HYDROGEN SULFIDE
Safety Data Sheet

1. IDENTIFICATION

Product identifier
Product Name: HYDROGEN SULFIDE

Other means of identification
Safety data sheet number: LIND-P071
UN/ID no.: UN1053
Synonyms: Dihydrogen Sulfide; Sulfur Hydride; Hydrogen Sulphide

Recommended use of the chemical and restrictions on use
Recommended Use: Industrial and professional use.
Uses advised against: Consumer use

Details of the supplier of the safety data sheet
Linde Gas North America LLC - Linde Merchant Production Inc. - Linde LLC
575 Mountain Ave.
Murray Hill, NJ 07974
Phone: 908-464-8100
www.lindeus.com

Linde Gas Puerto Rico, Inc.
Road 869, Km 1.8
Barrio Palmas, Catano, PR 00962
Phone: 787-641-7445
www.pr.lindegas.com

Linde Canada Limited
5860 Chedworth Way
Mississauga, Ontario L5R 0A2
Phone: 905-501-1700
www.lindecanada.com

* May include subsidiaries or affiliate companies/divisions.

For additional product information contact your local customer service.

Emergency telephone number
Company Phone Number: 800-232-4726 (Linde National Operations Center, US)
905-501-0802 (Canada)
CHEMTREC: 1-800-424-9300 (North America) +1-703-527-3887 (International)
2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

<table>
<thead>
<tr>
<th>Acute toxicity - Inhalation (Gases)</th>
<th>Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Flammable gases</td>
<td>Category 1</td>
</tr>
<tr>
<td>Gases under pressure</td>
<td>Liquefied gas</td>
</tr>
</tbody>
</table>

Label elements

Signal word: Danger

Hazard Statements
Extremely flammable gas
Contains gas under pressure; may explode if heated
Fatal if inhaled
May cause respiratory irritation
Very toxic to aquatic life
May form explosive mixtures with air
Symptoms may be delayed
Extended exposure to gas reduces the ability to smell sulfides

Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Keep away from heat, sparks, open flames, hot surfaces. — No smoking
Do not breathe gas.
Use and store only outdoors or in a well ventilated place
Avoid release to the environment
Wear protective gloves, protective clothing, eye protection, respiratory protection, and/ or face protection
Use backflow preventive device in piping
Use only with equipment of compatible materials of construction and rated for cylinder pressure
Do not open valve until connected to equipment prepared for use
Close valve after each use and when empty
When returning cylinder, install leak tight valve outlet cap or plug
Do not depend on odor to detect presence of gas

Precautionary Statements - Response
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
Leaking gas fire: do not extinguish, unless leak can be stopped safely
Eliminate all ignition sources if safe to do so
Precautionary Statements - Storage
Store locked up
Protect from sunlight when ambient temperature exceeds 52°C/125°F

Precautionary Statements - Disposal
Dispose of contents/containers in accordance with container supplier/owner instructions

Hazards not otherwise classified (HNOC)
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Volume %</th>
<th>Chemical Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>7783-06-4</td>
<td>100</td>
<td>H₂S</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation
Remove to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Skin contact
Wash off immediately with plenty of water. For dermal contact or suspected frostbite, remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if contact with the product has resulted in blistering of the dermal surface or in deep tissue freezing.

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If frostbite is suspected, flush eyes with cool water for 15 minutes and obtain immediate medical attention.

Ingestion
Not an expected route of exposure.

Self-protection of the first aider
Remove all sources of ignition. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms
May cause central nervous system effects such as headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure and death. Hydrogen sulfide gas between 15 and 500 ppm can cause headache, nausea and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500 ppm can cause rapid unconsciousness due to respiratory paralysis and death by suffocation. Greater than 1000 ppm can cause immediate unconsciousness and death if not promptly revived. Irritating to eyes, respiratory system and skin. Symptoms may be delayed.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Acute hydrogen sulfide poisoning can be treated by induction of methemoglobinemia through parenteral injection of methemoglobin generating agents (sodium nitrite). This acts an antidote by restoring the normal activity of the sulfide inhibited enzyme.
5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Dry chemical or CO2. Water spray (fog). DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Specific extinguishing methods
If possible, stop the flow of gas. Do not extinguish the fire until supply is shut off as otherwise an explosive-ignition may occur. If the fire is extinguished and the flow of gas continues, use increased ventilation to prevent build-up of explosive atmosphere. Ventilation fans must be explosion proof. Use non-sparking tools to close container valves.

Use water spray to cool surrounding containers. Be cautious of a Boiling Liquid Evaporating Vapor Explosion, BLEVE, if flame is impinging on surrounding containers. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Damaged cylinders should be handled only by specialists.

Specific hazards arising from the chemical
Extremely flammable gas. May form explosive mixtures with air. Will be easily ignited by heat, sparks or flames. Vapors may travel to source of ignition and flash back. Vapors from liquefied gas are initially heavier than air and spread along ground. Vapors may accumulate in confined areas (basement, tanks, hopper/ tank cars, etc.). Cylinders may rupture under extreme heat.

Hazardous combustion products
Sulfur oxides.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/ NIOSH (approved or equivalent) and full protective gear. As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Additional chemical protective clothing may be required to protect from toxic decomposition products.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Evacuate personnel to safe areas. Keep people away from and upwind of spill/ leak. Ensure adequate ventilation, especially in confined areas. Monitor concentration of released product. Consider the risk of potentially explosive atmospheres. All equipment used when handling the product must be grounded. Use non-sparking tools and equipment. Use personal protection recommended in Section 8. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Other Information
Gas/ vapor is heavier than air. Prevent from entering sewers, basements and workpits, or any place where accumulation may be dangerous.

Environmental precautions
Prevent spreading of vapors through sewers, ventilation systems and confined areas.

Methods and material for containment and cleaning up

Methods for containment
Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. If leak is in container or container valve, contact the appropriate emergency telephone number in Section 1 or call your closest Linde location.

Methods for cleaning up
Return cylinder to Linde or an authorized distributor.

7. HANDLING AND STORAGE

Precautions for safe handling
Advice on safe handling

Do not rely on the olfactory sense to detect the presence of hydrogen sulfide. Analytical devices and instrumentation are readily available for this purpose. Perform frequent tests to be certain that the exposure limits are not exceeded. Many metals corrode rapidly with wet hydrogen sulfide.

Anhydrous hydrogen sulfide can be handled in carbon steel, aluminum Inconel®, Stellite®, and 304 or 316 stainless steels. Avoid hard steels which are highly stressed since they may be susceptible to hydrogen embrittlement from hydrogen sulfide. Automated multi-point air samplers with alarms for plant production units should be provided to constantly monitor the air in and around units. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof. Separate flammable gas cylinders from oxygen and other oxidizers by a minimum distance of 20 ft. or by a 5 ft. high barrier with a minimum fire resistance rating of a half an hour. "NO SMOKING" signs should be posted in storage and use areas.

When moving cylinders, even for short distance, use a cart designed to transport cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. Never attempt to lift a cylinder by its valve protection cap. Use backflow preventive device in piping. Never insert an object (e.g. wrench, screwdriver, pry bar, etc.) into valve cap openings. Doing so may damage valve, causing leak to occur. Use an adjustable strap wrench to remove over-tight or rusted caps. Use only with adequate ventilation. Use only with equipment rated for cylinder pressure. Close valve after each use and when empty. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. Ensure the complete gas system has been checked for leaks before use.

Never put cylinders into trunks of cars or unventilated areas of passenger vehicles. Never attempt to refill a compressed gas cylinder without the owner's written consent. Never strike an arc on a compressed gas cylinder or make a cylinder a part of an electrical circuit.

Only experienced and properly instructed persons should handle gases under pressure. Always store and handle compressed gas cylinders in accordance with Compressed Gas Association, pamphlet CGA-P1, Safe Handling of Compressed Gases in Containers.

For additional recommendations, consult Compressed Gas Association’s Pamphlet G-12.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Keep at temperatures below 52°C / 125°F. Cylinders should be stored upright with valve protection cap in place and firmly secured to prevent falling. Full and empty cylinders should be segregated. Use a “first in-first out” inventory system to prevent full cylinders from being stored for excessive periods of time. Stored containers should be periodically checked for general condition and leakage. Outside or detached storage is preferred.

Incompatible materials

Oxidizing agents. Nitric acid.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>STEL: 5 ppm TWA: 1 ppm</td>
<td>(vacated) TWA: 10 ppm (vacated) TWA: 14 mg/ m³ (vacated) STEL: 15 ppm (vacated) STEL: 21 mg/ m³</td>
<td>Ceiling: 20 ppm</td>
</tr>
</tbody>
</table>

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. NIOSH IDLH: Immediately Dangerous to Life or Health

Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).
Appropriate engineering controls

Engineering Controls

Showers. Eyewash stations. Explosion proof ventilation systems. Exhaust gas should be vented to a gas treatment system. Consider installation of leak detection systems in areas of use and storage. Systems under pressure should be regularly checked for leakages.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tightly fitting safety goggles. Face-shield.

Skin and body protection

Work gloves and safety shoes are recommended when handling cylinders. Wear fire/flame resistant/retardant clothing. Take precautionary measures against static discharge. Appropriate protective and chemical resistant gloves, clothing and splash protection, or fully encapsulating vapor protective clothing to prevent exposure. For materials of construction consult protective clothing manufacturer’s specifications.

Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing is recommended. Contaminated work clothing should not be allowed out of the workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state Gas
Appearance Colorless.
Odor Rotten-egg like.
Odor threshold 0.13 ppm (Hydrogen sulfide)* see note
pH If dissolved in water, will affect pH value
Melting point -82.2 °C / -117.8 °F
Evaporation rate Not applicable
Fire Hazard Yes
Lower flammability limit: 4%
Upper flammability limit: 44%
Flash point No information available
Autoignition temperature 290 °C / 554 °F
Decomposition temperature No data available
Water solubility Soluble in water.
Partition coefficient 0.45
Kinematic viscosity Not applicable

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Molecular weight</th>
<th>Boiling point</th>
<th>Vapor Pressure</th>
<th>Vapor density (air =1)</th>
<th>Gas Density kg/ m³ @ 20 °C</th>
<th>Critical Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>34.08</td>
<td>-60.3 °C</td>
<td>18100 hPa @ 20 °C</td>
<td>1.19</td>
<td>1.427</td>
<td>100.5 °C</td>
</tr>
</tbody>
</table>

Note: Extended exposure to gas reduces the ability to smell sulfides. Do not depend on odor to detect presence of gas

10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions
Chemical stability
Stable under recommended storage conditions.

Explosion data
- Sensitivity to Mechanical Impact: None.
- Sensitivity to Static Discharge: Yes.

Possibility of Hazardous Reactions
May form explosive mixtures with air.

Conditions to avoid
Ignitions sources - heat, sparks and open flames. Vapors will ignite spontaneously when mixed with vapors or chlorine, oxygen difluoride or nitrogen trifluoride.

Incompatible materials
Oxidizing agents. Nitric acid.

Hazardous Decomposition Products
Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Toxic by inhalation. May cause respiratory irritation.

Skin contact
Irritating to skin. Contact with liquid may cause cold burns/ frostbite.

Eye contact
May cause irritation. Ocular toxicity has been reported at hydrogen sulfide concentrations ranging from 5-30 ppm. Contact with liquid may cause cold burns/ frostbite.

Ingestion
Not an expected route of exposure.

Information on toxicological effects

Symptoms
May cause central nervous system effects such as headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure and death. Hydrogen sulfide gas between 15 and 500 ppm can cause headache, nausea and dizziness. Continued exposure at these levels can lead to loss of reasoning and balance, difficulty in breathing, fluid in the lungs, and possible loss of consciousness. Greater than 500 ppm can cause rapid unconsciousness due to respiratory paralysis and death by suffocation. Greater than 1000 ppm can cause immediate unconsciousness and death if not promptly revived. Symptoms may be delayed.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation
Concentrations of 50-500 ppm cause eye and respiratory irritation.

Sensitization
Not classified.

Germ cell mutagenicity
Not classified.

Carcinogenicity
This product does not contain any carcinogens or potential carcinogens listed by OSHA, IARC or NTP.

Reproductive toxicity
Not classified.

STOT - single exposure
Category 3. May cause respiratory irritation.

STOT - repeated exposure
Not classified.

Target Organ Effects
Respiratory system, Eyes, Central nervous system (CNS).

Aspiration hazard
Not applicable.

Numerical measures of toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
<th>Inhalation LC50 (CGA P-20)</th>
</tr>
</thead>
</table>
LIND-P071 HYDROGEN SULFIDE  Revision Date 03-Mar-2015

<table>
<thead>
<tr>
<th>Product Information</th>
<th></th>
<th></th>
<th>712 ppm/ 1 hr ( Rat )</th>
<th>712 ppm ( Rat ) 1hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral LD50</td>
<td>No information available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal LD50</td>
<td>No information available</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation LC50</td>
<td>No information available</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following values are calculated based on chapter 3.1 of the GHS document.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a marine pollutant according to DOT.

**Ecotoxicity**
Very toxic to aquatic organisms. May cause pH changes in in aqueous ecological systems.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>-</td>
<td>0.0448: 96 h Lepomis macrochirus mg/ L LC50 flow-through</td>
<td>0.022: 96 h Gammarus pseudolimnaeus mg/ LLC50</td>
</tr>
</tbody>
</table>

**Persistence and degradability**
Not applicable.

**Bioaccumulation**
No information available.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td>0.45</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal of wastes**
Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to Linde for proper disposal.

14. TRANSPORT INFORMATION

**DOT**

<table>
<thead>
<tr>
<th>UN/ID no.</th>
<th>UN1053</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>Hydrogen sulfide</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>2.3</td>
</tr>
<tr>
<td>Subsidiary class</td>
<td>1</td>
</tr>
<tr>
<td>Special Provisions</td>
<td>2, B9, B14, N89</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>This product contains a chemical which is listed as a marine pollutant according to DOT.</td>
</tr>
<tr>
<td>Description</td>
<td>UN1053, Hydrogen sulfide, 2.3 (1), Marine Pollutant</td>
</tr>
<tr>
<td>Additional Description</td>
<td>“Toxic-Inhalation Hazard Zone B” If net weight of product is greater than or equal to 100 lbs., the shipping description must also contain the letters “RQ”.</td>
</tr>
<tr>
<td>Additional Marking Requirements</td>
<td>“Inhalation Hazard“ If net weight of product is greater than or equal to 100 lbs., the container must also be marked with the letters “RQ”.</td>
</tr>
</tbody>
</table>

**TDG**

<table>
<thead>
<tr>
<th>UN/ID no.</th>
<th>UN1053</th>
</tr>
</thead>
</table>
Proper shipping name: Hydrogen sulfide
Hazard Class: 2.3
Subsidiary class: 2.1
Marine pollutant: This product contains a chemical which is listed as a marine pollutant according to TDG.
Description: UN1053, Hydrogen sulfide, 2.3 (1), Marine Pollutant

MEX
UN/ID no.: UN1053
Proper shipping name: Hydrogen sulphide
Hazard Class: 2.3
Subsidiary hazard class: 2.1
EmS-No.: F-D, S-U
Marine pollutant: This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
Description: UN1053, Hydrogen sulphide, 2.3 (1)

IATA
Forbidden

IMDG
UN/ID no.: UN1053
Proper shipping name: Hydrogen sulphide
Hazard Class: 2.3
Subsidiary hazard class: 2.1
EmS-No.: F-D, S-U
Marine pollutant: This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO
Description: UN1053, Hydrogen sulphide, 2.3 (1), Marine Pollutant

ADR
UN/ID no.: UN1053
Proper shipping name: Hydrogen sulphide
Hazard Class: 2.3
Classification code: 2TF
Tunnel restriction code: (B/D)
Description: UN1053, Hydrogen sulphide, 2.3 (2.1), (B/D)
Labels: 2.1

15. REGULATORY INFORMATION

International Inventories
TSCA: Complies
DSL: Complies
EINECS/ELINCS: Complies

Legend:
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide - 7783-06-4</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes/No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td>Yes</td>
</tr>
</tbody>
</table>
LIND-P071 HYDROGEN SULFIDE

Reactive Hazard
No

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/ SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide 7783-06-4</td>
<td>100 lb</td>
<td>100 lb</td>
<td>100 lb</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>45.4 kg</td>
</tr>
</tbody>
</table>

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act Amendments of 1990.

CWA (Clean Water Act)
This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide 7783-06-4</td>
<td>100 lb</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

Risk and Process Safety Management Programs
This material, as supplied, contains one or more regulated substances with specified thresholds under 40 CFR Part 68 or regulated as a highly hazardous chemical pursuant to the 29 CFR Part 1910.110 with specified thresholds:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Toxic Substances</th>
<th>U.S. - CAA (Clean Air Act) - Accidental Release Prevention - Flammable Substances</th>
<th>U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide 7783-06-4</td>
<td>10000 lb</td>
<td>1500 lb</td>
<td></td>
</tr>
</tbody>
</table>

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide 7783-06-4</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

International Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Carcinogenicity</th>
<th>Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen sulfide</td>
<td></td>
<td>Mexico: TWA 10 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: TWA 14 mg/ m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: STEL 15 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mexico: STEL 21 mg/ m³</td>
</tr>
</tbody>
</table>

Legend
Canada NPRI - National Pollutant Release Inventory
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
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Note: Ratings were assigned in accordance with Compressed Gas Association (CGA) guidelines as published in CGA Pamphlet P-19-2009, CGA Recommended Hazard Ratings for Compressed Gases, 3rd Edition.

Issue Date 03-Mar-2015
Revision Date 03-Mar-2015
Revision Note Initial Release.

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End of Safety Data Sheet