

EXCELON™ HIGH PERFORMANCE PEEK COMPONENTS



EXCELON™ PEEK

WHY CHOOSE PEEK?

SFC EXCELON™ PEEK

Excelon™ PEEK is engineered for industries where reliability, purity, and dimensional stability are non-negotiable. Every rod, tube, billet, and machined component is produced under AS9100D-driven processes that ensure consistent quality and repeatable performance.

Designed for extreme environments, Excelon™ PEEK delivers high strength, excellent wear resistance, chemical stability, and exceptional thermal capability, making it ideal for semiconductor, aerospace, oil & gas, medical devices, and high-performance sealing.

Because your equipment is only as dependable as the materials inside it, SFC's controlled consolidation, precision machining, and full traceability provide the confidence needed for mission-critical applications.

When uptime, safety, and stability matter, Excelon™ PEEK is the material you can trust.



“CUSTOMERS TRUST US WITH THE SUCCESS OF THEIR COMPANY”



SPECIALTY FLUID
COMPONENTS



EXCELON™ PEEK

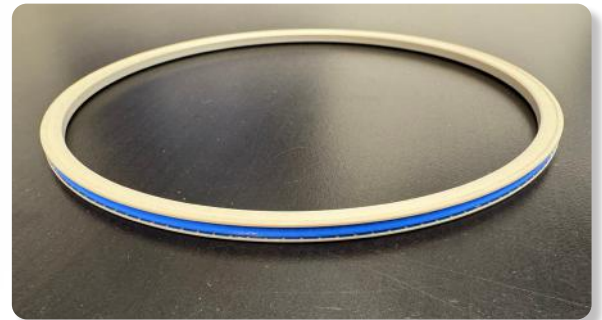
COMMON APPLICATIONS

COMMON APPLICATIONS FOR PEEK

SEAL JACKET / SEAL RING

Used in:

- High-pressure valves
- Dynamic piston & rod seals
- Rotary shaft seals
- Static face seals
- Cryogenic ball valves (LNG service)
- Compressor dry gas seals
- Chemical pump mechanical seals
- Semiconductor wet process sealing



THRUST WASHERS & SPACERS

Used in:

- Valve assemblies
- Rotating Equipment
- Gearbox assemblies (high-load, low lubrication)
- Electric motor thrust surfaces
- Turbo-machinery axial load control
- Pump bearing isolation stacks
- Actuator assemblies (linear & rotary)



WEAR RINGS / GUIDE RINGS

Used in:

- Aerospace actuators
- Hydraulic systems
- Oil and Gas tools
- Hydraulic cylinders (rod & piston guidance)
- Sub-sea equipment (low friction guidance)
- Linear motion systems (precision equipment)



ANTI-EXTRUSION RING / BACKUP RING

Used in:

- API Valve Stacks
- Hydraulic Cylinders
- Gas Compression Systems
- High-pressure O-ring sealing systems (>5,000 psi)
- Frac pumps and pressure control equipment
- Blowout preventers (BOP systems)
- Sub-sea connector sealing stacks
- Aerospace hydraulic manifolds



INSULATORS / ELECTRICAL COMPONENTS

Used in:

- Semiconductor equipment (etch / deposition tools)
- High-voltage electrical insulation components
- Connector housings in harsh environments
- Downhole electronics insulation
- Aerospace wiring systems



CUSTOM MACHINED COMPONENTS

Used in:

- Oil and Gas Downhole tools
- Semiconductor tooling components
- Medical device components
- Aerospace structural components
- High Temperature Fixturing



EXCELON™ PEEK

INJECTION MOLDED PEEK

OUR EXCELON™ PEEK

Designed for extreme environments, Excelon™ PEEK delivers high strength, excellent wear resistance, chemical stability, and exceptional thermal capability—making it ideal for semiconductor, aerospace, oil & gas, medical devices, and high-performance sealing.

Excelon 1500™ series, injection molded PEEK products from Specialty Fluid Components have the following characteristics:

- Excellent chemical resistance
- High mechanical strength
- Good wear and abrasion resistance
- Very low moisture absorption
- High heat resistance



WHAT SETS SFC EXCELON™ PEEK APART

Unmatched Material Integrity

Through controlled consolidation, optimized heat profiles, and continuous in-process monitoring, Excelon™ PEEK achieves consistent crystallinity and micro-structure—translating into superior tensile strength, elongation, wear resistance, and structural stability.

High-Temperature & High-Load Capability

Excelon™ PEEK maintains mechanical strength and stiffness at temperatures exceeding 480°F, enabling use in harsh thermal environments where metals or other polymers quickly degrade.

Exceptional Chemical & Wear Resistance

PEEK's inherent resistance to acids, bases, steam, hydrocarbons, and high-PV wear environments makes it a top choice for critical sealing, valve, bearing, and semiconductor equipment applications.

Precision Processing for Tight-Tolerances

Our in-house CNC machining program specializes in high-mix, low-volume aerospace-grade components. Dimensional accuracy, roundness, and surface finish requirements are achieved through tooling, feeds/speeds, and fixtures developed specifically for PEEK.

Industry-Focused Formulations

From Virgin Natural to Glass-Filled, Carbon-Filled, and Bearing-Grade PEEK, Excelon™ blends are engineered to meet specific environmental and mechanical targets—reducing wear, improving load capacity, and extending service life.

Unmatched Material Integrity

Through controlled consolidation, optimized heat profiles, and continuous in-process monitoring, Excelon™ PEEK achieves consistent crystallinity and micro-structure translating into superior tensile strength, elongation, wear resistance, and structural stability.

EXCELON™ PEEK

PEEK MATERIAL

EXCELON™ 1500 – VIRGIN NATURAL PEEK

Excelon™ 1500 unfilled version offers increased abrasion resistance at higher temperature ranges than other engineering polymers generally used as seals, bearings and structure components. Excelon™ 1500 has a high tensile and yield strength while providing a high elongation to provide a good impact resistance. Unlike competitor's PEEK rods and tubes, Excelon™ exceeds the minimum standard mechanical properties established by any PEEK resin manufacturer.



EXCELON™ 1501 – GLASS FILLED PEEK

Excelon™ 1501 is a 30% glass fiber reinforced PEEK compound designed to reduce the shrinkage as well as the expansion characteristics of unfilled PEEK. In addition, this compound is designed for components requiring increased stiffness, stability and strength, especially for applications exceeding temperatures above 350°F.



EXCELON™ 1502 – CARBON FILLED PEEK

Excelon™ 1502 is a 30% carbon fiber reinforced PEEK compound engineered to provide much higher tensile and yield strengths to be utilized in applications such as bearings and wear rings for high temperatures above 400°F to its maximum design temperature. This compound also significantly enhances the shrinkage and expansion characteristics similar to the Excelon 1501. In addition, Excelon 1502 has the highest bearing load carrying capabilities among the three compounds and dissipates heat much faster than any other PEEK products.



EXCELON™ 1503 – 10/10/10 BEARING GRADE PEEK

Excelon™ 1503 is a high-performance bearing-grade PEEK compound formulated with 10% PTFE, 10% graphite, and 10% carbon fiber. This balanced blend provides exceptional wear resistance, low friction, and excellent dimensional stability for dynamic sealing and high-load bearing applications. The carbon fiber increases stiffness and load capacity, while the PTFE and graphite deliver outstanding lubricity and reduced heat generation. Excelon™ 1503 is ideal for high-PV environments and maintains reliable performance at elevated temperatures, exceeding the minimum property standards of the base PEEK resin.



EXCELON™ 1506 – PTFE FILLED PEEK

Excelon™ 1506 is a PTFE-filled PEEK compound engineered for low-friction, wear-resistant performance in dynamic sealing and bearing applications. The PTFE additive reduces stick-slip and heat generation while preserving PEEK's strength, chemical resistance, and thermal stability, making Excelon™ 1506 ideal for smooth-motion, moderate-load environments requiring consistent, reliable performance at elevated temperatures.



EXCELON™ 1600 – CRYOGENIC PEEK

Excelon™ 1600 is a carbon fiber-reinforced PEEK compound engineered for high-strength, wear-resistant performance in dynamic sealing, bearing, and structural applications. The carbon fiber reinforcement increases stiffness, reduces creep, and improves load-carrying capability while maintaining excellent chemical resistance and dimensional stability. Excelon™ 1600 performs reliably in high-load and elevated-temperature environments, making it well suited for tight-tolerance, high-PV applications.



EXCELON™ PEEK

PEEK MATERIAL

Excelon 1500TM Injection Molded Rods and Tubes PEEK (PolyEtherEtherKetone) material provides high strength, superb chemical resistance and dimensional stability. Because of its linear aromatic semi-crystalline polymers, it retains a high degree of mechanical properties close to its melting temperature of 649°F. Specialty Fluid Components Manufacturing offers tube sizes up to 38" and rod sizes from 1/2" and up.

EXCELON PEEK PRODUCT DATA (INJECTION MOLDED)

MECHANICAL PROPERTIES		EXCELON 1500	EXCELON 1501	EXCELON 1502
	UNITS	VALUE	VALUE	VALUE
SPECIFIC GRAVITY	g/cm ³	1.30	1.50	1.40
TENSILE STRENGTH	PSI	15,000	23,200	19,000
ELONGATION	%	30	3 TO 10	2%
HARDNESS		R126	R124	R124
FLEXURAL STRENGTH	PSI	22,000	28,000	25,570
FLEXURAL MODULUS	PSI	500,000	100,000	125,000

MECHANICAL PROPERTIES		EXCELON 1503	EXCELON 1506	EXCELON 1600
	UNITS	VALUE	VALUE	VALUE
SPECIFIC GRAVITY	g/cm ³	1.44	1.38	1.40
TENSILE STRENGTH	PSI	18,000	14,000	10,900
ELONGATION	%	4	15	25
HARDNESS		R124	R122	R118
FLEXURAL STRENGTH	PSI	30,000	22,000	19,100
FLEXURAL MODULUS	PSI	1,500,000	500,000	478,000

OTHER CUSTOM PEEK COMPOUNDS AVAILABLE UPON REQUEST

PLEASE CONTACT OUR EXPERIENCED SALES ENGINEERS TODAY TO DISCUSS EXCELON PEEK APPLICATIONS.

All statements and technical information contained herein are typical values intended for reference and comparison purposes only. Specialty Fluid Components Manufacturing or any of the companies affiliates assume no obligations or liability for any results that are derived from the data provided. The should NOT be used as a basis for design specifications or quality control. All values are 73°F (23°C) unless otherwise noted.



SFC QUALITY COMMITMENT

AS 9100:2016
BUREAU VERITAS
Certification



QUALITY BUILT IN - FROM RAW MATERIAL TO FINAL INSPECTION

- AS9100D Certified Quality Management System
- Controlled incoming material verification
- Defined process controls at every manufacturing step
- Documented inspection and verification procedures



ADVANCED INSPECTION & MATERIAL VERIFICATION

- High-precision dimensional inspection equipment
- Routine material testing and verification
- In-process and final inspection checkpoints
- Stringent acceptance criteria aligned with customer and industry requirements

ENGINEERED, MACHINED, & CONTROLLED UNDER AS9100D

- Controlled consolidation and crystallinity management
- Tight-tolerance CNC machining processes
- Full lot and material traceability
- High-Mix, Low-Volume MFG support





SPECIALTY FLUID COMPONENTS



Specialty Fluid Components is proud to be AS9100D certified and listed in the IAQG OASIS (Online Aerospace Supplier Information System). Customers and industry partners may verify our certification status by searching for Specialty Fluid Components in the OASIS database at <https://www.iaqg.org/oasis>

**SPECIALTY FLUID
COMPONENTS**

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