

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: **Raw Natural Gas, Sour**
SDS Manufacturer Number: 775348

Other means of identification:

Synonyms: Raw Gas; Sour Gas; Sour Raw Gas; Wellhead Natural Gas, Sour;
Natural Gas (Alaska)

Recommended use of the chemical and restrictions on use:

Product Use/Restriction: Feedstock

Chemical manufacturer address and telephone number:

Manufacturer Name: Conoco Phillips
Address: 600 N. Dairy Ashford
Houston, TX 77079-1175
Website: www.conocophillips.com
General Phone Number: 855-244-0762.....E-mail: SDS@conocophillips.com

Emergency phone number:

Emergency Phone Number: Chemtrec: 800-424-9300 (24 Hours)

SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

GHS Pictograms:



Signal Word: DANGER.

GHS Class: Flammable gases, . Category 1.
Acute Inhalation Toxicity, Category 3.
Carcinogenicity, Category 1A.
Specific Target Organ Toxicity - STOT, Single Exposure SE, Category 3.
Compressed gases under pressure. .
Hazardous to the aquatic environment, short term, acute, . Category 1.

Hazard Statements: H220 - Extremely flammable gas.
H331 - Toxic if inhaled.
H350 - May cause cancer.
H335 - May cause respiratory irritation.
H280 - Contains gas under pressure; may explode if heated.
H400 - Very toxic to aquatic life.

Precautionary Statements: 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.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P311 - Call a POISON CENTER or doctor/physician.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P321 - P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P391 - Collect spillage.
P403 - Store in a well-ventilated place.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.
P501 - Dispose of contents/container in accordance with Local, State, Federal and Provincial regulations.

Hazards not otherwise classified that have been identified during the classification process:

OSHA Class: Contains poisonous hydrogen sulfide gas

Information related to product mixture

Carcinogenicity: May cause cancer.

Signs/Symptoms:

This material contains hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death.

Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Benzene

Carcinogenicity:

Benzene is an animal carcinogen and is known to produce acute myelogenous leukemia (a form of cancer) in humans. Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US-Occupational Safety and Health Administration.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

| Chemical Name | CAS# | Ingredient Percent | EC Num. |
|------------------|-----------|--------------------|---------|
| Benzene | 71-43-2 | 0.2 % | |
| Natural gas | 8006-14-2 | 100 % | |
| Hydrogen Sulfide | 7783-06-4 | 10ppm-30 % | |

Notes :

¹ All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

Crude oil, natural gas and natural gas condensate can contain minor amounts of sulfur, nitrogen and oxygen containing organic compounds as well as trace amounts of heavy metals like mercury, arsenic, nickel, and vanadium. Composition can vary depending on the source of crude.

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact:

For contact with the liquefied gas, remove contact lenses if present and easy to do, hold eyelids apart and gently flush the affected eye(s) with lukewarm water. Seek immediate medical attention.

Skin Contact:

Liquefied gases may cause cryogenic burns or injury. Treat burned or frostbitten skin by flushing or immersing the affected area(s) in lukewarm water. Do not rub affected area. Do not remove clothing that adheres due to freezing. After sensation has returned to the frostbitten skin, keep skin warm, dry, and clean. If blistering occurs, apply a sterile dressing. Seek immediate medical attention.

Inhalation:

(Breathing): Immediately move victim away from exposure and into fresh air in a position comfortable for breathing. If respiratory symptoms or other symptoms of exposure develop, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion:

(Swallowing): This material is a gas under normal atmospheric conditions and ingestion is unlikely.

Indication of immediate medical attention and special treatment needed:

Note to Physicians:

At high concentrations hydrogen sulfide may produce pulmonary edema, respiratory depression, and/or respiratory paralysis. The first priority in treatment should be the establishment of adequate ventilation and the administration of 100% oxygen. Animal studies suggest that nitrites are a useful antidote, however, documentation of the efficacy of nitrites in humans is lacking. If the diagnosis of hydrogen sulfide poisoning is confirmed and if the patient does not respond rapidly to supportive care, the use of nitrites may be an effective antidote if delivered within the first few minutes of exposure. For adults the dose is 10 mL of a 3% NaNO₂ solution (0.5 gm NaNO₂ in 15 mL water) I.V. over 2-4 minutes. The dosage should be adjusted in children or in the presence of anemia, and methemoglobin levels, arterial blood gases, and electrolytes should be monitored closely.

Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to high concentrations of hydrocarbon solvents (e.g., in enclosed spaces or with deliberate abuse). The use of other drugs with less arrhythmogenic potential should be considered. If sympathomimetic drugs are administered, observe for the development of cardiac arrhythmias. Toxic metabolites of ethylene glycol may cause acidosis, coma, convulsions, renal failure, or circulatory collapse. The monitoring of urine output, serum creatinine, electrolytes, acid base balance, urine hemoglobin and serum calcium is recommended following significant exposures. Ethanol blocks the formation of glycolic acid and therefore is the antidote of choice. Because of the rapid conversion (3-hour elimination half-life) of the ethylene glycol, ethanol should be administered as soon as possible in cases of severe poisoning. If medical care will be delayed several hours, use 3-4 one-ounce oral (shots) of 86-proof whiskey before or during transport to the hospital.

Federal regulations (29 CFR 1910.1028) specify medical surveillance programs for certain exposures to benzene above the action level or PEL (specified in Section (i)(1)(i) of the Standard). In addition, employees exposed in an emergency situation shall, as described in Section (i)(4)(i), provide a urine sample at the end of the shift for measurement of urine phenol.

Notes :

Most important symptoms and effects:
Acute: Anesthetic effects at high concentrations.
Delayed: None known or anticipated. See Section 11 for information on effects from chronic exposure, if

any.

Other Comments:

Before attempting rescue, first responders should be alert to the possible presence of hydrogen sulfide, a poisonous gas with the smell of rotten eggs, and should consider the need for respiratory protection (see Section 8). Remove casualty to fresh air as quickly as possible. Immediately begin artificial respiration if breathing has ceased. Consider whether oxygen administration is needed. Obtain medical advice for further treatment.

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media: Dry chemical or carbon dioxide is recommended. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces.

Specific hazards arising from the chemical:

Hazardous Combustion Byproducts: Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Hydrogen sulfide and oxides of nitrogen and sulfur may also be formed.

Unusual Fire Hazards: Extremely flammable. Contents under pressure. This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. If container is not properly cooled, it can rupture in the heat of a fire. Drains can be plugged and valves made inoperable by the formation of ice if rapid evaporation of large quantities of the liquefied gas occurs. Do not allow run-off from fire fighting to enter drains or water courses - may cause explosion hazard in drains and may reignite. Hazardous combustion/decomposition products, including hydrogen sulfide, may be released by this material when exposed to heat or fire. Use caution and wear protective clothing, including respiratory protection.

Fire Fighting Instructions: For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. If this cannot be done, allow fire to burn. Move undamaged containers from immediate hazard area if it can be done safely. Stay away from ends of container. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely.

NFPA Ratings:

NFPA Health: 4
NFPA Flammability: 4
NFPA Reactivity: 0



Notes :

NFPA 704 Hazard Class:
(0-Minimal, 1-Slight, 2-Moderate, 3-Serious, 4-Severe)

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Personnel Precautions: Extremely flammable. Contains poisonous hydrogen sulfide gas. If the presence of dangerous amounts of H₂S around the spilled product is suspected, additional or special actions may be warranted, including access restrictions and use of protective equipment. Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Beware of accumulation of gas in low areas or contained areas, where explosive concentrations may occur. Prevent from entering drains or any place where accumulation may occur. Ventilate area and allow to evaporate. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

Environmental precautions:

Environmental Precautions: Stop spill/release if it can be done safely. Water spray may be useful in minimizing or dispersing vapors. If spill occurs on water notify appropriate authorities and advise shipping of any hazard.

Methods and materials for containment and cleaning up:

Spill Cleanup Measures: Notify relevant authorities in accordance with all applicable regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

Handling: Precautions for safe handling: Keep away from ignition sources such as heat/sparks/open flame - No smoking. Take precautionary measures against static discharge. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. May contain or release dangerous levels of hydrogen sulfide. Use only outdoors or in wellventilated area. Do not breathe gas. Wear respiratory protection. Use good personal hygiene practices and wear appropriate personal

protective equipment (see section 8).

Contents under pressure. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Electrostatic charge may accumulate and create a hazardous condition when handling or processing this material. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Cold burns may occur during filling operations. Containers and delivery lines may become cold enough to present cold burn hazard.

Mercury and other heavy metals may be present in trace quantities in crude oil, raw natural gas, and condensates. Production and processing of these materials can lead to "drop-out" of elemental mercury in enclosed vessels and pipe work, typically at the low point of any process equipment because of its density. Mercury may also occur in other process system deposits such as sludges, sands, scales, waxes, and filter media. Personnel engaged in work with equipment where mercury deposits might occur (confined space entry, sampling, opening drain valves, draining process lines, etc), may be exposed to a mercury hazard (see sections 3 and 8).

Conditions for safe storage, including any incompatibilities:

Storage: Conditions for safe storage: This material may contain or release poisonous hydrogen sulfide gas. In a tank, barge, or other closed container, the vapor space above this material may accumulate hazardous concentrations of hydrogen sulfide. Check atmosphere for oxygen content, H₂S, and flammability prior to entry. Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. Avoid exposing any part of a compressed-gas cylinder to temperatures above 125 deg F (51.6 deg C). Gas cylinders should be stored outdoors or in well ventilated storerooms at no lower than ground level and should be quickly removable in an emergency.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Information related to product mixture :

Guideline Info: Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

Benzene :

Guideline ACGIH:

STEL: 2.5 ppm TWA: 0.5 ppm Skin

Guideline OSHA:

Ceiling: 25 ppm STEL: 5 ppm TWA: 10 ppm TWA: 1 ppm

Natural gas :

Guideline ACGIH:

TWA: 1000 ppm as Aliphatic Hydrocarbons C1-4

Hydrogen Sulfide :

Guideline Info:

TWA: 5 ppm 8hr TWA: 2.5 ppm 12hr STEL: 15 ppm (ConocoPhillips Guidelines)

Guideline ACGIH:

STEL: 5 ppm TWA: 1 ppm

Guideline OSHA:

Ceiling: 20 ppm

Appropriate engineering controls:

Engineering Controls:

If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

Individual protection measures:

Eye/Face Protection:

The use of gas/vapor tight eye protection that meets or exceeds ANSI Z.87.1 is recommended against potential eye contact, irritation, or injury. Depending on conditions of use, a full face respirator may be necessary.

Skin Protection Description:

The use of skin protection is not normally required; however, good industrial hygiene practice suggests the use of gloves or other appropriate skin protection whenever working with chemicals. Wear thermal insulating gloves and face shield or eye protection when working with materials that present thermal hazards (hot or cold).

Respiratory Protection:

A NIOSH approved, self-contained breathing apparatus (SCBA) or equivalent operated in a pressure demand or other positive pressure mode should be used in situations of oxygen deficiency (oxygen content less than 19.5 percent), unknown exposure concentrations, or situations that are immediately dangerous to life or health (IDLH).

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use.

If benzene concentrations equal or exceed applicable exposure limits, OSHA requirements for personal protective equipment, exposure monitoring, and training may apply (29CFR1910.1028 - Benzene).

Workplace monitoring plans should consider the possibility that heavy metals such as mercury may concentrate in processing vessels and equipment presenting the possibility of exposure during various sampling and maintenance operations. Implement appropriate respiratory protection and the use of other protective equipment as dictated by monitoring results (See Sections 2 and 7).

Other Protective:

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

Notes :

Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State: Form: Liquefied Gas

Color: Colorless

Odor: Rotten egg/sulfurous

| | |
|--|---|
| Odor Threshold: | No Data |
| Boiling Point: | -251 to -161 deg F/-157 to -107 deg C |
| Melting Point: | No Data |
| Solubility: | Very slight |
| Vapor Density: | (air=1): 0.60 |
| Percent Volatile: | 100% (by volume) |
| Evaporation Rate: | (nBuAc=1): No data |
| pH: | Not Applicable |
| Coefficient of Water/Oil Distribution: | Partition Coefficient (n-octanol/water) (Kow): No data |
| Flash Point: | -306 deg F/-188 deg C |
| Flash Point Method: | (estimate) |
| Lower Flammable/Explosive Limit: | (vol % in air): 5.0 |
| Upper Flammable/Explosive Limit: | (vol % in air): 17.0 |
| Auto Ignition Temperature: | No Data |
| 9.2. Other information: | |
| Notes : | Note: Unless otherwise stated, values are determined at 20 deg C (68 deg F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications. |

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:

Chemical Stability: Stable under normal ambient and anticipated conditions of use.

Possibility of hazardous reactions:

Hazardous Polymerization: Not known to occur.

Conditions To Avoid:

Conditions to Avoid: Avoid all possible sources of ignition. Heat will increase pressure in the storage tank.

Incompatible Materials:

Incompatible Materials: Materials to Avoid: Avoid contact with acids, aluminum chloride, chlorine, chlorine dioxide, halogens and oxidizing agents.

Hazardous Decomposition Products:

Special Decomposition Products: Not anticipated under normal conditions of use.

SECTION 11 : TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Information related to product mixture :

| | |
|---|---|
| Eye: | Causes eye irritation. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage. |
| Skin: | <p>Skin Absorption: Hazard: Skin absorption is not anticipated LD50 Data: Not Applicable</p> <p>Not expected to be irritating. Contact with the liquefied or pressurized gas may cause frostbite (cold burn).</p> |
| Inhalation: | <p>Hazard: Toxic if inhaled Additional Information: Contains poisonous hydrogen sulfide gas. See Signs and Symptoms. LC50: 1480 ppm (gas, estimated))</p> |
| Ingestion: | <p>(Swallowing): Hazard: Ingestion is not anticipated LD50 Data: Not applicable</p> |
| Sensitization: | <p>Skin Sensitization: Skin contact is not anticipated.</p> <p>Respiratory Sensitization: No information available on the mixture, however none of the components have been classified for respiratory sensitization (or are below the concentration threshold for classification).</p> |
| Carcinogenicity: | May cause cancer. |
| Mutagenicity: | Germ Cell Mutagenicity: Not expected to cause heritable genetic effects. |
| Reproductive Toxicity: | No information available on the mixture, however none of the components have been classified for reproductive toxicity (or are below the concentration threshold for classification). |
| Other Toxicological Information: | Signs and Symptoms: This material contains hydrogen sulfide, a poisonous gas with the smell of rotten eggs. The smell disappears rapidly because of olfactory fatigue so odor may not be a reliable indicator of exposure. Effects of overexposure include irritation of the eyes, nose, throat and respiratory tract, blurred vision, photophobia (sensitivity to light), and pulmonary edema (fluid accumulation in the lungs). Severe exposures can result in nausea, vomiting, muscle weakness or cramps, headache, disorientation and other signs of nervous system depression, irregular heartbeats, convulsions, respiratory failure, and death. |

Light hydrocarbon gases are simple asphyxiants and can cause anesthetic effects at high concentrations. Symptoms of overexposure, which are reversible if exposure is stopped, can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting. Continued exposure can lead to hypoxia (inadequate oxygen), rapid breathing, cyanosis (bluish discoloration of the skin), numbness of the extremities, unconsciousness and death.

Other Comments: High concentrations may reduce the amount of oxygen available for breathing, especially in confined spaces. Hypoxia (inadequate oxygen) during pregnancy may have adverse effects on the developing fetus.

Target Organ Single Exposures: May cause respiratory irritation.
Target Organ Repeated Exposures: Not expected to cause organ effects from repeated exposure.
Aspiration: Not Applicable

Benzene :

Carcinogenicity: Benzene is an animal carcinogen and is known to produce acute myelogenous leukemia (a form of cancer) in humans. Benzene has been identified as a human carcinogen by IARC, the US National Toxicology Program and the US Occupational Safety and Health Administration.

Mutagenicity: Germ Cell Mutagenicity: Benzene exposure has resulted in chromosomal aberrations in human lymphocytes and animal bone marrow cells. Exposure has also been associated with chromosomal aberrations in sperm cells in human and animal studies.

Reproductive Toxicity: Some studies in occupationally exposed women have suggested benzene exposure increased risk of miscarriage and stillbirth and decreased birth weight and gestational age. The size of the effects detected in these studies was small, and ascertainment of exposure and outcome in some cases relied on self-reports, which may limit the reliability of these results.

Target Organ Repeated Exposures: Prolonged or repeated exposures to benzene vapors can cause damage to the blood and blood forming organs, including disorders like leukopenia, thrombocytopenia, and aplastic anemia.

SECTION 12 : ECOLOGICAL INFORMATION

Information related to product mixture :

Ecotoxicity:

Ecotoxicity: Petroleum gases will readily evaporate from the surface and would not be expected to have significant adverse effects in the aquatic environment. Classification: No classified hazards.

Persistence and degradability:

Biodegradation: Persistence and Degradability: The hydrocarbons in this material are expected to be inherently biodegradable. In practice, hydrocarbon gases are not likely to remain in solution long enough for biodegradation to be a significant loss process. Hydrogen sulfide, if present in refinery gas streams, will be rapidly oxidized in water and insoluble sulfides precipitated from water when metallic radicals are present.

Bioaccumulative potential:

Bioaccumulation: Since the log Kow values measured for refinery gas constituents are below 3, they are not regarded as having the potential to bioaccumulate.

Mobility in soil:

Mobility In Environmental Media: Mobility in Soil: Due to the extreme volatility of petroleum gases, air is the only environmental compartment in which they will be found. In air, these hydrocarbons undergo photodegradation by reaction with hydroxyl radicals with half-lives ranging from 3.2 days for n-butane to 7 days for propane.

Other Adverse Effects: None anticipated.

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:

Information related to product mixture :

Waste Disposal: his material is a gas and would not typically be managed as a waste.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name: Shipping Description:
Aquatic toxicity studies indicate this material may be classified as a Marine Pollutant under IMDG Code. It is not currently regulated as a marine pollutant by the USDOT.
If there is not a Shipping Description or other DOT marking, labeling, placarding and packaging references shown in this section, it is not regulated as a hazardous material by the USDOT.
; If H2S is > 8.8 molar % shipping description is:
UN1953, Compressed gas, toxic, flammable, n.o.s., (Hydrogen sulfide, Methane), 2.3,; , (2.1), Inhalation Hazard Zone X
If H2S is < 8.8 molar % Shipping description is:
UN1954, Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulfide), 2.1

Non-Bulk Package Marking:
Must be consistent with shipping description, either:
Compressed gas, toxic, flammable, n.o.s., (Hydrogen sulfide, Methane), UN1953
or
Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulfide), UN1954

Non-Bulk Package Labeling:
Must be consistent with shipping description, either:
Poison gas and Flammable gas
or
Flammable gas

Bulk Package/Placard Marking:

Must be consistent with shipping description, either:
Poison gas / 1953, Flammable gas
or
Flammable gas / 1954

Packaging - References:
For UN1953: None; 49 CFR 173.302 & 173.305; 173.314 & 173.315
For UN1954: 49 CFR 173.306; 173.302 & .305; 173.314 & .315 (Exceptions; Non-bulk; Bulk)

Hazardous Substance: See Section 15 for RQ's
Emergency Response Guide: 119

Note:
Replace X in shipping description with:
D if Molar % H2S is from 8.8% to 14.8%
C if Molar % H2S is from 14.9% to 44.4%
B if Molar % H2S is from 44.5% to 100.0%
Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the Marine Pollutant notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

IATA Shipping Name: UN/ID :
If H2S is > 8.8 molar % : Forbidden
If H2S is < 8.8 molar % : UN1954
Proper Shipping Name: Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulphide)
Hazard Class/Division: 2.1
Non-Bulk Package Marking: Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulphide), UN1954
Labels: Flammable gas
ERG Code: 10L
Packaging Instruction : LTD. QTY : Forbidden; Passenger Aircraft : Forbidden; Cargo Aircraft Only ; 200
Max. Net Qty. Per Package: LTD. QTY : Forbidden; Passenger Aircraft : Forbidden; Cargo Aircraft Only ; 150 kg

IMDG Shipping Name : Shipping Description:
If H2S is > 8.8 molar % shipping description is:
UN1953, Compressed gas, toxic, flammable, n.o.s., (Hydrogen sulphide , Methane), 2.3; , (2.1) Marine Pollutant;
If H2S is < 8.8 molar % Shipping description is:
UN1954, Compressed gas, flammable, n.o.s. (Methane, Hydrogen sulphide), 2.1

Non-Bulk Package Marking:
Must be consistent with shipping description, either:
Compressed gas, toxic, flammable, n.o.s., (Hydrogen Sulphide, Methane), UN1953 , [Marine Pollutant Mark]
or
Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulphide), UN1954

Labels:
For UN1953: Toxic gas and Flammable gas For UN1954: Flammable gas

Placards/Marking (Bulk):
For UN1953: Toxic gas/1953 and Flammable gas
For UN1954: Flammable gas/1954

Packaging - Non-Bulk: P200

EMS: F-D, S-U

Note:
U.S. DOT compliance requirements may apply. See 49 CFR 171.22, 23 & 25. If container(s) is greater than 5 liters (liquids) or 5 kilograms (solids), shipment may require the shipping description to contain the Marine Pollutant description [IMDG 5.4.1.4.3.5] and the container(s) to display the Marine Pollutant mark [IMDG 5.2.1.6].

ICAO Shipping Name: UN/ID :
If H2S is > 8.8 molar % : Forbidden
If H2S is < 8.8 molar % : UN1954
Proper Shipping Name: Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulphide)
Hazard Class/Division: 2.1
Non-Bulk Package Marking: Compressed gas, flammable, n.o.s., (Methane, Hydrogen sulphide), UN1954
Labels: Flammable gas
ERG Code: 10L
Packaging Instruction : LTD. QTY : Forbidden; Passenger Aircraft : Forbidden; Cargo Aircraft Only ; 200
Max. Net Qty. Per Package: LTD. QTY : Forbidden; Passenger Aircraft : Forbidden; Cargo Aircraft Only ; 150 kg

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Information related to product mixture :

TSCA Inventory Status: All components are either listed on the US TSCA Inventory, or are not regulated under TSCA

TSCA 12(b) Export Notification: U.S. Export Control Classification Number: EAR99

CERCLA Section 302: CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):
This material contains the following chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372:
Hydrogen Sulfide : TPQ- 500 lb; EPCRA RQ - 100 lb

Section 311/312 Hazard Categories: CERCLA/SARA - Section 311/312 (Title III Hazard Categories)
Acute Health: Yes
Chronic Health: Yes
Fire Hazard: Yes
Pressure Hazard: Yes
Reactive Hazard: No

Section 313: CERCLA/SARA - Section 313 and 40 CFR 372:
This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:
Benzene : Concentration- 0.2; de minimis - 0.1%

EPA (CERCLA) Reportable Quantity (in pounds):

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

California PROP 65:

California Proposition 65:
Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):
Benzene : Type of Toxicity- Cancer, Developmental Toxicant, Male Reproductive Toxicant
Toluene : Type of Toxicity- Developmental Toxicant, Female Reproductive Toxicant

Canada DSL:

All components are either on the DSL, or are exempt from DSL listing requirements

Canada WHMIS:

WHMIS Hazard Class:
A - Compressed Gas
B1 - Flammable Gases
D1B
D2A
D2B

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

HMIS Personal Protection:

| | |
|---------------------|--|
| Health Hazard | |
| Fire Hazard | |
| Reactivity | |
| Personal Protection | |

Other Information:

SDS Number: 775348

SDS Revision Date:

October 08, 2015

MSDS Revision Notes:

Supersedes: 02-Apr-2012
Format change

Guide to Abbreviations:

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

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