reacting and oxidising substances such as nitric acid, oleum and bromine.

Safety hint: Uni-Safe™ absorbs dangerous substances but does not neutralise them. Any residue resulting from a spillage must be handled and disposed of according to the substance bound.

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|---------------|
| SAS 110 010 | Oil And Chemical Binder | 800GM | £66.94 |

Benchkote™ Surface Protectors

Benchkote™ is an absorbent, impermeable material designed to protect laboratory surfaces against hazardous spills. The material features a high-quality, smooth, absorbent Whatman paper, which quickly absorbs liquid spills, and a laminated polyethylene layer that prevents flow-through to the working surface. After use, the sheet is incinerated or disposed of according to local regulations.

Whatman



| Cat No. | Size | Quantity | Price |
|--------------------|-----------------------|----------|----------------|
| Benchkote™ | | | |
| SAS 020 010 | Sheets 460 x 570mm | PK50 | £87.12 |
| SAS 020 030 | Reel 920mm x 50m | EACH | £295.33 |

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Rigid PVC Spill Trays

Rigid PVC trays have sufficient depth to prevent dispersal of hazardous liquids. Yellow for use in radiation areas. White for use outside radiation areas.

NB: Colourless PVC liners available - please contact Customer Services for details.

| Cat No. | Colour | Size | Quantity | Price |
|-------------|--------|-------------|----------|--------|
| TRY 210 010 | White | 475 x 360mm | EACH | £19.46 |
| TRY 210 030 | White | 700 x 450mm | EACH | £33.90 |

Anti-Static Spill Trays

The spill trays are a practical and cost-effective solution to containing spillages. Made from anti-static, high impact polystyrene the lightweight trays clearly define your working area without the need for bulky bench coverings.



The trays have sufficient depth to contain even the largest liquid spills. After use, rinse away any liquids, wipe and the tray can be used again, then when necessary simply disposed of.

Please Note: These trays are not suitable for use with organic solvents eg Acetone or strong acids.

| Cat No. | Size | Quantity | Price |
|-------------|-------------|----------|---------|
| TRY 200 010 | 475 x 360mm | PK25 | £30.71 |
| TRY 200 020 | 475 x 360mm | PK100 | £101.69 |
| TRY 200 030 | 700 x 450mm | PK25 | £60.36 |
| TRY 200 040 | 700 x 450mm | PK100 | £201.26 |

Chemical Spill Kit

Chemical spill response kits in a clip-top carrier.

Contents:

15L Kit

- 1x 30cm black cable tie
- 1x 46cm x 90cm dark blue hazardous waste disposal bag
- 10x premier 50cm x 40cm chemical pads
- 1x sustainable 7.5cm x 1.2m chemical sock (spunbond)

25L Kit

- 2x 30cm black cable ties
- 2x 46cm x 90cm dark blue hazardous waste disposal bags
- 15x premier 50cm x 40cm chemical pads
- 2x sustainable 7.5cm x 1.2m chemical socks (spunbond)



| Cat No. | Capacity | Quantity | Price |
|-------------|----------|----------|--------|
| SAS 260 011 | 15L | EACH | £15.45 |

Sterilin™ BenchGuard

Protect benches and other surfaces against liquid spills with the highly absorbent Sterilin™ BenchGuard. Absorbent liner also provides a cushion for glassware when accidentally dropped on benchtop.

Features:

- Available in both 400ml/m² and 800ml/m² absorption capacities
- Plastic coated on one side to prevent soak through
- Available in roll or sheet form
- Rolls supplied in easy to use dispenser packs



| Cat No. | Absorbency | Size | Quantity | Price |
|---------------|----------------------|-------------|----------|---------|
| Roll | | | | |
| SAS 040 020 | 400ml/m ² | 490mm x 50m | EACH | £122.36 |
| Sheets | | | | |
| SAS 050 010 | 800ml/m ² | 600 x 490mm | PK50 | £100.12 |



Safety Screens

Provides protection against chemical splashes and flying objects. Screens are not supplied with bases, please order separately.

| Cat No. | Heading 1 | Quantity | Price |
|-------------|-----------------|----------|--------|
| SAG 010 010 | 810 x 600 x 3mm | EACH | £20.13 |
| SAG 010 020 | 200 x 200 x 6mm | EACH | £4.99 |
| SAG 010 500 | Base Unit | EACH | £13.24 |
| SAG 010 600 | Wide Base Unit | EACH | £14.99 |



Safety Shield

- Incredibly strong and lightweight
- Made from a single 4mm sheet of transparent polycarbonate
- Supplied with a pair of plastic coated metal feet
- Offers excellent protection from potentially explosive situations

Height: 608mm
Outside Panel Width: 178mm
Centre Panel Width: 230mm

| Cat No. | Description | Quantity | Price |
|-------------|---------------|----------|--------|
| SAG 080 010 | Safety Shield | EACH | £79.19 |



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Safety Cabinets for Flammable Liquids & Hazardous Substances

Storage of potentially hazardous substances and materials should conform to guidelines covered by the Control of Substances Hazardous to Health Regulations issued by the Health and Safety Executive. Following assessment under CoSHH of the use and storage of hazardous substances and materials, these cupboards and cabinets can be used to satisfy the regulation's requirements for the appropriate methods of storage in the workplace.

NB: Spare shelves listed are only suitable for use with the cabinet(s) named.

Flammable Storage Cabinets Welded construction in 0.9mm thick steel designed to maintain integrity for 30 minute fire rating. Supplied with adjustable spillage trays and liquid tight sump tray. Doors are rebated and secured by chrome locking handle. High visibility antibacterial powder coated finish with appropriate warning labels.

Grey Flammable Storage Cabinets This range of cabinets has the same specification as the yellow series, with a warning label reading 'Warning Highly Flammable Material'. **NB:** We can also supply Glass Fronted Cabinets, please contact Customer Services with your specification.

Mobile Units Mounted on 2 fixed and 2 swivel braked rubber tyred castors. Supplied with bolt on push/pull handle. **NB:** Cabinet heights do not include castors. For overall height including castors please add on approximately 180mm.

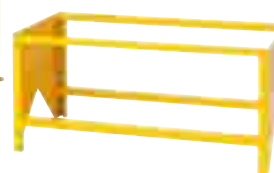
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SST 010 030



SST 010 050



SST 010 500



SST 010 020

| Cat No. | Dimensions (H x W x D) | No. of Shelves | Quantity | Price |
|--|------------------------|------------------------|-----------------|---------------|
| Yellow Flammable Storage Cabinets | | | | |
| SST 010 010 | 712 x 355 x 305mm | 1 | EACH | £206.21 |
| SST 010 030 | 712 x 915 x 459mm | 1 | EACH | £332.28 |
| SST 010 020 | 915 x 459 x 459mm | 1 | EACH | £256.92 |
| SST 010 040 | 915 x 915 x 459mm | 1 | EACH | £350.76 |
| SST 010 050 | 1830 x 915 x 459mm | 3 | EACH | £471.51 |
| Yellow Mobile Cabinets | | | | |
| SST 010 070 | 900 x 900 x 600mm | 1 | EACH | £637.82 |
| SST 010 080 | 1200 x 900 x 600mm | 2 | EACH | £716.00 |
| Grey Flammable Storage Cabinets | | | | |
| SST 015 010 | 610 x 459 x 459mm | 1 | EACH | £200.66 |
| SST 015 030 | 610 x 610 x 305mm | 1 | EACH | £254.90 |
| SST 015 040 | 712 x 915 x 459mm | 1 | EACH | £281.98 |
| SST 015 020 | 915 x 459 x 459mm | 1 | EACH | £220.24 |
| SST 015 050 | 915 x 915 x 459mm | 1 | EACH | £321.13 |
| SST 015 060 | 1220 x 915 x 459mm | 2 | EACH | £408.37 |
| SST 015 070 | 1525 x 915 x 459mm | 3 | EACH | £445.53 |
| SST 015 080 | 1830 x 915 x 459mm | 3 | EACH | £409.00 |
| Accessories | Size | To Fit Sizes | Quantity | £42.67 |
| Yellow Floor Stands | | | | |
| SST 010 500 | - | SST 010 030 & 040 | EACH | £110.00 |
| Yellow Spare Shelf with Clips | | | | |
| SST 010 520 | 355 x 305mm | SST 010 010 | EACH | £42.67 |
| SST 010 530 | 459 x 459mm | SST 010 020 | EACH | £50.33 |
| SST 010 540 | 915 x 459mm | SST 010 030, 040 & 050 | EACH | £48.20 |
| Grey Floor Stands | | | | |
| SST 015 500 | - | SST 015 040 & 050 | EACH | £107.00 |
| Grey Spare Shelf with Clips | | | | |
| SST 015 520 | 459 x 459mm | SST 015 010 & 020 | EACH | £51.22 |
| SST 015 530 | 610 x 305mm | SST 015 030 | EACH | £51.22 |
| SST 015 540 | 915 x 459mm | SST 015 040-080 | EACH | £55.45 |

NB: If shelves are ordered separately, a carriage charge applies



Storage

Safety Cabinets

GENERAL

Acid & Alkali Storage Units

Welded construction in 0.9mm thick zintec steel for extra corrosive resistance designed to store acids safely. Supplied with adjustable spillage trays and liquid tight sump tray*. Doors are rebated and secured by chrome 3 way locking handle. High visibility powder coated finish with appropriate warning labels.

*NOTE: Liquid tight sump tray is not supplied on SST 020 010, but is fitted with a small tray to act as a sump.

NB: These cupboards are for the safe storage of acids, but are not deemed to be acid proof. Strong acid vapours will cause corrosion on exposed metal such as hinges etc.

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SST 020 070



SST 020

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SAFETY

| Cat No. | Dimensions (H x W x H) | No of Shelves | Quantity | Price |
|--|------------------------|---------------------------|----------|---------|
| Acid & Alkali Storage Cabinet | | | | |
| SST 020 010 | 712 x 335 x 305mm* | 1 | EACH | £223.33 |
| SST 020 030 | 712 x 915 x 459mm | 1 | EACH | £299.52 |
| SST 020 020 | 915 x 459 x 459mm | 1 | EACH | £230.46 |
| SST 020 040 | 915 x 915 x 459mm | 1 | EACH | £314.59 |
| SST 020 050 | 1830 x 915 x 459mm | 3 | EACH | £438.19 |
| SST 020 060 | 1830 x 459 x 459mm | 3 | EACH | £368.77 |
| Mobile Cabinet | | | | |
| SST 020 070 | 900 x 900 x 600mm | 1 | EACH | £681.00 |
| Floor Stand | | | | |
| SST 020 500 | - | SST 020 030 & SST 020 040 | EACH | £108.00 |
| SST 020 520 | 355 x 305mm | SST 020 010 | EACH | £50.58 |
| SST 020 530 | 459 x 459mm | SST 020 020 & 060 | EACH | £52.02 |
| SST 020 540 | 915 x 459mm | SST 020 030 & 040 | EACH | £56.90 |





Poisons Storage Cabinet

Wall mounting, constructed of sheet steel and finished in stove enamel with three adjustable shelves and lockable door. The door which has concealed hinges, is recessed for added security. Internal dimensions: 450 x 130 x 605mm External dimensions: 455 x 155 x 610mm

| Cat No. | Description | Quantity | Price |
|--------------------|-------------------------|----------|----------------|
| SST 030 010 | Poisons Storage Cabinet | EACH | £338.74 |

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Polypropylene Safety Cabinets

Problem - Painted or powder coated metal cabinets will not resist acid fumes indefinitely and can show the tell tale rust marks of corrosion.

Answer - Use all polypropylene fabricated cabinets. No internal metal, no coating and unbreakable. Will not damage in transit or use.

The most important benefit is that no internal metal parts are used; only the external lock is plated metal. Catches, hinges, shelves and doors completely made in polypropylene. This furniture will withstand the most corrosive and wet working environments. 12 month warranty.



| Cat No. | Dimensions (W x D x H) | No of Doors | No of Shelves | Quantity | Price |
|--------------------|------------------------|-------------|---------------|----------|-----------------|
| SST 180 010 | 457 x 305 x 711mm | 1 | 1 | EACH | £885.38 |
| SST 180 030 | 457 x 457 x 914mm | 1 | 1 | EACH | £1023.74 |
| SST 180 040 | 610 x 305 x 610mm | 1 | 1 | EACH | £1129.34 |
| SST 180 050 | 914 x 457 x 711mm | 2 | 1 | EACH | £1239.34 |
| SST 180 060 | 914 x 457 x 914mm | 2 | 2 | EACH | £1267.94 |



Storage

Safety Cabinets

GENERAL

Combination Storage Cabinet with Safety Box

Ideal combined cabinet to store consumables and tools in a single walled steel cabinet as well as small quantities of flammable liquids, aerosol cans, etc. in the safety box.

Supplied complete with 4 shelves and Type 30 safety box.

Features:

- Sturdy sheet steel construction gives a robust and durable cabinet
- Lockable door (cylinder lock integrated into the handle)
- Complete with 4 height adjustable tray shelves, with a load capacity of 50kg (evenly distributed)

Type 30 safety box:

- Approved storage of flammable hazardous materials in work rooms in accordance with EN 14470-1 (Type 30)
- Fire resistant for up to 30 minutes
- Suitable for storing materials with the following hazard symbols: Corrosive, Flammable, Irritant, Toxic
- 2 self-closing wing doors
- Bottom collecting sump with a capacity of 5 litres (plastic laminated sheet steel)
- Air extraction inlet (NW 75) in the safety box

Cabinet dimensions: 950 x 500 x 1950mm (WxDxH)

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SAFETY

| Cat No. | Description | Quantity | Price |
|--------------------|---------------------------------|----------|-----------------|
| SST 170 030 | Storage Cabinet with Safety Box | EACH | £1500.00 |

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Disposable Glass Disposal Bin

Eliminate contact with broken glassware in the laboratory. Each box is lined with a polybag for wet and contaminated glassware and can be sealed for safe disposal.

| Cat No. | Description | Size | Quantity | Price |
|--------------------|----------------|----------------------|----------|---------------|
| SAD 020 012 | Floor Standing | 30.5 x 30.5 x 71cm | PK6 | £68.74 |
| SAD 020 022 | Bench Top | 20.5 x 20.5 x 25.5cm | PK6 | £48.50 |



Bucket with Handle

Lightweight PE bucket with handle.

| Cat No. | Capacity | Quantity | Price |
|--------------------|----------|----------|--------------|
| BUK 010 010 | 9 Litres | PK5 | £8.99 |



Swing Top Bins

| Cat No. | Size | Quantity | Price |
|--------------------|--------|----------|---------------|
| WST 030 010 | Small | EACH | £5.61 |
| WST 030 020 | Medium | EACH | £9.92 |
| WST 030 030 | Large | EACH | £11.28 |



Waste Sacks

Black polythene waste sacks.

| Cat No. | Description | Quantity | Price |
|--------------------|-----------------------------|----------|---------------|
| WST 034 010 | Black Polythene Waste Sacks | PK200 | £25.96 |

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SurSol hand sanitiser has been tested to EN14476 and passed with a 30 second and 120 second positive log4, which means that it works within 30 seconds killing 99.9% of germs and viruses.

**KILLS 99.99%
OF GERMS**

TESTED & PASSED
EN14476



Tested to and passed:
BS EN 1500: 2013,
BS EN 1276:2009,
EN 14476:2013
and ASTM E2315 standards.

**KILLS 99.99%
OF GERMS**

INCLUDING
CORONAVIRUS

Introducing a safer alternative to killing bacteria in schools. Sursol's non-toxic, non-flammable formula kills 99.9% of bacteria for up to 4 hours, unlike alcohol-based formulas. Sursol products give you the ultimate peace of mind, reducing the fire safety and ingestion risks associated with alcohol-based products. They also prevent skin irritation and dry hands, being perfect for those with sensitive skin.

Why SurSol™ ?

Alcohol-based Sanitisers

- ☒ Alcohol-based hand sanitisers de-fat the skin and dry out hands
- ☒ Prolonged use of alcohol-based hand sanitisers can cause dermatitis
- ☒ Alcohol-based hand sanitisers cause skin irritation
- ☒ Alcohol-based hand sanitisers are 'flash sanitisers' that only last a few minutes, requiring frequent use which results in skin drying out and irritation
- ☒ Alcohol-based hand sanitisers are not ideal for all sectors or individuals, particularly those in education where there is a high flammability risk or risk of ingestion by students
- ☒ Alcohol-based hand sanitisers cannot be left in vehicles—when left in hot vehicles, it can cause damage due to flammability potential

SurSol Alcohol-free Sanitisers

- ☒ SurSol contains natural moisturisers aloe vera and camomile in its formulation
- ☒ SurSol is kind to the skin—it moisturises and sanitises hands
- ☒ SurSol does not dry out skin, does not cause any skin conditions
- ☒ SurSol does not irritate the skin
- ☒ SurSol remains active on the skin for up to 4 hours without reapplication
- ☒ SurSol products are alcohol-free! In testing, they have been proven to be more effective than alcohol-based products
- ☒ SurSol is safe to leave in vehicles due to its non-alcohol ingredients

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Terms & Conditions

1 DEFINITIONS

In these Conditions of Sale:

"Seller" means the company supplying the Goods and/or Services, being Scientific & Chemical Supplies Limited (registered in England with company number 00588778). "Buyer" means the individual, company or other party with whom the Seller contracts. "Contract" means the Contract for the supply of Goods and/or Services entered into pursuant to clause 2 below. "Services" means, as applicable, the Services the subject of any order placed with the Seller. "Goods" means, as applicable, Goods the subject of any order placed with the Seller.

2 BASIS OF SALE

2.1 Quotations are given and orders are accepted by the Seller only on the basis that these conditions of sale exclusively apply to all Contracts. The Seller shall sell and Buyer shall purchase the Goods and/or Services in accordance with any written quotation of the Seller which is accepted by the Buyer or any written order of the Buyer which is accepted by the Seller subject in either case to these conditions governing the Contract which is formed to the exclusion of any other terms and conditions (including the Buyer's conditions of purchase) subject to which any such quotation is accepted or purported to be accepted or any such order is made or purported to be made by the Buyer.

2.2 Any statement (whether written or oral), description, drawing, photograph, illustration, diagram, or specification concerning the Goods made before the Contract are for the purpose of information and guidance only.

2.3 Where Goods are sold by reference to a description in a catalogue or web site, the Goods are sold subject to tolerances and variations expressed or implied in the catalogue.

2.4 Any typographical, clerical or other error or omission in any document or information issued by the Seller shall be subject to correction without any liability on the part of the Seller.

2.5 Any advice or recommendation given by the Seller for the storage, installation, application or use of the Goods shall not constitute any warranty or guarantee and storage, application, installation and use of the Goods (or the use of the Goods to store other items) shall be entirely at the Buyer's own risk. The Seller shall not be liable for any such advice or recommendation and the Buyer shall ensure that the Goods are properly installed and fitted and thereafter used by a suitably competent and where necessary qualified person.

2.6 The Seller's employees or agents are not authorised to make any recommendations concerning the Goods or Services unless confirmed by the Seller in writing and in entering into the Contract the Buyer acknowledges that it does not rely on any such representation which are not so confirmed.

2.7 References to clauses are to clauses of these conditions and references to sub-clauses are to sub-clauses of the clause in which the reference appears.

2.8 All of these conditions shall apply to the supply of both Goods and Services except where application to one or the other is specified.

2.9 Substances included in the First Schedule of the Poisons Rules under Section 7 of the Poisons Act 1972 are marked "S1". Any order for Goods which could be used for illicit purposes may be subject to additional controls on supply. The Buyer agrees to provide full information including their name, address, status, business or profession, and the purpose for which each product or substance is being supplied for.

3 ORDER AND SPECIFICATIONS

3.1 The Buyer shall be responsible to the Seller for ensuring the accuracy of the terms of any order (including any applicable specification) submitted by the Buyer and for giving the Seller any necessary information relating to the Goods or Services within a sufficient time to enable the Seller to perform the Contract in accordance with its terms.

3.2 No order shall be binding on the Seller unless or until such order is accepted by the Seller unless in writing.

3.3 The Seller reserves the right to make any changes in the specification of the Goods which are required to conform to any applicable safety or other statutory requirements or, where the Goods are to be supplied to the Buyer's specification, which do not materially affect their quality or performance.

3.4 If any of the Goods are found not to be in accordance with the specification agreed between the Seller and the Buyer, the Buyer shall notify the Seller within three (3) days of delivery and the Seller reserves the right for its representative to visit the Buyer's premises to examine the relevant Goods and if any are found in the sole discretion of the Seller not to so conform the Seller may at its sole option either:

- At its own expense replace the Goods found not to be in accordance with such specification, or
- Reduce the contract price by an amount equivalent to that proportion of the price payable in respect of the Goods found not to conform to the agreed specification.

3.5 Save for where clause 8.10 applies, the Goods are non-returnable and the price paid for the Goods is non-refundable. If the Seller decides in its absolute discretion to accept the return of the Goods, then it will notify the Buyer accordingly. The Seller may not agree to the return of the Goods unless they are in the same pristine condition that they were in as at delivery and the Buyer, if requested, promptly confirms this in writing to the Seller. Where the Seller exercises its discretion as to the return of the Goods then upon the return of the Goods in pristine

condition, the Seller shall refund the purchase price paid less its administration and returns charge. The Seller shall be responsible for promptly collecting the Goods in question from the Seller (and the related collection costs) and the Seller shall be entitled to retain all of the purchase price. If the Goods are to be manufactured or any process is to be applied to the Goods by the Seller in accordance with a specification submitted by the Buyer, the Buyer shall indemnify the Seller against all losses, damages, costs and expenses awarded against or incurred by the Seller in connection with or paid or agreed to be paid by the Seller in settlement of any claim for infringement of any patent, copyright, trademark or other industrial or intellectual property rights of any person which results from the Seller's use of the Buyer's specification.

3.7 Where the Goods returned are not in pristine condition then the Seller shall be entitled at its discretion to either (A) accept the return of the Goods subject to (i) the administration and returns charge and (ii) such further deduction, from the purchase price to be refunded, as the Seller considers appropriate having regard to the condition of the returned Goods; or (B) refuse the return of the Goods in these circumstances and in which case it will notify the Buyer accordingly and the Buyer shall be responsible for promptly collecting the Goods in question from the Seller (and the related collection costs) and the Seller shall be entitled to retain all of the purchase price. If the Goods are to be manufactured or any process is to be applied to the Goods by the Seller in accordance with a specification submitted by the Buyer, the Buyer shall indemnify the Seller against all losses, damages, costs and expenses awarded against or incurred by the Seller in connection with or paid or agreed to be paid by the Seller in settlement of any claim for infringement of any patent, copyright, trademark or other industrial or intellectual property rights of any person which results from the Seller's use of the Buyer's specification.

4 PRICES

4.1 All prices quoted are exclusive of any applicable Value Added Tax. The Buyer is required to pay any tax, duty or other government charge levied. All Goods will be supplied at the price and VAT rate ruling on the date of despatch.

4.2 Quotations are only valid for thirty (30) days, or until earlier acceptance by the Buyer.

4.3 The Seller reserves the right to vary prices of Goods and Services in certain circumstances, including additional costs arising from exchange rate and currency movements, and additional costs in packing or transport. The Seller reserves the right to increase prices to recover any additional costs arising from any variation or delay caused by the Buyer's instructions or failure of the Buyer to give the Seller adequate information or instruction. The Seller reserves the right to impose a minimum order quantity or handling/delivery charge for any Goods or Services supplied.

4.4 The Seller reserves the right to recover costs due to the failure of the Buyer to take or accept delivery or to give adequate delivery instructions. Any special delivery requirements must have been notified by the Buyer to the Seller at the time of placing the order.

4.5 The price for the Goods or Services shall (subject to clause 4.7) be that stated on the Seller's quotation or where no price has been quoted or a quoted price is no longer valid the price shall be the price ruling in the Seller's price list.

4.6 Unless otherwise expressly notified by the Seller, the price for Goods shall be ex the Seller's works. Where the Seller agrees to deliver the Goods otherwise than at the Seller's premises, the Buyer shall be liable to pay the Seller's charges for transport, packing and insurance.

4.7 The Seller's price list for Goods is subject to revision without any notice and any Contract entered into by the Seller is on the understanding that Goods will be supplied at the prices ruling at the date when the Goods are ready for despatch to the Buyer.

4.8 Unless otherwise specifically stated on the Seller's quotation, any estimate of the price for the supply of Goods or Services given by the Seller is subject to any additional cost of labour or materials or of any additional work which may be found by the Seller to be necessary and which were unforeseen by the Seller at the date of the estimate given.

4.9 Unless previously instructed to the contrary in writing, the Seller will notify the Buyer of any substantial estimated increase in price pursuant to sub-clause 4.8 and will not proceed with the supply of any Goods or Services unless and until notified by the Buyer that the Buyer will pay such increased price. However, if the Buyer does not accept any increase in price within five (5) working days then the Seller reserves the right to cancel the Contract.

5 PAYMENT

5.1 The Seller reserves the right to invoice the Buyer prior to the delivery.

5.2 Payment shall not be withheld pending the settlement of any dispute.

5.3 If the Buyer has an approved account with the Seller, payment of the price (including without limitation the costs of transport, packaging and insurance referred to in clause 4.6) shall be made in full and in cash or by cleared funds not later than thirty (30) days following the date of invoice.

5.4 In all other cases, the Seller shall be entitled to invoice the Buyer and payment of the price (including without limitation the costs of transport, packaging and insurance referred to in clause 4.6) shall be made in full in cash at the time when the Goods or Services are ready to be supplied to the Buyer.

5.5 Without prejudice to the Seller's right to prompt payment, if the Buyer fails to make any payment on the due date, then the Seller shall be entitled to suspend all or any further deliveries to the Buyer of Goods or the provision of all or any Services (in which event the Buyer shall not be released from its obligations to the Seller or cancel the Contract or claim damages for breach of Contract) and the Buyer shall pay interest at the rate of two percent (2%) per month on the balance of any invoice or other sum remaining unpaid from the due date

of payment of the same and on the day of actual payment and shall in addition reimburse to the Seller all reasonable costs and expenses (including legal costs) incurred in the collection of any overdue balance or account.

5.6 Time for payment is of the essence of any Contract between the Seller and the Buyer.

5.7 All amounts due under the Contract must be paid by the Buyer in full and any right to assert any credit, set-off or counterclaim against the Seller are excluded.

5.8 The Seller reserves the right to set-off any amount owed to it by the Buyer against any amount payable by the Seller to the Buyer.

6 DELIVERY

6.1 The Seller undertakes to use its reasonable endeavours to deliver by the specified delivery dates. However, any dates quoted for delivery of the Goods and Services are approximate only, and the Seller shall not be liable for any delay in delivery. Time of delivery shall not be of the essence unless previously agreed by the Seller in writing. The Buyer shall not be entitled to cancel, delay or refuse payment should delivery be made after the established delivery date.

6.2 The Seller shall not be liable to the Buyer in any way for the loss or damage whatsoever arising due to the delivery or despatch of Goods or supply of Services at a date later than quoted unless the Seller has specifically agreed in writing with the Buyer an agreed sum as liquidated damages and to despatch, deliver or supply at a specified date, which date is stated by the Seller to be of the essence, nor shall the Buyer be entitled to cancel with the Seller in consequence thereof.

6.3 Delivery of Goods shall be deemed to be made immediately upon collection of the Goods by the Buyer from the Seller's premises or where the Seller agrees to deliver the Goods otherwise than at the Seller's premises immediately upon arrival of such Goods at the Buyer's premises (or such other address notified to the Seller and agreed for the delivery) prior to unloading or unpacking and upon delivery risk in the Goods shall pass to the Buyer. The Seller does not accept any responsibility for any loss or damage to Goods arising during unloading or unpacking.

6.4 The Seller shall be entitled to make delivery of the Goods in instalments and the Buyer shall be obliged to pay for each instalment in accordance with the Seller's usual terms. Every delivery shall constitute a separate Contract, and failure by the Seller to deliver any one or more of its instalments in accordance with these conditions or any claim by the Buyer in respect of any one or more instalments shall not entitle the Buyer to treat the Contract as a whole as repudiated. Further the Seller may invoice for the provision of Goods or Services on a regular basis regardless of whether the total Goods or Services to be provided have been completed.

6.5 If the Buyer fails to accept delivery within three (3) days of notice in writing that the Goods are ready for delivery, the Buyer shall be liable for all storage and other charges. After a further period of ten (10) working days if the Buyer still fails to accept delivery the Seller shall be entitled, without prejudice to its other rights, to resell or otherwise dispose of the Goods.

6.6 The Buyer shall ensure the prompt turnaround of any delivery vehicles and is to indemnify and keep indemnified the Seller or any agent against any loss or liability whatsoever arising from any delay.

6.7 The Buyer must notify the Seller within three (3) days of receipt in respect of shortages, or damage to the Goods falling which proper delivery shall be conclusively presumed to have been made. In the case of total loss the Buyer must notify the Seller within three (3) days of receipt of the invoice or other notification of despatch.

6.8 Delivery documentation marked "unexamined" or "unchecked" will not be accepted as a conditional signature.

7 RISK AND PROPERTY

7.1 Risk of damage to or loss of the Goods shall pass to the Buyer upon delivery taking place in accordance with these conditions.

7.2 Title to the Goods shall not pass to the Buyer until the earlier of: (a) the Seller receives payment in full (in cash or cleared funds) for the Goods and any other goods that the Seller has supplied to the Buyer in which case title to the Goods shall pass at the time of payment of all such sums; and (b) the Buyer resells the Goods, in which case title to the Goods shall pass to the Buyer at the time specified in clause 7.4.

7.3 Until title to the Goods has passed to the Buyer, the Buyer shall:

- store the Goods separately from all other goods held by the Buyer so that they remain readily identifiable as the Seller's property;
- not remove, deface or obscure any identifying mark or packaging on or relating to the Goods;
- maintain the Goods in satisfactory condition and keep them insured against all risks for their full price on the Seller's behalf from the date of delivery;
- notify the Seller immediately if any of the events listed in clause 12 entitling the Seller to terminate the Contract occur; and
- give the Seller such information relating to the Goods as the Seller may require from time to time.

7.4 Subject to clause 7.5, the Buyer may resell or use the Goods in the ordinary course of its business (but not otherwise) before the Seller receives payment for the Goods. However, if the Buyer resells the Goods before that time: (a) it does so as principal and not as the Seller's agent; and (b) title to the Goods shall pass from the Seller to the Buyer immediately before the time at which resale by the Buyer occurs.

7.5 If before title to the Goods passes to the Buyer, any of the events listed in clause 12 occur entitling the Seller to terminate the Contract occur then without limiting any other right or remedy the Seller may have: (a) the Buyer's right to resell Goods or use them in the ordinary course of its business ceases immediately; and (b) the Seller may at any time: (i) require the Buyer to deliver up all Goods in its possession which have not been resold, or irrevocably incorporated into another product; and (ii) if the Buyer fails to do so promptly, enter any premises of the Buyer or of any third party where the Goods are stored in order to recover them.

7.6 The Seller shall be entitled to recover payment for the Goods notwithstanding that title to those Goods has not passed from the Seller to the Buyer.

7.7 All worn or damaged materials replaced by the Seller in the course of its supply of any Goods or Services to the Buyer shall, upon the Buyer's default in payment to the Seller in respect of such supply, become the property of the Seller and may be freely disposed of by the Seller.

8 WARRANTY AND LIABILITY

THE CUSTOMER'S ATTENTION IS IN PARTICULAR DRAWN TO THE PROVISIONS OF THIS CLAUSE 8.

8.1 Where the Seller is the manufacturer of the Goods or assembles the Goods then the Seller warrants that on delivery, and for a period of twelve (12) months from the date of delivery (Warranty Period) that the Goods shall:

- conform in all material respects with their description and any applicable specification provided by the Seller as regards those Goods; and
- be free from material defects in material and workmanship. Such warranty does not extend to parts, materials or equipment not manufactured or assembled by the Seller.

8.2 The Seller further warrants that any Services it provides to the Buyer will be provided with reasonable skill and care.

8.3 Any claim by the Buyer which is based on a breach of warranty under clause 8.1 (Goods) must be notified within as soon as reasonable practical after discovery and in any event within the Warranty Period.

8.4 Any claim by the Buyer which is based on a breach of warranty under clause 8.2 (Services) must be notified to the Seller within three (3) days from the date of provision of the Services or, where the defect or failure was not reasonably apparent at that time, within a reasonable time after discovery and in any event within seven (7) days of discovery. Where the Seller accepts that the Buyer has brought a legitimate warranty claim in relation to its provision of Services then it shall at its option re-perform any defective Services or refund the price (or as applicable a reasonable and proportionate part of the price) of the defective Services.

8.5 Subject to clause 8.6, the Seller shall, at its option, repair or replace defective Goods, or refund the price (or as applicable a reasonable and proportionate part of the price) of the defective Goods if:

- the Buyer gives notice in writing during the Warranty Period that some or all of the Goods do not comply with the warranty set out in clause 8.1 in accordance with clause 8.3;
- the Seller is given a reasonable opportunity of examining such Goods;
- the Buyer (if asked to do so by the Seller) returns such Goods to the Seller's place of business at the Buyer's cost; and
- the Seller accepts that the Buyer has brought a legitimate warranty claim.

8.6 The Seller shall not be liable for the Goods' failure to comply with the warranty in clause 8.1 if:

- the Buyer makes any further use of such Goods after giving a notice in accordance with clause 8.3;
- the defect arises because the Buyer failed to follow the Seller's oral or written instructions as to the storage, installation, commissioning, use or maintenance of the Goods or (if there are none) good practice;
- the defect arises as a result of the Seller following any drawing, design or Goods Specification supplied by the Buyer;
- the Buyer alters or repairs such Goods without the written consent of the Seller;
- the defect arises as a result of fair wear and tear, willful damage, negligence, or abnormal working conditions; or
- the Goods differ from their description the Goods Specification as a result of changes made to ensure they comply with applicable statutory or regulatory standards.

8.7 The warranty terms shall apply to any repaired or replacement Goods supplied by the Seller pursuant to clause 8.5 but not so as to extend the duration of the Warranty Period which lasts for a period of twelve (12) months from the date of delivery of the original Goods supplied.

8.8 Where the Seller is not the manufacturer of the Goods, the Seller will use its reasonable endeavours to pass onto the Buyer the benefit of any warranty or guarantee given by the applicable supplier or manufacturer.

8.9 The warranty in clause 8.1 does not extend to parts, materials or equipment not manufactured by the Seller. The Buyer will not be able to rely upon a warranty or guarantee given by the applicable supplier or manufacturer if one or more of the following apply:

- the defect arises because the Buyer failed to follow any instructions as to the storage, installation, commissioning, use or maintenance of the Goods or (if there are none) good practice;
- the Buyer or its agent alters or seeks to repairs such Goods itself;

(C) the defect arises as a result of fair wear and tear, willful damage, negligence, or abnormal working conditions; or

(D) the Goods differ from their description their specification as a result of changes made to ensure they comply with applicable statutory or regulatory standards.

8.10 No warranty is given that the Goods are suitable for any particular or special purposes or for use in connection with any equipment or other product or item unless expressly given in writing by the Seller.

8.11 In all circumstances where the Buyer returns any Goods to the Seller the Buyer shall be responsible for ensuring that Goods returned to the Seller are free from hazard, including biological, chemical or radioactive. The Seller reserves the right to refuse to accept any Goods which in its view present a hazard or may infringe any legislation, or is without a signed declaration that the Goods are free from any contamination or infection.

8.12 Payment for any alleged defective Goods or Services shall not be withheld by the Buyer pending investigations by the Seller as to the legitimacy of any warranty claim. If the total price has not been paid by the due date, then Seller shall not be liable under its warranty until the total price has been paid by the Buyer to the Seller.

9 DUTY OF CARE

9.1 The Buyer has a responsibility to ensure all Goods supplied, (especially hazardous substances) are stored and where appropriate installed and thereafter used responsibly and in accordance with all the appropriate legislation, requirements and recommendations. The Buyer shall take all appropriate precautions to ensure the safe and suitable installation, handling and use of the Goods. The Buyer is responsible for taking all steps necessary to eliminate or reduce the risk to health and/or safety arising out of the installation, possession and use of the Goods.

9.2 Any Goods supplied by the Seller are intended for experimental laboratory use only and are not intended to come into contact with food or drink for human or animal consumption, or for use as drugs for humans or animals, or medical devices, unless otherwise clearly stated.

10 INDEMNITY

10.1 The Seller and its suppliers own intellectual property rights in the Goods and in related literature and brochures. As such the Buyer undertakes that it shall not make copies of the Goods or of the Seller's catalogues, brochures, leaflets (or any parts thereof) without the prior and express written approval of the Seller.

10.2 The Seller shall have no liability for the infringement of any rights of any third party arising from the manufacture, supply or use of the Goods, to the extent that such claims arise from the Goods being used by the Buyer in combination with any other goods, trademarks, specifications or processes not supplied by the Seller and the Buyer shall hold harmless and keep the Seller indemnified against all such claims.

10.3 The Seller reserves the right to suspend performance of the Contract until a licence is obtained from the owner of any relevant third party intellectual property rights to permit their use.

11 EXPORT TERMS

11.1 In these conditions "Incoterms" means the international rules for interpretation of trade terms of the International Chamber of Commerce as in force at the date of when the Contract is made. If there is any conflict between the definition or particular meaning given to a term or expression by the Incoterms and the meaning given to the same term or expression under these conditions, the latter shall prevail.

11.2 Where the Goods are supplied for export from the United Kingdom the provision of this clause shall (subject to any special terms agreed in writing between the Buyer and the Seller) apply notwithstanding any other provision of this Contract.

11.3 The Buyer shall be responsible for complying with any legislation or regulations governing the importation of the Goods into the country of destination and for the payment of any duties on them.

11.4 Unless otherwise agreed in writing between the Buyer and the Seller the Goods shall be priced and delivered ex works the Seller's premises at Carlton House, Livingstone Road, Bilton, West Midlands, WV14 0OZ. Incoterms 2010, and the Seller shall be under no obligation to give notice under Section 32 (3) of the Sale of Goods Act 1979.

11.5 The Buyer shall be responsible for arranging for testing and inspection of the Goods at the Seller's premises before shipment the Seller shall have no liability for any claim in respect of any defect in the Goods which would be apparent on inspection and which are made after shipment or in respect of any damage during shipment.

11.6 Payment of all amounts due to the Seller shall be made by irrevocable letter of credit opened by the Buyer in favour of the Seller and confirmed by a bank acceptable to the Seller or if the Seller has agreed in writing or before acceptance of the Buyer's order to waive this requirement by acceptance by the Buyer and delivery to the Seller of a bill of exchange drawn by the Buyer payable sixty days after sight of the order of the Seller at such a branch of Barclay's plc or Bank of England as may be specified in the Bill of Exchange.

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