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CHATROOM

We would like to recognize some of our contributors over the last several months who will be presenting at this year's IAFC Hazardous Materials conference in Baltimore this month: **Mike Hildebrand, Chris Hawley, Glenn Rudner Toby Bevelacqua, Kevin Ryan Bobby Salvenson, Todd Burton, Benjamin Herskowitz, Bob Coschignano, Derek Schaumann, Mike Bloski**

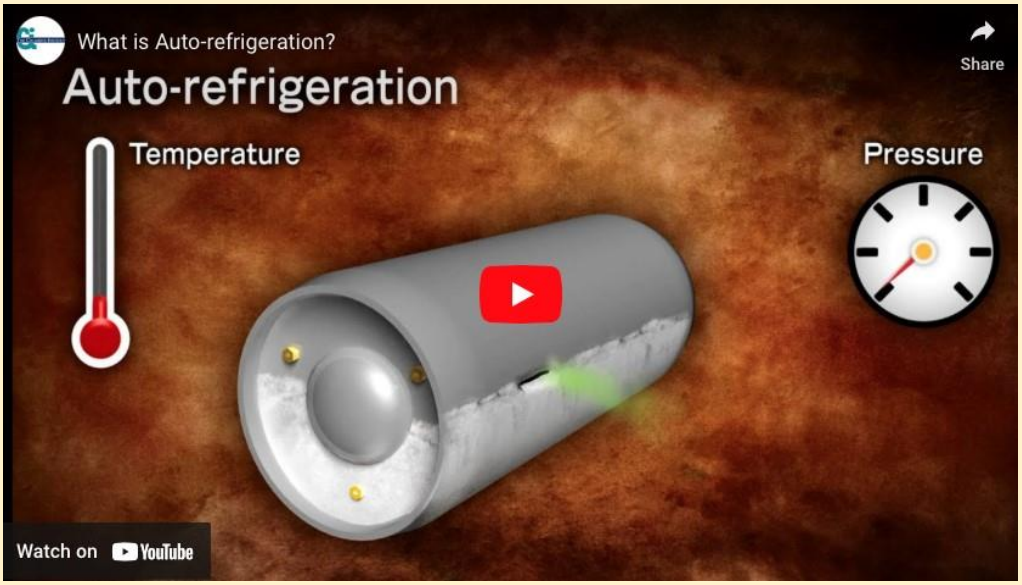
Stop in any of their classes if you are at the conference, you won't be disappointed.

Understanding Auto-refrigeration

By: Michal S. Hildebrand, CSP

What is Auto-Refrigeration?

Auto-refrigeration can be experienced with liquefied compressed gases including Liquefied Petroleum Gases (LPG), Liquefied Natural Gas (LNG), chlorine, ammonia, carbon dioxide, and other types of liquefied gases. An emergency



involving auto-refrigeration can create safety issues and prolong time at incident scene if you do not understand what is occurring.

Auto-Refrigeration is a process where a liquefied compressed gas goes through an unintentional or uncontrolled “phase change” from a liquid state to a gas state. The most common emergency situation where auto-refrigeration comes into play involves propane.

Propane is stored and transported in a pressure vessel and will stay at near constant temperature if kept at constant pressure. Think of your propane gas grill. When it is not being used you can touch the side of the tank with your hand and it will be close to whatever the ambient air temperature is, but if you open the valve and ignite the grill, the tank will feel cold.

At a given temperature of the liquid a corresponding vapor pressure will boil off into a vapor until the vapor pressure in the container is equal inside the container. At

temperatures above -44°F (boiling point of propane) the liquid will boil off vapor until the

vapor pressure in the container is equal to the pressure of the surrounding atmosphere. In a closed container, boiling (vaporization) will stop when this equalization is achieved.

When the propane tank valve is opened and the vapor is allowed to escape, the pressure inside the container will drop because the

surface pressure of the liquid will exceed the vapor pressure in the container and vaporization (boiling) of the liquid propane will occur. The boiling will continue until the container valve is closed and again reaches equilibrium.

In order for the propane to change from a liquid to a gas, a significant amount of energy is required. Energy in the form of heat is drawn from the liquid. The liquid then replaces this heat by drawing energy from the matter surrounding it. Mainly, heat comes from the air outside the container. The heat is transferred through the container walls of the container to the LIQUID propane. Very little heat is transferred through the container walls to the vapor space in the container.

In an accident scenario, auto-refrigeration can come into play because unlike the gas grill example, the vaporization of the propane from a liquid to gas state is unregulated. As propane vaporizes, it initially gets its energy directly from the liquid. But when this capacity to draw energy from the liquid is exceeded, the temperature of the liquid begins to drop as energy is drawn from it. The propane actually cools itself and goes into auto-refrigeration and vaporization slows down or stops.

Underground Tank Scenario

In an accident involving an underground propane tank, the gas release is uncontrolled and auto-refrigeration can come into play. Consider the following example:

An end loader grading a yard for installation of a swimming pool in the rear of a new home

accidentally strikes the top access of a 500-gallon underground propane tank. When the fire department arrives a propane vapor cloud can be observed shooting up in the air and there is no fire. The underground tank riser is exposed and bent at an angle and will require removal and repair by a propane technician. This scenario is a common problem with underground tanks, even with the proper installation and adequate protection. Damage to underground tank risers are usually caused by heavy construction equipment, mowers, or snow plows.

When an underground tank's riser is damaged and the pipe shears, there is an initial "blow off" of the propane tank as the tank rapidly depressurizes. Once this initial blow-off occurs, the tank may go into auto-refrigeration

and the rate of release of flammable gas will slow down significantly. Rapid vaporization of the propane will also frost the underground tank's shell and freeze the ground around the area where the tank is exposed. The fact that the tank is in auto-refrigeration gives repair crews under the protection of hoselines time to change out the damaged parts.

A common mistake made by inexperienced Incident Commanders is that once the vapor cloud has subsided, it's assumed that the tank is empty because the vapor cloud has disappeared. If the tank valve is on fire, the fire may have subsided or even go out and the incorrect assumption is made that the tank is empty and the product has burned off. The tank might in fact be empty, however, what is more likely is the tank has gone into auto-

refrigeration. The incident is not over, it just slowed down on the timeline. Once the energy required to warm up the refrigerated propane is obtained from the heat of the surrounding ground, the propane warms again and will start to vaporize and the propane vapor cloud will reappear. If the valve was on fire and has extinguished during auto-refrigeration, the situation can become dangerous as a vapor cloud forms. The cycle of propane cooling, low intensity leaking, then warming, boiling again and creating a vapor cloud can go through several cycles until the tank has emptied or has been repaired by a propane technician. Order food and beverage because you are going to be there for some time. You do not want to look bad leaving the incident scene thinking the tank is empty, only to have to return again.

There is also the possibility of an ignition of the propane as the liquid begins to vaporize and is released to the atmosphere.

Two street smart tips to consider when dealing with underground propane tanks are:

1. Even when the ground is frozen on the surface in winter, the ground the tank is buried in is warmer than the surface, which supplies the needed heat to warm the propane to start the boiling process. Keep in mind that even when the ground surface temperature is at the freezing point of 32°F, three feet underground the temperature can be 52° F. The boiling point of propane is -44°, so there is plenty of energy in the form of heat to warm the liquid inside the tank. The warmer the weather, the faster the boiling/vaporization process.

2. Presence of a white vapor cloud is not an indicator that there is no propane gas present. The vapor cloud is caused by the cooler propane gas coming into contact with the warmer moist air. The white fog you are seeing is a combination of cooler water moisture from the air and the propane gas. When the vapor cloud warms, the white fog disappears and you still have propane gas in the vicinity of the leak. Remember that propane gas by itself is colorless. You have to monitor the air for gas concentrations to establish Safe, Unsafe, and Dangerous Zones. Air monitoring is especially important if a propane technician is working on the valve or underground tank riser.

Other Liquefied Compressed Gas Scenarios

There are several other common auto-refrigeration scenarios involving liquefied compressed gases.

Flaring LPG

Auto-refrigeration of propane may also come into play during flaring operations. If off-loading a propane tank truck or rail car is unsafe due to tank configuration or damage, burning off the propane through a controlled burn using a flare can be a safe option. Flaring off the propane vapor from the container has to be controlled to maintain the right rate of vaporization. If the burn-off rate is too rapid, the propane can go into auto-refrigeration.

3. One drawback of flaring is the time required to burn off the product to prevent

it from going into auto-refrigeration. For example, using a 2-inch-diameter hose of 150 feet in length, it would take approximately 177 hours to flare off 30,000 gallons of propane, 54 hours to burn off 11,500 gallons, and 14 hours to burn off 3,000 gallons (assuming the temperature of the propane was 0°F). If the Incident Commander decides to go with a flaring option, the time required to accomplish the

task must be weighed against other factors such as safety, disruption of transportation systems and businesses, and the safety and speed that other options may present.

Figure 1 Flaring operations involving an overturned and stressed MC-331 cargo tank truck transporting propane. ***Photo: Ron Huffman***.

See the You Tube video showing propane boiling and the pressure dropping by Ron Huffman. Wait four seconds for the annoying advertisement to end! [https://www.youtube.com/watch?v=Ox6V2773Q7Q]

Ammonia and Chlorine – If the container shell holding these materials is breached, they might go into auto-refrigeration. See the Chlorine Institute video at the You Tube link. https://www.youtube.com/watch?v=1A41PEGUXYg

Sources:

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Mike Hilderbrand is President at Yvorra Leadership Development Foundation. Experienced consultant skilled in emergency planning and response for public safety, industry, and the military. Coauthor of six textbooks on hazardous materials emergency response, including Hazardous Materials: Managing the Incident (5th edition) - now in its 35th year of continuous print.

HazMat Engine's

By Tony Perrone,

Entering the fire service demands a mastery of numerous disciplines. Whether you're a fresh-faced probie emerging from training or a seasoned veteran counting down the years, the journey is fraught with evolving policies, procedures, tactics, and hazards. Yet, amid the discourse, one discipline often overlooked is the response to hazardous materials. With an increasing number of companies tasked with this critical duty, particularly engine companies, the landscape for firefighters today is both challenging and dynamic. As industries evolve and new substances emerge, the complexity of hazardous materials incidents escalates, demanding constant adaptation and

vigilance from those on the front lines. Understanding the nuances of hazardous materials, from identification to mitigation, is no longer a niche skill but a vital component of modern firefighting. In this ever-shifting environment, staying abreast of the latest protocols and technologies is not just advisable but imperative for ensuring the safety of both responders and the communities they serve. So, what strategies are emerging to confront this multifaceted hazard, and how are firefighters being equipped to navigate this increasingly intricate terrain? These questions underscore the pressing need for ongoing dialogue and innovation within the fire service to effectively address the challenges posed by hazardous materials incidents in the 21st century.

Across the nation, engine companies stand as pillars of emergency response, entrusted with an ever-expanding array of duties—from attending to medical emergencies and navigating through car accidents to executing intricate rescue missions and, more recently, addressing hazardous materials incidents. The evolving landscape of emergency services has placed a growing burden on our members, who find themselves navigating a labyrinth of diverse disciplines. Step into any firehouse from coast to coast, and you're likely to overhear discussions centered on recent "jobs" or tactics aimed at optimizing firefighting effectiveness—a testament to the dedication and proficiency of our firefighting personnel.

Undoubtedly, mastering the traditional firefighting skills was a foundational

expectation for those who committed to serving in engine companies. Yet, the introduction of hazardous materials response injects a new layer of complexity into an already demanding profession. Unlike skills learned through informal channels or passed down over kitchen tables, proficiency in hazardous materials handling demands a structured and exhaustive training regimen. Achieving certification in this domain requires not just dedication but also hundreds of hours of rigorous instruction.

However, certification is just the beginning. The dynamic nature of hazardous materials incidents necessitates ongoing education and skill refinement. Maintaining readiness in this specialized field demands a level of dedication comparable to, if not exceeding, that required

for firefighting proficiency. It's a relentless pursuit of excellence, where constant training and equipment familiarity are essential for effective response.

Traditional firefighting training offers numerous advantages in emergency response. It enables effective planning and the ability to anticipate potential actions and hazards during the response, allowing proactive measures to be implemented beforehand and better preparedness to address them. However, hazmat response operates differently. While it's possible to preplan a response, the hazards associated with various chemicals can significantly challenge response tactics, potentially leaving responders inadequately prepared for unexpected changes. Unlike traditional firefighting tactics aimed at

eliminating or removing individuals from hazards, hazmat response focuses on mitigating potential or imminent dangers.

In essence, as engine companies expand their repertoire of services to meet the evolving needs of their communities, the

dedication and adaptability of their members stand as the cornerstone of their effectiveness. Whether tackling a structure fire, stabilizing a hazardous materials spill, or providing life-saving medical aid, our engine company members embody the

spirit of service and readiness that defines the firefighting profession.

This following delves into the crucial aspect of maintaining motivation among firefighters to excel in hazmat response, emphasizing the pivotal role management plays in fostering this commitment. It stresses that management must fully endorse and support this new discipline, both financially and through adequate training opportunities. The author highlights the considerable expense associated with hazmat equipment, which often exceeds the costs of traditional firefighting gear. Despite the financial challenges, managers are tasked with ensuring that hazmat response capabilities are not neglected, as doing so would compromise both the safety of firefighters and the effectiveness of emergency

response efforts. Additionally, the following underscores the importance of ongoing training support from management to ensure firefighters are prepared to handle hazardous materials incidents effectively.

Let us discuss how we can keep the members motivated to take on this new task and be proficient at it. This writer believes that the buy-in must start with management. Hazmat response is not cheap. The cost of equipment far out paces the cost of most firefighting equipment, sans emergency response vehicles. Managers have the daunting task of balancing finances and keeping all equipment up to standard, while being certain to include hazmat considerations.

As the above states, motivating members by management can be a daunting task. It’s

important to remember that motivating members is a team effort. Members signed up to fight fires and perform rescues. Most weren't aware that this newfound discipline would be slid across their plate. Nevertheless, most members have in fact taken the task of hazardous materials response very seriously. Company pride and knowing that the citizens are relying on firefighters to "make everything better" ultimately drives the response of many. In the fire service we all know that there is nothing better than knowing that your company was tasked with a particular job and that you and your members completed the work efficiently. With that, most companies would then build off that experience and share the knowledge learned. Knowing that you and your company are in the forefront of sharing

new vital information can and has given members the drive to continue to educate themselves, train, and stay motivated.

This article discusses the increasing responsibility of engine companies in responding to hazardous materials incidents withing the fire service. It highlights the challenges faced by firefighters, from new probies to seasoned veterans, in staying proficient in various disciplines amidst evolving policies, procedures, tactics, and hazards. Engine

companies are now often tasked with not only firefighting but also medical responses, car accidents, rescue work, and hazardous materials response.

The article emphasizes the complexity of hazmat response and the significant training required to handle and mitigate hazardous materials effectively. It stresses the importance of management buy-in to support firefighters in acquiring the necessary training and equipment for hazmat response. This includes providing financial support for equipment and training, as well as balancing resources to maintain proficiency in all disciplines. The article underscores the need for ongoing support from management to ensure firefighters can effectively respond to hazardous materials incidents.

Anthony Perrone: FDNY 44 Engine, Hazmat Tech Engine

FDNY Hazmat Program Coordinator/Course Developer

FDNY Hazmat Lead Instructor

Owner: Down Range Ops, LLC

PPE, A False Sense of Security

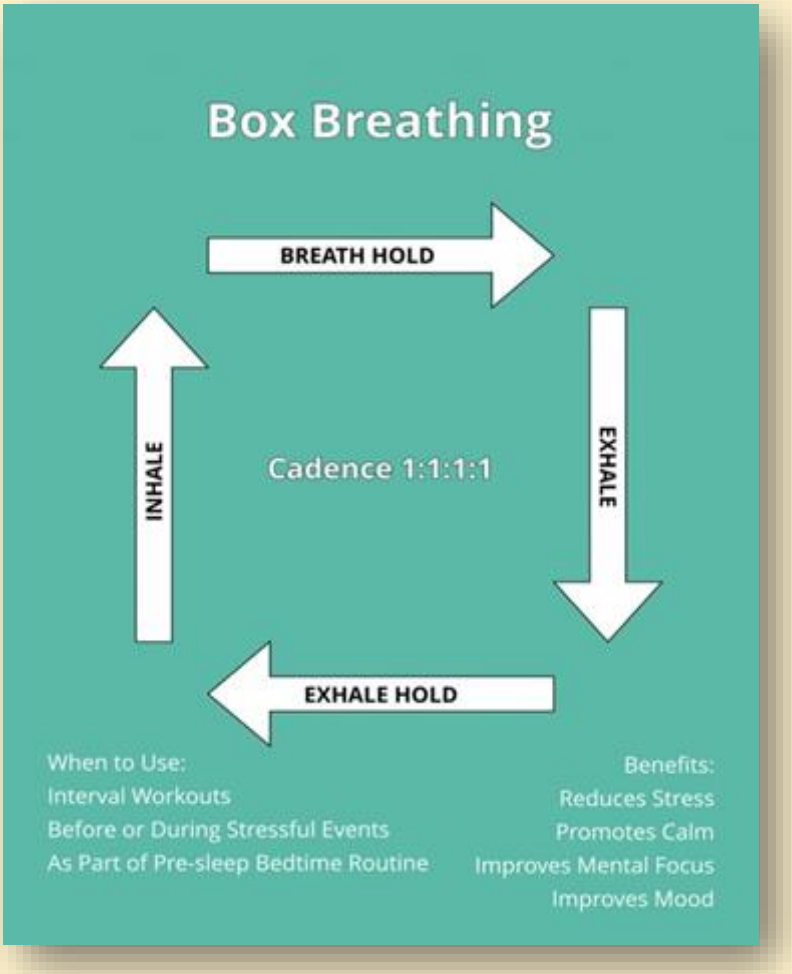
By Kevin Ryan

I recently had a discussion with (2) experienced veterans of the Baltimore City FD about our Personal Protective Equipment (PPE). The members had 40 plus years on the job with assignments in the busiest companies Baltimore has to offer. The discussion was centered around how well protected we are in our Turnout Gear and SCBA. The Nomex or PBI hood was the biggest change they had seen in their time. We are so well encapsulated that we lose a sense of the environment we are in. Hoods do so well at protecting our ears and neck that we never really get a sense of just how hot it is when making a push on the fire. Members now push deeper into the dwelling

before we ever realize that we are in an untenable atmosphere. Our situational awareness is quickly compromised once we get into full turnouts and SCBA. Dave and Charlie really gave me a lesson in how we should approach our PPE selection for hazmat response. We must realize that our PPE is a false sense of security. The very first limitation we must consider is our members. Quality training (there is that phrase again) must expose these limits to our members. The physical and mental fitness of our hazmatters is priority. How do we assess these two traits? Physical traits are much easier to size up than the mental aspect. Required medical exams as directed by OSHA are a good place to start. The BCFD takes exams on a bi yearly basis given the logistics of sending 140 members through our

Public Safety Infirmary for evaluation. The bi yearly exams still meet OSHA criteria as the AHJ can determine the exam frequency. The process gives a good measuring stick for the physical fitness of our hazmatters. The assessment of a member on the mental level is much more subjective. How will a technician student react the first time they are placed inside an encapsulating suit in training? A good instructor will be able to put the student at ease. The breathing process is key in working inside a plastic bag. Nervous students will have to deal with a heightened sense of anxiety once they feel that zipper close. The instructor can assist by talking to them through the breathing process. Once a student controls

their breathing, the confidence quickly comes to them. The mind is now free to focus on developing the skills to operate with reduced vision, dexterity, and hearing.



Advanced technicians can build confidence in many ways. Training that presents the biggest challenge gives the largest boost in confidence. I can remember a confidence drill I took part in at Delaware Hazmat Weekend. The training was conducted by Ret. Dupont Experimental Station Chief Daryl Meade as part of a suit

emergencies class. Students removed their regulator from their SCBA inside a Level A suit allowing carbon dioxide to fill the suit. The student had a 4 Gas meter inside the suit to monitor oxygen levels. I clearly remember the struggle to breathe easy once I reached 12% O2. You really had to control your breathing to maintain your calm. Once breathing is controlled, you can quickly replace your regulator to breathe normal air again. Proper breathing can allow a

student to remain calm. The student must learn to accept the challenge rather than the struggle to breathe. The drill is great for building suit confidence and developing the hazmatter's mental performance. I would recommend that you take all necessary precautions if you attempt this type of training. O2 levels below 19.5% are IDLH and you must plan the training accordingly. Live agent training is an excellent way to learn suit limitations. Dave Binder of Tanner Industries provides

hands-on training with live ammonia. The evolution consists of students in Level A performing a tarp and cover scenario on a live ammonia release. The students get to feel the cool rush of ammonia on their feet as the tarp is pulled down to the ground. The quick blast of cold gas teaches students that their PPE is not immune to temperature change. A real-world limitation is felt as they secure the tarp to the ground. The evolution is quality training that teaches PPE limits. PPE limitations must be a part of good tactical decision making. PPE selection based on the tasks being performed is a skill as well as an art form. The environment, task performed, time required, and other considerations need to be made. The BCFD took a response at a dialysis clinic for spilled chemicals. The chemical was a strong

oxidizer that was in a storage room. The spill from several 5-gallon containers had soaked several pallets and left puddles on the floor. The objectives were to overpack damaged containers, remove contaminated pallets and clean up liquids on the floor. PPE choice could have been Chemical or Fire PPE. What would your call be? The BCFD chose Fire PPE with SCBA. How did we justify our decision? The determining factor came because of the soaked pallets now becoming a greater fire hazard after getting soaked with Oxidizer. Members could place pads and manipulate with handles or poles preventing foot or hand exposure. The skill of PPE selection is understanding what Fire or Chemical PPE is intended for. The art of applying those skills comes in recognizing the increased fire hazard of oxidizer-soaked pallets.

PPE is the means that allows us to perform work in hazardous areas. We must remember that PPE has its limitations. The limitations must be factored into our decision-making process when sizing up an incident. Quality training is the best way to attack the **false sense of security** that PPE lulls us into.

Hazmat HQ readers that will be in Baltimore for the IAFC Hazmat Conference are invited to attend my session on Friday June 7th at 215 PM. My class will cover articles I have written, leadership, and above all valuing your hazmatters. See everyone in Bmore!!!!

Kevin Ryan leads the Baltimore City FD Hazmat Operations Office. A 31-year veteran of the fire service with 26 years of experience in the world of hazmat response. He is a Level III instructor and adjunct at the BCFD Fire Academy.

Carbohydrillium Gas Cylinder Failure – First Due Report

By Bob Coschignano & Ed Maerkl

On September 26th, 2013, at approximately 1230 hrs. the City of Orlando Fire Department was dispatched to multiple reports of an explosion in the downtown corridor.

Units arrived to find a huge hole (approx. 50’ wide)

in the brick wall in the rear of the building in

question. The building was an approximately 38,000 square foot, warehouse type structure with a combination of construction styles, including steel I-beam, Terracotta block and wood floor and sub-structure.

The first due District Chief arrived, established command, and implemented a NIMS command structure. Command allocated units by task. Special Operation

units: Engine 101, Hazmat 1 and Tower 7 were assigned by command to collaborate and form the hazardous materials group. Heavy Rescue 1 evaluated the structure for stability and established proactive RIT. Tower Company 1 was tasked with controlling utilities and Engine Company 1 established a supply line and protection lines in the event of fire or secondary explosions. Rescue 1 became the Ready Rescue in the event of victims being found or fire fighter injury. The second arriving District Chief became the Safety Officer. Several other units responded initially but primarily assisted in establishing a safe zone and denying entry to civilians which eventually was taken over by PD. The nearby railroad also had to be shut down due to units being staged too close and supply lines crossing tracks. Railroad supervisors were integrated into a unified command structure, as was a PIO due

to the mounting media interest, in addition to various federal offices, which were nearby. The departments Arson/Bomb Squad began the task of interviewing eyewitnesses as well as the building owner and staff.

Early on, a clear path of destruction was prominent on the ground floor Bravo/Charlie quadrant, which provided a suspected area of origin. The basement was searched for victims, damage to below grade structural components (floor joists etc.) and hazardous atmospheres, of which none were found. On the ground floor there was heavy destruction, however no fire damage was present as one would expect with a natural gas leak finding an ignition source. Scattered throughout the debris outside and in the room of origin, were various large pieces of equipment and several red colored 150 lb. type gas cylinders.

Arson /bomb division reported, after speaking with the building owner, that he was working with an experimental gas he called ***carbohydrillium*****,** used for cooking and industrial purposes. Units withdrew from the building at this time and the hazardous materials officer (E101 officer) met with the building owner and his "scientist". They reported that there was not a proper safety data sheet (SDS), nor was the exact chemical formula for this mixed gas known. They did provide some approximate values of gases contained in this product as well as describing the general procedure for making it. This interview yielded that there was, ***oxygen***, ***carbon monoxide, carbon dioxide, nitrogen*** and ***hydrogen*** in undetermined levels in the mixture (*Other compounds present include acetylene, methane, ethylene, ethane, propane, propylene, and other light chain*

carbon compounds) and the owner reported that he had some previous "minor" tank failures in months past. After this information was provided, further investigation was conducted in the area of origin and what had initially appeared to look like a flat piece of pitted steel was actually the remains of the failed tank that had completely unraveled flat

the top valve assembly was hidden by debris, so it was not easily recognized.

A meeting with command, the bomb squad, and the hazmat team ensued, to establish an action plan. It was determined that the safety of the existing cylinders posed a potential hazard that needed to be mitigated, to prevent future issues and for public safety. There was great discussion on the best practice for dealing with the remaining tanks, which numbered about ten. The owner had provided a sketch of where the full and empty tanks were originally located, this ended up being of little help as the explosion had moved nearly all of them. The owner did not otherwise document them as full or empty. Ideally, the use of the EOD robot was the first choice as it was an unmanned operation; however, the Bomb Squad did not feel the robot could have

effectively maneuvered the debris in this situation.

The second option was a Bomb Technician in blast suit. This again was debated, however due to the lack of vision and mobility in the suit moving over and around the debris could have been more of a hindrance and hazard than a

solution. The final decision came down to the Hazardous Materials Team. It was decided that a two-person team utilizing bunker gear with SCBA, air monitoring detection and an unmanned Rapid Attack Monitor (RAM) nozzle to hydraulically ventilate the gases out through the breach in the wall and to provide some protection in the event of a failure or fire to the operating crew. A Rapid Intervention Team and Ready Rescue would also be on standby.

The first step was in setting up the unmanned monitor, and moving the bomb robot into a position to monitor sound and video for the room so the entry team and cylinders could be observed. A two-person entry team entered the structure and proceeded to the first cylinder. It had been decided to mark each bottle with a number,

crew name, date and time in a conspicuous place to keep track of how many bottles we rendered safe. The first bottle was encountered, uncapped and valve cracked to begin venting process. Entry team withdrew, activated the hydraulic RAM nozzle and made way to a pre identified area of safe refuge. A four-gas monitor with PID was within ear and eye shot of the robot camera to document readings of the actual gas. Alarm levels on both carbon monoxide and lower explosive level noted ***(with no fog line LEL 72%, CO 35 ppm, under fog line LEL 1-5%, CO 2ppm).*** Once complete, the RAM was secured and moved to the next bottle. This process was repeated for all 10 cylinders with multiple entries being made by the hazardous materials team. A map of the location of all the bottles handled was made and passed along so that each team could start where the other left off.

All the bottles were safely bled off without incident. The time of incident was approximately seven hours operating on scene.

There were several lessons learned from this incident:

- Safety is number one, both for personnel and the public.
- A strong inter-agency unified command is imperative and contributed to the overall success of the incident.
- Gaining intelligence from a variety of sources to include owner/occupant if possible.
- It is important to conduct a risk versus gain analysis and establish an Incident Action Plan (IAP).
- Rotate crews to prevent fatigue and provide adequate rehab.

- Resist the pressure to open highways, railways or other traffic avenues until incident allows.

This particular variety of experimental cooking gas is gaining popularity in locations all over the United States and appears to be held to little regulation.

For addition information contact

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Mr. Coschignano has been in the fire service for over 30 years, most of which have been in Special Operations. Mr. Coschignano has served on both state and local hazardous materials related committees. Mr. Coschignano is an instructor and evaluator for several local and state competency drills and has lectured around the country. He was the program manager for the Hazardous Materials Technician program at Valencia College. Mr. Coschignano

is also DEA certified in Clandestine Labs. Mr. Coschignano is Co-Author of Chemical Card Guide and Risk Based Response Quick Chemical Access Cards published by RedHat publications Contributor for National Emergency Response Drills by The HazMat Guys on Amazon. Mr. Coschignano is Co-host of The HazMat Guys Roundtable. Mr. Coschignano is also President of HazMat101 Consultants and 2022 recipient of the International Association of Fire Chief's Hazardous Materials Level A award for instruction. Mr. Coschignano is co-editor of HAZMAT HQ Digital Magazine. Mr. Coschignano holds an A.S. degree in Fire Science and is retired Hazardous Materials Team Lieutenant from the City of Orlando Fire Department

Do you have the tools and training you need? Let us prepare you for your first or your next propane incident.

R**esponder **T**raining **E**nterprise's* owner has over ***30 years experience instructing firefighters how to manage propane incidents ***plus 14 years in the propane service industry***. His service experience includes; bulk truck and transport rebuilding, chassis change-overs, meter proving, D.O.T. testing on bobtails and transports, hydrostatic & magnaflux testing, repairing pumps, compressors, meters, valves, hose reels, Industrial propane stand-by systems, storage tanks, vaporizers, pump stations and other related equipment.

RTE's training options include: Live Fire, Leak Response, Flaring, Water Injection and more. We can come to your area with our mobile training prop. Contact us today for a quote.

As with so many of my products, I see a need and try to build something to fix or at least work on the problem. Just like our Patent Pending ***All-N-One Socket Set.*** Designed to fit all 6 styles/sizes of Liquid Withdrawal Valve caps.

ALL-N-One Set

Water Injection

1- Inch Propane Flare

aka The Dragon Slayer

CNG to Propane Flare Connector Kit

Engine Company Cap-N-Seal Kit

The "Propane Cap-N-Seal Kit" provides arriving units multiple options to cap and/or seal many types of small propane leaks until it can be fixed properly or rendered safe in another location.

Propane Specialist Response Kit

Provides the user the ability to function on small portable cylinders (DOT), residential (ASME), bulk storage, plus MC-331's up to 3-1/4" ACME fittings. The kit is designed to connect to a full flow 1-inch flare for maximum flows for large and small operations.

Small Cylinder Flare

Designed for the small job! (250 Gallon or less)

Compact enough to be carried on most vehicles

Small portable design makes it easy to be carried on a fire truck, squad, chief's vehicle and the list goes on...

Contact: Ron Huffman @ (765) 524-4848 respondertraining.rdh@gmail.com

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CONFERENCE DATES

IAFC Baltimore HazMat Conference
Jun 5 – 9 2024

Virginia Hazardous Materials Conference
Sept 17 – 20 2024

Florida Hazmat Symposium

Jan 14 – 17 2025