

3. HAZARD IDENTIFICATION (continued)

NOTE: This gas mixture contains a maximum of 250 ppm Hydrogen Sulfide. The higher concentration values here are presented to delineate the complete health effects which have been observed for humans after exposure to Hydrogen Sulfide. Another hazard associated with this gas mixture is the potential for anesthetic and peripheral neuropathy effects after inhalation over-exposures to Propane and n-Pentane (components of this gas mixture). Specific human over-exposure data are available for n-Pentane, as follows:

CONCENTRATION

OF n-PENTANE

Brief (10 minute); to 5,000 ppm:
Higher than 5,000 ppm:

Long term:

Additionally, if mixtures of this gas mixture contain less than 19.5% Oxygen and are released in a small, poorly-ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The effects associated with various levels of oxygen are as follows:

CONCENTRATION

OF OXYGEN

12-16% Oxygen:

10-14% Oxygen:

6-10% Oxygen:

Below 6%:

SKIN and EYE CONTACT: Hydrogen Sulfide, a component of this gas mixture, may be irritating to the skin. Inflammation and irritation of the eyes can occur at very low airborne concentration of Hydrogen Sulfide (less than 10 ppm). Exposure over several hours may result in “gas eyes” or “sore eyes” with symptoms of scratchiness, irritation, tearing and burning. Above 50 ppm Hydrogen Sulfide, there is an intense tearing, blurring of vision, and pain when looking at light. Over-exposed individuals may see rings around bright lights. Most symptoms disappear when exposure ceases. However, in serious cases, the eye can be permanently damaged.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. Inhalation over-exposures of the Hydrogen Sulfide component of this gas mixture can cause dizziness, headache, and nausea. Such over-exposures may occur if this gas mixture is used in a confined space or other poorly-ventilated environment. Continuous inhalation of low concentrations of Hydrogen Sulfide may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence this gas.

Inhalation over-exposures to the Propane and n-Pentane components can cause anesthetic effects or motor neuropathy (i.e. pain and tingling in feet and hands). Another significant hazard associated with this gas mixture when it contains less than 19.5% oxygen is the potential for exposure to oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, unconsciousness, and death. The skin of a victim of over-exposure may have a blue color.

CHRONIC: Severe over-exposures to the Hydrogen Sulfide component of this gas mixture, which do not result in death, may cause long-term symptoms such as memory loss, paralysis of facial muscles, or nerve tissue damage. In serious cases of over-exposure, the eyes can be permanently damaged. Additionally, long-term exposure to low levels n-Pentane can affect the nerves in the arms and legs. Effects include numbing or tingling sensation, tiredness, cramps, spasms in legs, difficulty holding objects or walking, loss of appetite and weight loss. Pentane isomers, such as n-Pentane, and Propane can cause sensitization of the heart to epinephrine.

TARGET ORGANS: ACUTE: Respiratory system, blood system, central nervous system, cardiovascular system. CHRONIC: Reproductive system, cardiovascular system.

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn.

No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary.

Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

SKIN EXPOSURE: If irritation of the skin develops after exposure to this gas mixture, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If irritation of the eye develops after exposure to this gas mixture, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory conditions may be aggravated by over-exposure to this gas mixture. Carbon Monoxide, a component of this gas mixture, can aggravate some diseases of the cardiovascular system, such as coronary artery disease and angina pectoris. Because of the presence of Hydrogen Sulfide, n-Hexane or n-Pentane in this gas mixture, central nervous system conditions, eye disorders, or skin problems may be aggravated by over-exposure to this gas mixture.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. Hyperbaric oxygen is the most efficient antidote to Carbon Monoxide poisoning, the optimum range being 2-2.5 atm. A special mask, or, preferably, a compression chamber to utilize oxygen at these pressures is required. Avoid administering stimulant drugs. Be observant for initial signs of pulmonary edema in the event of severe inhalation over-exposures.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture contains a toxic gas, Hydrogen Sulfide, and presents an extreme health hazard to firefighters. This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

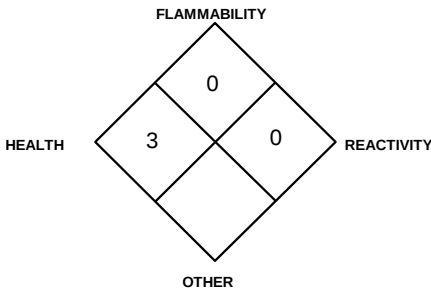
Explosion Sensitivity to Mechanical Impact: Not sensitive.

Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM			
HEALTH HAZARD	(BLUE)	3	
FLAMMABILITY HAZARD	(RED)	0	
PHYSICAL HAZARD	(YELLOW)	0	
PROTECTIVE EQUIPMENT			
EYES	RESPIRATORY	HANDS	BODY
See Section 8			
For Routine Industrial Use and Handling Applications			

NFPA RATING



6. ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of over-exposure to Hydrogen Sulfide, the toxic component of this gas mixture, and other safety hazards related to the remaining components of this gas mixture, than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Allow the gas mixture to dissipate. If necessary, monitor the surrounding area (and the original area of the release) for levels of Hydrogen Sulfide and Oxygen. The level of Hydrogen Sulfide must be at acceptable levels (see Section 2, Composition on Information on Ingredients) and the atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. If leaking incidentally from the cylinder, contact your supplier.

7. HANDLING and USE

WORK PRACTICES AND HYGIENE PRACTICES: Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to Hydrogen Sulfide over-exposure and oxygen deficiency. Do not attempt to repair, adjust, or in any other way modify cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact the nearest distributor immediately. Eye wash stations/safety showers should be near areas where this gas mixture is used or stored. All work operations should be monitored in such a way that emergency personnel can be immediately contacted in the event of a release. All work practices should minimize releases of Hydrogen Sulfide-containing gas mixtures.

STORAGE AND HANDLING PRACTICES: Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C; 70°F). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage.

Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.**

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: **WARNING!** Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Hydrogen Sulfide and Oxygen.

RESPIRATORY PROTECTION: Maintain exposure levels of Hydrogen Sulfide below the levels listed in Section 2 (Composition and Information on Ingredients) and Oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection if Hydrogen Sulfide levels exceed exposure limits and if Oxygen level is below 19.5% or during emergency response to a release of this gas mixture. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134), or equivalent State standards. The following NIOSH respiratory protection recommendations for Hydrogen Sulfide are provided for further information.

NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN SULFIDE CONCENTRATIONS IN AIR:

Up to 100 ppm: Powered air-purifying respirator with cartridge(s) to protect against hydrogen sulfide; or gas mask with canister to protect against hydrogen sulfide; or SAR; or full-facepiece SCBA.

Emergency or Planned Entry into Unknown Concentration or IDLH Conditions: Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.

Escape: Gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA

NOTE: The IDLH concentration for Hydrogen Sulfide is 100 ppm.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: No special protection is needed under normal circumstances of use. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Nitrogen, the main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: 0.072 lbs/ ft³ (1.153 kg/m³)

FREEZING/MELTING POINT @ 10 psig: -210°C (-345.8°F)

SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 0.906

SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm: 0.023

EVAPORATION RATE (nBuAc = 1): Not applicable.

ODOR THRESHOLD: Not applicable.

VAPOR PRESSURE @ 70°F (21.1°C) psig: Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

BOILING POINT: -195.8°C (-320.4°F)

pH: Not applicable.

MOLECULAR WEIGHT: 28.01

EXPANSION RATIO: Not applicable.

SPECIFIC VOLUME (ft³/lb): 13.8

The following information is for the gas mixture.

APPEARANCE AND COLOR: This gas mixture is a colorless gas which has an rotten egg-like odor, due to the presence of Hydrogen Sulfide.

HOW TO DETECT THIS SUBSTANCE (warning properties): Continuous inhalation of low concentrations of Hydrogen Sulfide (a component of this gas mixture) may cause olfactory fatigue, so that there are no distinct warning properties. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. Wet lead acetate paper can be used for leak detection. The paper turns black in the presence of Hydrogen Sulfide. Cadmium chloride solutions can also be used. Cadmium solutions will turn yellow upon contact with Hydrogen Sulfide.

10. STABILITY and REACTIVITY

STABILITY: Normally stable in gaseous state.

DECOMPOSITION PRODUCTS: The thermal decomposition products of Propane and n-Pentane include carbon oxides. The decomposition products of Hydrogen Sulfide include water and sulfur oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Titanium will burn in Nitrogen (the main component of this gas mixture). Lithium reacts slowly with Nitrogen at ambient temperatures. Components of this gas mixture (Hydrogen Sulfide, Propane, and n-Pentane) are also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen difluoride, and nitrogen trifluoride). Hydrogen Sulfide is corrosive to most metals, because it reacts with these substances to form metal sulfides.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are available for the components of this gas mixture:

NITROGEN: There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant, which acts to displace oxygen in the environment.	observed when monkeys were exposed to approximately 750 ppm for 90 days. Similar results were obtained when monkeys were exposed to an aerosol spray containing 65% propane and isobutane.	LCLo (inhalation, human) = 600 ppm/30 minutes
PROPANE:		LDLo (inhalation, man) = 5.7 mg/kg; central nervous system, pulmonary effects
Skin Contact (Rabbit): Several formulations containing an isobutane-propane mixture have been tested for skin irritation effects. All formulations contained less than 13% propane. All of the formulations containing propane caused only mild irritation.	n-PENTANE:	LCLo (inhalation, human) = 800 ppm/5 minutes
Effects of Long-Term Inhalation: No toxicity or abnormalities were	LD ₅₀ (intravenous, mouse) = 446 mg/kg. LC ₅₀ (inhalation, rat) = 364 g/m ³ /4 hours LCLo (inhalation, mouse) = 325 g/m ³ /2 hours	LC ₅₀ (inhalation, rat) = 444 ppm LC ₅₀ (inhalation, mouse) = 673 ppm/1 hour LCLo (inhalation, mammal) = 800 ppm/5 minutes
	HYDROGEN SULFIDE:	

SUSPECTED CANCER AGENT: The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: The Hydrogen Sulfide component of this gas mixture, is irritating to the eyes, and may be irritating to the skin.

SENSITIZATION OF PRODUCT: The components of this gas mixture are not known to be skin or respiratory sensitizers. Pentane isomers (i.e. n-Pentane) and Propane can cause cardiac sensitization to epinephrine, based on animal tests.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture and its components on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for the components of this gas mixture.

Embryotoxicity: No embryotoxic effects have been described for the components of this gas mixture.

Teratogenicity: No teratogenicity effects have been described for the components of this gas mixture.

Reproductive Toxicity: No reproductive toxicity effects have been described for the components of this gas mixture.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) have not been determined for the components of this gas mixture.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture.

HYDROGEN SULFIDE: Water Solubility = 1 g/242 mL at 20°C.

PROPANE: Log K_{ow} = 2.38. Water Solubility = 62.4 ppm, 25°C. Propane is readily degraded by soil bacteria.

PENTANE: Log K_{ow} = 3.39. Water Solubility = 38.5 mg/L. LOG BCF (n-pentane) = calculated, 1.90 and 2.35, respectively. Photolysis, hydrolysis, and bioconcentration are not anticipated to be important fate processes. Biodegradation and soil adsorption are anticipated to be more important processes for this compound.

OXYGEN: Water Solubility = 1 volume Oxygen/32 volumes water at 20°C. Log K_{ow} = -0.65

NITROGEN: Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C. 1.6 volumes Nitrogen/100 volumes water at 20°C.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Due to the presence of Hydrogen Sulfide in this gas mixture, releases of this gas mixture can be harmful or fatal to plant and animal life.

EFFECT OF CHEMICAL ON AQUATIC LIFE: Hydrogen Sulfide, a component of this gas mixture, is harmful if released in an aquatic environment. All handling procedures should be aimed at preventing a release of Hydrogen Sulfide to the environment. The following aquatic toxicity data are available for Hydrogen Sulfide:

TLm (Aselluspp) = 0.111 mg/L/96 hour	TLm (Lepomis macrochirus, bluegill sunfish) = 0.0448 mg/L/96 hour at 21-22 °C
TLm (Cranfgonyx sp) =1.07 mg/L/96 hour	
TLm (Gammarrus) = 0.84 mg/L/96 hour	TLm (Pimephlaes promelas, fathead minnow) = 0.0071-0.55 mg/L/96 hour
LC ₅₀ (fly inhalation) = 380 mg/m ³ /960 minutes	
LC ₅₀ (fly inhalation) = 1500 mg/m ³ /7 minutes	TLm (Salvenilis foninalis, brook trout) = 0.0216-0.038 mg/L/96 hour at 8-12.5 °C
TLm (Lepomis macrochirus, bluegill sunfish) = 0.0478 mg/L/96 hour	

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL **PREPARING WASTES FOR DISPOSAL:** Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME:	Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.
HAZARD CLASS NUMBER and DESCRIPTION:	2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1956
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Class 2.2 (Non-Flammable Gas)
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000):	126
MARINE POLLUTANT:	The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).
SPECIAL SHIPPING INFORMATION:	Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.
Note:	DOT 39 Cylinders ship in a strong outer carton (outer package). Pertinent shipping information goes on the outside of the outer package. DOT 39 Cylinders do not have transportation information on the cylinder itself.
TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS:	This gas is considered as Dangerous Goods, per regulations of Transport Canada.
PROPER SHIPPING NAME:	Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.
HAZARD CLASS NUMBER and DESCRIPTION:	2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1956
PACKING GROUP:	Not Applicable
HAZARD LABEL:	Class 2.2 (Non-Flammable Gas)
SPECIAL PROVISIONS:	None
EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX:	0.12
ERAP INDEX:	None
PASSENGER CARRYING SHIP INDEX:	None
PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX:	75
TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS (continued):	
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000):	126
NOTE:	Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:
U.S. SARA REPORTING REQUIREMENTS: This gas is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:

COMPONENT	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Hydrogen Sulfide	YES	YES	YES

U.S. SARA THRESHOLD PLANNING QUANTITY: Section 302 EHS TPQ = Hydrogen Sulfide = 500 lbs (227 kg);
U.S. TSCA INVENTORY STATUS: The components of this gas mixture are listed on the TSCA Inventory.
U.S. CERCLA REPORTABLE QUANTITY (RQ): Hexane = 5000 lb (2270 kg); Hydrogen Sulfide = 100 lbs (45.4 lb)
OTHER U.S. FEDERAL REGULATIONS:

- Propane, n-Pentane, and Hydrogen Sulfide are subject to the reporting requirements of CFR 29 1910.1000. These chemicals are listed on Table Z.1
- Hydrogen Sulfide, Propane and n-Pentane are subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for each of these gases is 10,000 pounds.
- Depending on specific operations involving the use of Hydrogen Sulfide, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Hydrogen Sulfide is listed in Appendix A of this regulation. The threshold quantity for Hydrogen Sulfide under this regulation is 1500 lbs.
- This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Nitrogen and Oxygen are not listed as Regulated Substances, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Hydrogen Sulfide is listed under this regulation in Table 1 as a Regulated Substance (Toxic Substance), in quantities of 10,000 lbs (4,553 kg) or greater. Propane and n-Pentane are listed under this regulation in Table 3 as Regulated Substances (Flammable Substances), in quantities of 10,000 lbs (4,553 kg) or greater.

U.S STATE REGULATORY INFORMATION: Components of this gas mixture are covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: Hydrogen Sulfide, Propane, n-Pentane.

California - Permissible Exposure Limits for Chemical Contaminants: Nitrogen, Hydrogen Sulfide, Propane, n-Pentane.

Florida - Substance List: Oxygen, Hydrogen Sulfide, n-Pentane.

Illinois - Toxic Substance List: Hydrogen Sulfide, Propane, n-Pentane.

Kansas - Section 302/313 List: Hydrogen Sulfide.

Massachusetts - Substance List: Oxygen, Hydrogen Sulfide, Propane, n-Pentane.

Michigan - Critical Materials Register: No.

Minnesota - List of Hazardous Substances: Hydrogen Sulfide, Propane, n-Pentane.

Missouri - Employer Information/Toxic Substance List: Hydrogen Sulfide, Propane, n-Pentane.

New Jersey - Right to Know Hazardous Substance List: Oxygen, Nitrogen, Hydrogen Sulfide, Propane, n-Pentane.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrogen Sulfide.

Pennsylvania - Hazardous Substance List: Oxygen, Nitrogen, Hydrogen Sulfide, Propane, n-Pentane.

Rhode Island - Hazardous Substance List: Oxygen, Nitrogen, Hydrogen Sulfide, Propane, n-Pentane.

Texas - Hazardous Substance List: Hydrogen Sulfide, Propane, n-Pentane.

West Virginia - Hazardous Substance List: Hydrogen Sulfide, Propane, n-Pentane.

Wisconsin - Toxic and Hazardous Substances: Hydrogen Sulfide, Propane, n-Pentane.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The components of this gas mixture are not on the California Proposition 65 lists.

ADDITIONAL CANADIAN REGULATIONS:
CANADIAN DSL/NDL INVENTORY STATUS: The components of this gas mixture are on the Canadian DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances List.
CANADIAN WHMIS CLASSIFICATION: This gas mixture is categorized as a Controlled Product, Hazard Classes A and D2A, as per the Controlled Product Regulations.

16. OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures.

For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. CALGAZ will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders involves some preparation before the metal dealer may accept them. We perform this operation as a service to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about the handling of compressed gases can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

P-1
AV-1

*“Safe Handling of Compressed Gases in Containers”
“Safe Handling and Storage of Compressed Gases”
“Handbook of Compressed Gases”*



This Material Safety Data Sheet is offered pursuant to OSHA’s Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this gas mixture. To the best of CALGAZ knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.