

Air Liquide New Zealand Limited  
19 Maurice Road  
Penrose  
Auckland 1061

Phone: (09) 622 3880  
Fax: (09) 622 3881  
Emergency: 0800 156 516

## MATERIAL SAFETY DATA SHEET

Product Name:

Hydrogen Sulphide,  
(H<sub>2</sub>S)

Issued: May 2014

Revision: 4

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Label 2.3 : Toxic gas.



Label 2.1 : flammable gas.

Issued: June 2008

Revision: 4

### IDENTIFICATION

**Chemical Name:** Hydrogen Sulphide  
**Synonyms:** Dihydrogen Monosulphide, Dihydrogen Sulphide, Sewer Gas, Stink Damp, Sulphur Dihydride  
**UN Number:** 1053  
**Poisons Schedule Number:** S7  
**G.T. EPG. (Group Text. Emergency Procedure Guide):** AS 1678 2B1

**Use:** As a Metal Annealing Agent.

### HAZARDS IDENTIFICATION

**Dangerous Goods Class and Subsidiary Risk:** 2.3 sub 2.1  
**HSNO Classification:** 2.1.1A, 6.1B, 6.3B, 6.4A, 6.9A, 9.1A

**Hazard Statement:** Extremely Flammable Gas.  
Fatal if inhaled.  
Causes mild skin irritation.  
Causes serious eye irritation.  
Very toxic to aquatic life.

**Precautionary Statements:**

Keep out of reach of children.  
Read label before use.  
Read Material Safety Data Sheet before use.  
Keep away from all ignition sources.  
Do not breathe gas.  
Use only outdoors or in a well-ventilated area.  
Avoid release to the environment.  
Collect spillage.  
Wash hands thoroughly after use.  
Wear protective, gloves, clothing, eye and face protection.  
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.  
Eliminate all sources of ignition.  
Use self contained breathing apparatus.  
If INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
If skin irritation occurs: Get medical advice/attention.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If eye irritation persists: Get medical advice/attention.  
IF exposed: Call a POISON CENTRE or doctor.  
Do NOT induce vomiting.  
Store in a well –ventilated place. Keep container tightly closed.  
Store locked up.

**COMPOSITION****Ingredients**

Chemical Entity	CAS Number	Proportion
Hydrogen Sulphide	7783-06-04	100%

**FIRST AID MEASURES****Health Effects****Acute**

Swallowed: Not applicable to gases.  
Eye: Can cause inflammation and irritation of the eyes, even at very low airborne concentrations (<10ppm). Product has potential for serious eye damage. Contact with liquid H<sub>2</sub>S may freeze the eye and cause severe damage or blindness.  
Skin: Contact with liquid H<sub>2</sub>S can cause frostbite. Not a likely route of exposure, however continuous exposure to the gas may irritate the skin at low concentrations (15-50ppm).  
Inhaled: Gas is an irritant to mucous membranes and respiratory tract, and can be highly toxic. At concentrations of 0.13 ppm to 30 ppm. The odour is obvious and unpleasant. At 50 ppm, marked dryness and irritation of the nose and throat occurs. Prolonged exposure may cause a runny nose, cough, hoarseness, shortness of breath and pneumonia. At 100 – 150 ppm, there is a temporary loss of smell. At 200 – 250 ppm, H<sub>2</sub>S causes severe irritation as well as symptoms such as nausea, vomiting and dizziness. Prolonged exposure may cause lung damage. Exposure for 4 to 8 hours can cause death. At 300 -500 ppm, H<sub>2</sub>S causes the same effects sooner and more severely. Death can occur in 1 – 4 hours. At 500 ppm, excitement, headache, dizziness, staggering, unconsciousness and respiratory failure in 5 minutes to 1 hour. Death can occur in 30 minutes to 1 hour. Exposures above 500 ppm rapidly cause unconsciousness and death. Severe exposures that do not result in death may cause long term symptoms such as memory loss, paralysis of facial muscles or nerve tissue damage.

**Chronic**

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Long-term poisoning by H<sub>2</sub>S is controversial, and disagreement centres on the nature of the symptoms, which include fatigue, headache, dizziness, hoarseness, cough and irritability. These symptoms are not specific to H<sub>2</sub>S exposure and could be due to other causes.

**First Aid**Inhalation:

Very toxic by inhalation. May cause damaging effects to central nervous system, metabolism and gastrointestinal tract. Prolonged exposure to small concentrations may result in pulmonary oedema. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin Contact:

Remove contaminated clothing and shoes immediately – clothing frozen to the skin should be thawed before removed – In case of frostbite, thaw with lukewarm water.

Eye Contact:

If eyes become affected gently flood with tap water for at least 15 minutes. Call a doctor.

**Advice to Doctor**

Treat symptomatically and advise exposure to Hydrogen Sulphide has occurred.

**General:**

**CONTACT NATIONAL POISONS CENTRE FOR FUTURE ADVICE.**

**FIRE FIGHTING MEASURES****Flammability:**

Extremely Flammable Liquefied Gas. May form explosive mixtures with air. Avoid all ignition sources.

**Fire/Explosion Hazard:**

Exposure to fire may cause containers to rupture/explode. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Sulphur dioxide.

**Extinguishing Media:**

Water jets or water fog. If possible, stop flow of product. Move away from the container and cool with water from a protected position. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Evacuate Area.

**Hazchem Code:**

2WE

**Recommended Protective Clothing:**

Use self-contained breathing apparatus.

**ACCIDENTAL RELEASE MEASURES****Personal Protection:**

Personnel shall be provided with safety footwear and rubber gloves. Full cover overalls and safety glasses or face shield to be worn. Full face positive pressure breathing equipment should be readily available.

**Spills and Disposal:**

Evacuate area. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Try stop release. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

**Reference Guide:**

Standard SNZ HB 76:2008 Dangerous Goods – Initial Emergency Response Guide.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification.

**HANDLING AND STORAGE****Handling****Flammability:**

Extremely Flammable Liquefied Gas. May form explosive mixtures with air. Avoid all ignition sources.

**General:**

Only experienced and properly instructed personnel should handle compressed gases. Cylinder contents and identification labels provided by the supplier must not be removed or defaced. Colour coding should not be the only criterion used for content identification. Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Keep away from ignition sources (including static discharges).

**Approved Handlers:**

Approved handlers are required if more than 100 m<sup>3</sup> is stored on site.

**Storage****Separation:**

Storage of compressed gas cylinders shall be in compliance with New Zealand regulations. Cylinders shall be stored in a cool, dry, well ventilated area out of direct sunlight and away from heat and ignition sources. No part of cylinders shall be exposed to temperatures above 50°C. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empties. Segregate from oxidant gases and other oxidants in store. Cylinders should be moved by hand-truck or cart designed for that purpose.

**Spills and Disposal:**

Avoid discharge to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Evacuate Area.

**EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Standards:**

TWA 10 ppm v/v ( 5 mg/m<sup>3</sup>)      STEL 21 ppm v/v ( 10 mg/m<sup>3</sup>)

**Engineering Controls:**

Use only materials compatible with hydrogen sulphide. Mechanical ventilation that is non-sparking, corrosion resistant separate from other exhaust ventilation systems.

**Personal Protection:**

Personnel shall be provided with safety footwear and rubber gloves. Full cover overalls and safety glasses or face shield to be worn. Full face positive pressure breathing equipment should be readily available.

**PHYSICAL AND CHEMICAL PROPERTIES****Physical Properties**

Appearance:	Colourless, Liquid At Low Temperature Or Under High Pressure Which Vapourises To A Colourless Gas, With Offensive Rotten Egg Odour.		
Odour Threshold:	0.13 ppm to 100 ppm	Flashpoint:	Non Flammable
Boiling Point:	-60.7°C	Flammability Limits:	4% to 44%
Vapour Pressure:	Not Applicable	Gas Solubility in Water (at 0°C):	43.73 m <sup>3</sup> /m <sup>3</sup>

**Other Properties**

Relative Density (at 15°C) (Air = 1):	1.21	Density of Liquid (B.P.):	1539 kg/m <sup>3</sup>
Molecular Weight:	34.08	Critical Temperature:	260°C

**STABILITY AND REACTIVITY****Flammability:**

Extremely Flammable Liquefied Gas. May form explosive mixtures with air. Avoid all ignition sources.

**Materials Compatibility:**

Use only materials compatible with hydrogen sulphide. Mechanical ventilation that is non-sparking, corrosion resistant separate from other exhaust ventilation systems. May react violently with oxidants.

**TOXICOLOGY INFORMATION**

Damage to central nervous system. LC50 (ppm/1H): 712

**ECOLOGICAL INFORMATION**

May cause pH changes in aqueous ecological systems. Endangering to drinking water.

**DISPOSAL CONSIDERATIONS**

Avoid discharge to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Toxic and corrosive gases formed during combustion should be scrubbed before discharge to atmosphere. Evacuate Area.

**TRANSPORT INFORMATION**

<b>UN Number:</b>	1053
<b>Proper Shipping Name:</b>	HYDROGEN SULPHIDE
<b>Dangerous Goods Class and Subsidiary Risk:</b>	2.3 sub 2.1
<b>Packing Group:</b>	Not applicable
<b>Hazchem Code:</b>	2WE
<b>Other Information:</b>	Avoid transport on vehicles where the load is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: <ul style="list-style-type: none"><li>• Ensure that containers are firmly secured.</li><li>• Ensure cylinder valve is closed and not leaking.</li><li>• Ensure there is adequate ventilation.</li><li>• Compliance with applicable regulations.</li></ul>

**REGULATORY INFORMATION****ERMA Register Approval No:** HSR001061

**HSNO Controls:** Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.  
Hazardous Substances (Classes 6, 8, and 9 Controls) Regulations 2001.  
Hazardous Substances (Disposal) Regulations 2001.  
Hazardous Substances (Personnel Qualifications) Regulations 2001.  
Hazardous Substances (Emergency Management) Regulations 2001.  
Hazardous Substances (Tracking) Regulations 2001.  
Hazardous Substances (Identification) Regulations 2001.  
Hazardous Substances (Compressed Gases) Regulations 2004.  
Hazardous Substances (Tank Wagon and Transportable Containers) Regulations 2004.  
Schedule 10 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.  
Schedule 12 of the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004.

**Approved Handlers:**Approved handlers are required if more than 100 m<sup>3</sup> is stored on site.**OTHER INFORMATION**

Hydrogen Sulphide is supplied as liquefied gas in cylinders.

**Cylinder Colour:** Grey with an orange band on the shoulder or Grey or Red or Grey with a green band on the shoulder.**Cylinder Valve Outlet:** Industrial: CGA 330 or Type E valves with a 6°52minutes Pitch.

**References:**

- . L'Air Liquide Gas Encyclopaedia - Elsevier Scientific Publishing Co. Amsterdam
- . Cheminfo Database
- . New Zealand Code for the Transport of Dangerous Goods by Road and Rail
- . NHMRC Threshold Limit Values - Commonwealth Dept Health
- . SAA Safe Storage and Handling Information Cards
- . SAA Emergency Procedure Cards
- . Matheson Gas Data Book, 6th Edition, Matheson 1980
- . Canadian Liquid Air Montreal, Canada - Gas Products Safety Data Sheets
- . AS 1894 Code of Practice for Safe Handling of Cryogenic fluids
- . NZCIC Code of Practice – Preparation of Safety Data Sheets

**END MSDS**

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

This MSDS has been prepared in accordance with NZCIC Code of Practice – Preparation of Safety Data Sheets

**Air Liquide regional offices contact details on following page**

**Regional Offices****Auckland**

PO Box 12846  
19 Maurice Road  
Penrose  
Phone: 09 622 3888  
Fax: 09 622 3882

**Hamilton**

PO Box 10 394  
2 Tawn Place, Pukete  
Phone: 07 849 2969  
Fax: 07 348 9063

**Mt Maunganui**

89 Poturi Street, Tauriko  
Tauranga 3110  
Phone: 07 574 8475  
Fax: 07 574 8476

**Palmerston North**

PO Box 10 010  
5 Connolly Place  
Palmerston North  
Phone: 06 355 5216  
Fax: 06 354 7104

**Christchurch**

PO Box 16453  
7 Canterbury St  
Hornby  
Phone: 03 344 6033  
Fax: 03 344 6031

**Emergency 24hr Phone  
Number 0800 156 516**