



# Material Safety Data Sheet

## 1. Product and Company Identification

Product name : **Hydrogen Sulfide**

Chemical formula : H<sub>2</sub>S

Synonyms : Hydrogen Sulfide (H<sub>2</sub>S); Dihydrogen Monosulfide; Dihydrogen Sulfide; Hydrosulfuric acid; Sulfur Dihydride; Sulfureted Hydrogen; Sulfur Hydride; Stink Damp; Sewer gas; UN 1053

Company : Med Tech Gases, Inc.  
20 Hall Street  
Medford, MA 02155

Telephone : 800-FINE-GAS

Emergency : 800-424-9300

## 2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Hydrogen Sulfide	7783-06-4	100%

## 3. Hazards Identification

### Emergency Overview

Harmful if inhaled.

May cause respiratory tract irritation, skin irritation, eye irritation, blood damage.

Flammable gas. May cause flash fire. Flash back hazard. Electrostatic charges may be generated by flow, agitation, etc.

### Potential Health Effects

Inhalation : Irritation, cough, ack of sense of smell, sensitivity to light, changes in blood pressure, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, disorientation, hallucinations, pain in extremities, tremors, visual disturbances, suffocation, lung congestion, internal bleeding, heart disorders, nerve damage, brain damage, convulstions, coma, death. May cause loss of appetite, weight loss, irregular heartbeat, headache, sleep disturbances, lung congestion, nerve damage, paralysis, effects on the brain in long term exposure.

Eye contact : Irritation, sensitivity to light, tearing, blurred vision, visual disturbances.

Skin contact : Irritation. May cause skin disorders in long term exposure.

Ingestion : Ingestion of a gas is unlikely.

Chronic Health Hazard : None known.

## 4. First Aid Measures

General advice : None.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact	:	Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Ingestion	:	If a large amount is swallowed, get immediate medical attention.
Inhalation	:	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Antidote	:	Amyl nitrite, inhalation; sodium nitrite, intravenous; pyridoxine, intravenous; urea, intravenous. CAUTION! Get medical attention immediately.
Note to physician	:	For inhalation, consider oxygen.

## 5. Fire-Fighting Measures

Suitable extinguishing media	:	Let burn unless leak can be stopped immediately. Large fires: Use regular foam or flood with fine water spray.
Specific hazards	:	Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Pressurized containers may rupture or explode if exposed to sufficient heat. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.
Fire fighting	:	Move container from fire area if it can be done without risk. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. Cool containers with water spray until well after fire is out. Keep unnecessary people away, isolate hazard area and deny entry. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Stop flow of gas.

## 6. Accidental Release Measures

Air Release	:	Reduce vapors with water spray. Collect runoff for disposal as potential hazardous waste.
Soil Release	:	Dike for later disposal. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).
Water Release	:	Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash).
Occupational spill/release	:	Do not touch spilled material. Stop leak if possible without personal risk. Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Reduce vapors with water spray. Do not get water directly on material. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. For tank, rail car or tank truck: 800 meters(1/2 mile). Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Additional advice	:	None.

## 7. Handling and Storage

### Handling

Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders. Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

### Storage

Store in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a cool, dry place. Store in a well-ventilated area. Avoid contact with light. Grounding and bonding required. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.

## **8. Exposure Controls / Personal Protection**

### Exposure limits

ACGIH	:	10 ppm TWA 15 ppm STEL
OSHA (final)	:	20 ppm Ceiling
OSHA (vacated)	:	15 ppm STEL; 21 mg/m <sup>3</sup> STEL 10 ppm TWA; 14 mg/m <sup>3</sup> TWA
NIOSH	:	10 ppm Ceiling 10 min; 15 mg/m <sup>3</sup> Ceiling 10 min

### IDLH

100 ppm

### Engineering measures/Ventilation

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

### Personal protective equipment

Respiratory protection	:	The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 100 ppm – Any powered, air-purifying respirator with cartridge(s) providing protection against this substance. Any air-purifying full face respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against this substance. Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions – Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape – Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against this substance. Any appropriate escape-type, self-contained breathing apparatus.
Hand protection	:	Wear appropriate chemical resistant gloves.
Eye protection	:	Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Skin and body protection	:	Wear appropriate chemical resistant clothing.

## **9. Physical and Chemical Properties**

Form	: Gas.
Color	: Colorless.
Odor	: Rotten egg odor.
Molecular weight	: 34.08
Vapor pressure	: 15200 mmHg @ 25°C
Vapor density	: 1.2 (air = 1)
Specific gravity	: 1.192 (water = 1)
Boiling point	: -78°to -77°F (-61°to -60.3°C)
Melting point	: -123°F (-86°C)
Water solubility	: 2.58 – 2.9% @ 20°C
Evaporation rate	: Not applicable.
Solvent solubility	: Soluble: carbon disulfide, alcohol, ether, glycerol, gasolines, kerosene, crude oil, alkali solutions

## 10. Stability and Reactivity

Stability	: Stable at normal temperatures and pressure.
Conditions to avoid	: Avoid heat, sparks, flames or other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers.
Materials to avoid	: Combustible materials, halogens, metals, oxidizing materials, metal salts, bases, metal oxides.
Hazardous decomposition products	: Thermal decomposition products: oxides of sulfur.

## 11. Toxicological Information

The components of this material have been reviewed in various sources and the following selected endpoints are published:

HYDROGEN SULFIDE (7783-06-4)	: Inhalation LC50 Rat: 0.701 mg/L/4H; Inhalation LC50 Rat: 0.99 mg/L/1H
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### Acute Toxicity Level

HYDROGEN SULFIDE (7783-06-4)	: Toxic: inhalation
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### Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

### Local Effects

HYDROGEN SULFIDE (7783-06-4)	: Irritant: inhalation, skin, eye
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### Target Organs

HYDROGEN SULFIDE (7783-06-4)	: blood
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### Medical Conditions Aggravated by Exposure

Eye disorders, respiratory disorders, nervous system disorders

## 12. Ecological Information

### Aquatic Toxicity

HYDROGEN SULFIDE (7783-06-4) : Fish: 96 Hr LC50 *Lepomis macrochirus*: 0.0448 mg/L [flow-through]; 96 Hr LC50 *Pimephales promelas*: 0.016 mg/L [flow-through]  
Invertebrate: 96 Hr LC50 *Grammarus pseudolimnaeus*: 0.022 mg/L

## 13. Disposal Considerations

Waste from residues / unused products Contaminated packaging : Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): U135.  
Component Waste Numbers : Return cylinder to supplier.  
RCRA: waste\_number U135

## 14. Transport Information

### DOT (US only)

Proper shipping name : Hydrogen sulfide  
Class : 2.3  
UN/ID No. : UN1053  
Labeling : Flammable Gas; Poison  
Additional shipping description : Toxic-Inhalation Hazard Zone B

### Further information

Cylinders should be transported in a secure upright position in a well ventilated truck.

## 15. Regulatory Information

### U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

HYDROGEN SULFIDE (7783-06-4)  
SARA 302 : 500 lb TPQ  
100 lb final RQ; 45.4 kg final RQ  
CERCLA : 100 lb final RQ; 45.4 kg final RQ  
OSHA (safety) : 1500 lb TQ

### SARA 311/312

Acute: Yes  
Chronic: Yes  
Fire: Yes  
Reactive: No  
Pressure: Yes

### U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
HYDROGEN SULFIDE	7783-06-4	Yes	Yes	Yes	Yes	Yes	Yes