

Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

1 - Product and Company Information

Product Name	HYDROGEN SULFIDE CYL. WITH 10 L (NET ~6.
Product Number	84742
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
HYDROGEN SULFIDE	7783-06-4	231-977-3	016-001-00-4
Formula	H2S		
Molecular Weight	34.08 AMU		
Synonyms	Acide sulfhydrique (French) * Hydrogene sulfure (French) * Hydrogen sulfide (ACGIH:OSHA) * Hydrogen sulfuric acid * Idrogeno solforato (Italian) * RCRA waste number U135 * Schwefelwasserstoff (German) * Siarkowodor (Polish) * Stink DAMP * Sulfureted hydrogen * Sulfur hydride * Zwavelwaterstof (Dutch)		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Extremely flammable. Very toxic by inhalation. Very toxic to aquatic organisms.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

5 - Fire Fighting Measures

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.
Explosion Hazards: May form explosive mixtures with air

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area and keep personnel upwind. Shut off all sources of
ignition. Shut off leak if there is no risk.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe gas. Do not get in
eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed. Keep away from heat,
sparks, and open flame. Store in a cool dry place. Cylinder
temperature should not exceed 125°F (52°C).

SPECIAL REQUIREMENTS: Moisture sensitive.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	10 MG/M3
Poland		NDSch	20 MG/M3
Poland		NDSP	-

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	15 mg/m3 10 ppm

EXPOSURE LIMITS - GERMANY

Source	Type	Value
TRGS 900	OEL	14 mg/m3 10 ppm

Remarks: =1=

EXPOSURE LIMITS - SWEDEN

Source	Type	Value
	LLV (Level)	14 mg/m3 10 ppm

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	15 mg/m3 10 ppm

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	OEL	14 mg/m3 10 ppm
OEL	STEL	21 mg/m3 15 ppm

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator in

nonventilated areas and/or for exposure above the TLV or PEL.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Gas Color: Colorless Odor: Stench.	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	-60 °C	760 mmHg
MP/MP Range	-85 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	500 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 4 % Upper: 46 %	
Vapor Pressure	13028.4 mmHg	21 °C
SG/Density	N/A	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	1.19 g/l	15 °C
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Conditions to Avoid: Moisture.

Materials to Avoid: Strong oxidizing agents, Strong bases.

11 - Toxicological Information

RTECS NUMBER: MX1225000

ACUTE TOXICITY

LCLO
Inhalation
Human
600 ppm
30M

LCLO
Inhalation
Man
5700 UG/KG
Remarks: Behavioral:Coma. Lungs, Thorax, or Respiration:Chronic pulmonary edema.

LCLO
Inhalation
Human
800 ppm
5M

LC50
Inhalation
Rat
444 ppm
Remarks: Lungs, Thorax, or Respiration:Other changes.
Gastrointestinal:Hypermotility, diarrhea. Kidney, Ureter,
Bladder:Urine volume increased.

LC50
Inhalation
Mouse
634 ppm
1H

SIGNS AND SYMPTOMS OF EXPOSURE

Hydrogen sulfide is recognized by its characteristic odor of "rotten eggs". The detectable, minimum perceptible odor occurs at 0.13ppm. At concentrations of 20ppm hydrogen sulfide begins acting as an irritant on the mucous membranes of the eyes and respiratory tract and increases with concentration and exposure time. The irritant action and odor of rotten eggs often provides the first warning of hydrogen sulfide exposure. Unfortunately, above 150ppm the gas exerts a paralyzing effect on the olfactory apparatus. Prolonged exposure to moderate concentrations (250ppm) may cause pulmonary edema. At concentrations over 500ppm, drowsiness, dizziness, excitement, headache, unstable gait, and other systemic symptoms occur within a few minutes. Sudden loss of consciousness without premonition, anxiety, or sense of struggle are characteristic of acute exposure at concentrations above 700ppm. At concentrations of 1000-2000ppm hydrogen sulfide is rapidly absorbed through the lung into the blood. Initially hyperpnea occurs, followed by rapid collapse and respiratory inhibition. At higher concentrations, hydrogen sulfide exerts an immediate paralyzing effect on the respiratory centers. When concentration reaches 5000ppm, imminent death almost always results. Generally speaking, imminent death due to asphyxia can happen at any time when the concentration reaches 1000ppm or more. Exposure to and/or consumption of alcohol may increase toxic effects.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Multiple Routes: Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 20 PPM
Route of Application: Inhalation
Exposure Time: (6-22D PREG/21D POST)
Result: Effects on Newborn: Physical.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Observe all federal, state, and local environmental regulations.

CONTAMINATED CONTAINER DISPOSAL

Caution: no-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue. Follow proper disposal techniques.

14 - Transport Information

RID/ADR

UN#: 1053

Class: 2

Proper Shipping Name: Hydrogen sulphide

IMDG

UN#: 1053

Class: 2.3

Subrisk: 2.1

Proper Shipping Name: Hydrogen sulphide

Marine Pollutant: No

Severe Marine Pollutant: No

IATA

UN#: 1053

Class: 2.3

Subrisk: 2.1

Proper Shipping Name: HYDROGEN SULPHIDE, LIQUEFIED

Inhalation Packing Group I: Yes

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 016-001-00-4

INDICATION OF DANGER: F+ T+ N

Extremely Flammable. Very toxic. Dangerous for the environment.

R-PHRASES: 12 26 50

Extremely flammable. Very toxic by inhalation. Very toxic to aquatic organisms.

S-PHRASES: 9 16 28 36/37 45 61

Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking. After contact with skin, wash immediately with plenty of soap-suds. Wear suitable protective clothing and gloves. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

SWITZERLAND

SWISS POISON CLASS: 2

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The

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