

SAFETY DATA SHEET (SDS) Hydrogen Sulphide

Please ensure that this SDS is received by the appropriate persons


Review Date: 24/07/2022 v01

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0050

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	Hydrogen Sulphide Hydrogen Sulphide
Chemical Formula	H ₂ S
Trade Name	Hydrogen Sulphide
Colour Coding	Purple body with yellow band and red shoulder and Lime green valve guard
Product Code	542601-LF-C
Company Identification	African Oxygen Limited Grayston Office Park Building 7 128 Peter Road Sandown, Sandton, 2196 Tel. No: (011) 490-0400 Fax No: (011) 490-0530 Email: customer.service@afrox.linde.com www.afrox.com
Emergency Numbers	0860 02 02 02 (Afrox)

2. HAZARD IDENTIFICATION	
Classification	- Classification under South African Hazardous Chemical Substances Regulations subsequently amended. (HCS) - FLAMMABLE GASES - Category 1 - GASES UNDER PRESSURE - Liquefied gas - ACUTE TOXICITY (inhalation) -Category 2 - SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 - AQUATIC HAZARD (ACUTE) - Category 1 - SKIN CORROSION/IRRITATION
Emergency Overview	Colour: Colourless Odour: Rotten egg Taste: Pungent Physical State: Liquid under own vapour pressure
	- All cylinders are portable gas containers and must be regarded as pressure vessels at all times - Hydrogen Sulphide does not support life
Adverse Health Effects	- Harmful if inhaled
Chemical Hazards	- Acute Toxicity
Biological Hazards	- Vapour is harmful to living organisms
Vapour Inhalation	- Acute toxicity - Will cause severe pulmonary spasms.
GHS Classification	Flammable gas 1 - Acute toxicity 2

GHS Pictogram	
GHS Signal Words	Danger
GHS Hazard Statements	H220: Extremely flammable gas H280: Contains gas under pressure; may explode if heated H330: Fatal if inhaled H335: May cause respiratory irritation H314: Causes severe skin burns and eye damage H400: Very toxic to aquatic life
GHS Precautionary Statements	Prevention: P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking P260: Do not breathe gas/vapours/fumes P273: Avoid release to the environment P264: Wash exposed skin thoroughly after handling P271: Use only outdoors or in a well-ventilated area P284: Wear respiratory protection P280: Wear protective gloves/protective clothing/eye protection/face protection. Response: P304+P340+P315: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get immediate medical advice/attention P312: Call a POISON CENTRE/doctor if you feel unwell P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely P381: Eliminate all ignition sources if safe to do so P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P363 Wash contaminated clothing before reuse. P321 Specific treatment Reference to supplemental first aid instruction P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Storage: P410 + P403: Protect from sunlight. Store in a well-ventilated place P233: Keep container tightly closed P405: Store locked up Disposal: P501: Dispose of contents/container in accordance with local / regional / national/international regulations

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Other Hazards that do not result in classification	<ul style="list-style-type: none"> - Heavier than air will displace oxygen in low lying area. - Contact with evaporating liquid may cause frostbite or freezing of skin
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3. COMPOSITION OF INGREDIENTS

Chemical name	Hydrogen Sulphide
Chemical family	Hydrogen Sulphide
CAS No	7783-06-4
UN No	1053
ERG No	117
Hazard class	Class 2.3, 2.1
Hazchem Warning	2WE

4. FIRST AID MEASURES

General	Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Eye contact	<p>The liquid may cause frostbite</p> <ul style="list-style-type: none"> - Rinse the eye with water immediately. - Remove contact lenses, if present and easy to do. Continue rinsing. - Flush thoroughly with water for at least 15 minutes. - Get immediate medical assistance. If medical assistance is not immediately available, flush an additional 15 minutes.
Skin Contact	<p>The liquid may cause frostbite.</p> <ul style="list-style-type: none"> - For exposure to liquid, immediately warm frostbite area with warm water not to exceed 41°C. Water temperature should be tolerable to normal skin. - Maintain skin warming for at least 15 minutes or until normal colouring and sensation have returned to the affected area. - In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.
Ingestion	- Ingestion is not considered a potential route of exposure.
Inhalation	<ul style="list-style-type: none"> - In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. - Remove victim to uncontaminated area wearing self-contained breathing apparatus. - Keep victim warm and rested. Seek medical attention. Apply artificial respiration if breathing stopped. - Low concentrations of Hydrogen Sulphide will not cause irritation

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	<ul style="list-style-type: none"> - Heat may cause the containers to explode - Material will burn. In case of fire in the surroundings: use appropriate extinguishing agent - Use water spray to reduce vapors or divert vapor cloud drift. Water Spray or Fog. - Dry powder. Foam
Unsuitable extinguishing media:	- Carbon Dioxide
Specific Hazards	<ul style="list-style-type: none"> - Asphyxiant - Liquid may cause cryogenic burns - Fire or excessive heat may produce hazardous decomposition products. Fire or excessive heat may produce hazardous decomposition products
Special fire fighting procedures:	<ul style="list-style-type: none"> - In case of fire: Stop leak if safe to do so. Use of water may result in the formation of very toxic aqueous solutions. Keep run-off water out of sewers and water sources. Dike for water control. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Sulphur dioxide
Special protective equipment for firefighters:	- Exposed Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces a self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	<ul style="list-style-type: none"> - WARNING! Liquid and gas under pressure. Rapid release of gaseous Hydrogen Sulphide through a pressure relief device (PRD) or valve can result in very cold and can cause frostbite - Evacuate area. - Provide adequate ventilation. - Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. - Consider the risk of potentially explosive atmospheres. In case of leakage, eliminate all ignition sources. Monitor the concentration of the released product - Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. - Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe - In an enclosed or non-ventilated space, a self-contained breathing apparatus must be used.
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Environmental Precautions	- Prevent further leakage or spillage if safe to do so. Reduce vapour with fog or fine water spray. Keep run-off water out of sewers and water sources. Dike for water control
Methods and material for containment and cleaning up:	- Provide adequate ventilation

	Container valve guards or caps should be in place.
Conditions for safe storage, including any incompatibilities	-Containers should not be stored in conditions likely to encourage corrosion. Keep away from food, drink and animal feeding stuffs. Stored containers should be periodically checked for general conditions and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep pressure containers away from combustible material.

7. HANDLING AND STORAGE	
Safe Handling	-Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment eg. trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suck back of water into the container must be prevented. Do not allow backfeed into the container. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. Damaged valves should be reported immediately to the supplier Close container valve after each use and when empty, even if still connected to equipment. Never attempt to repair or modify container valves or safety relief devices. Replace valve outlet caps or plugs and container caps were supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION	
Occupational Exposure Hazards (HCS)	- OEL eight-hour TWA 2ppm - OEL-STEL/C 10ppm - All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Segregate from oxidant gases and other oxidants being stored. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. Keep away from food, drink and animal feeding stuffs. - Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. Keep away from combustible material.
Engineering Control Measures	- Engineering control measures are preferred to reduce exposures. General methods include mechanical ventilation, process or personal enclosure, and control of process conditions. Administrative controls and personal protective equipment may also be required. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below occupational exposure limits. Gas detectors should be used when toxic quantities may be released. Gas detectors should be used when quantities of flammable gases or vapours may be released. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system and under strictly controlled conditions. Only use permanent leak tight installations (e.g. welded pipes). Take precautionary measures against static discharges. Do not eat, drink or smoke when using the product.

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	A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed
Personal Protection	- When allowed by a risk assessment Respiratory Protective Equipment (RPE) may be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD. Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.
Eyes	- Safety eyewear, goggles or face-shield should be used to avoid exposure to liquid splashes. Wear eye protection when using gases
Hands	- Guideline: Protective gloves against mechanical risks - Additional Information: Wear working gloves while handling containers
Body protection:	- Wear leather apron when handling liquid containers
Feet	- Wear safety shoes while handling containers

9. PHYSICAL AND CHEMICAL PROPERTIES

Chemical Name	Hydrogen Sulphide
Chemical Symbol	H ₂ S
Physical state	Gas
Form:	Liquefied Gas
Colour:	Colourless
Odour:	Rotten egg
Odour Threshold:	Odour threshold is subjective and is inadequate to warn of over-exposure
pH:	Acidic
Melting Point:	-86°C
Boiling Point:	-60 °C
Sublimation Point:	Not Known
Critical Temp. (°C):	-100.5°C
Flash Point:	Not applicable
Evaporation Rate:	Not applicable.
Flammability (gas):	Flammable
Flammability limit - upper (%):	-3.9
Flammability limit - lower(%):	-45.5
Vapour pressure:	17.37 Bar@20°C
Vapour density	1.434 @20°C
Relative density:	1.17@ 20 °C)
Solubility(ies)	
Solubility in Water:	2.5 l/kg water 20°C
Partition coefficient (n-octanol/water):	Not known

Autoignition Temperature:	270°C
Decomposition Temperature:	Not known
Viscosity	
Kinematic viscosity:	No data available.
Dynamic viscosity:	No data available
Explosive properties:	Not applicable
Oxidising Properties:	Not applicable
Molecular weight	34.082 g/mol

10. STABILITY AND REACTIVITY

Reactivity	- Not reactive
Chemical stability	- Stable under normal conditions
Possibility of hazardous reactions	- Under normal conditions of storage and use, hazardous reactions will not occur
Conditions to avoid	- Overheating of cylinders. Never use cylinders as rollers or supports; or for any other purpose than the storage of Hydrogen Sulphide
Incompatible Materials	Oxidisers
Hazardous Decomposition of Products	Under normal conditions of storage and use, hazardous decomposition products should not be produced

11. TOXOLOGICAL INFORMATION

Acute Toxicity	Extremely toxic, Fatal if inhaled
Skin & eye contact	Causes serious eye damage.
Chronic Toxicity	No data on chronic toxicity.
Carcinogenicity	Based on available data, the classification criteria are not met.
Mutagenicity	Based on available data, the classification criteria are not met.
Reproductive Hazards	Based on available data, the classification criteria are not met.

12. ECOLOGICAL INFORMATION

Toxicity	Ecological damage caused by this product Toxic to aquatic organisms. Very toxic to aquatic life
Persistence and degradability	Not applicable to gases and gas mixtures.
Bioaccumulative Potential Product	No bio-accumulating hazard.
Mobility in soil	No hazard Because of its high volatility, the product is unlikely to cause ground or water pollution
Results of PBT and vPvB assessment	Not classified as persistent, bio-accumulating and toxic (PBT).

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Other adverse effects	Not Known
Effect on ozone layer	None
Effect on the global warming (CO ₂ =1)	0

13. DISPOSAL CONSIDERATIONS

Disposal Methods	- Do not discharge into any place where its accumulation could be dangerous. Vent to atmosphere in a well-ventilated place. .
Disposal of Packaging	- The container is the property of the supplier, and the disposal of the containers must only be handled by the supplier.

14. TRANSPORT INFORMATION

Road Transportation

UN No.	1053
Shipping Name	Hydrogen Sulphide
ERG No.	117
Class	2.3, 2.1
Subsidiary Risk	Flammable, Toxic gases
Hazchem Warning	Toxic Flammable Gas

Sea Transportation

IMDG	1053
Shipping Name	Hydrogen Sulphide
ERG No.	117
Class	2.3, 2.1
Subsidiary Risk	Corrosive Flammable, Toxic gases
Label	Toxic corrosive Flammable Gas

Air Transportation

ICAO/IATA Code	1053
Class	2.3, 2.1
Packing Group:	-
Packaging instructions	- Cargo: not allowed - Passenger: not allowed

15. REGULATORY INFORMATION

EEC Hazard class: Toxic, Corrosive gas.
National legislation OHSact and Regulations 85 of 1993.

SANS 11014:2010 Edition 1	Safety data sheet for chemical products - Content and order of sections
SANS 10228:2012 Edition 6	The identification and classification of dangerous goods for transport by road and rail modes
SANS 10234:2019 Edition 2	Globally Harmonized System of classification and labelling of chemicals (GHS)
SUPPLEMENT TO SANS 10234 Edition 1	List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)

16. OTHER INFORMATION

- Ensure all national/local regulations are observed.

- Ensure users and relevant persons understand the asphyxiation hazard
- Regularly check supplier's information sources for updated versions of SDS's

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Bibliography

Compressed Gas Association, Arlington, Virginia
Handbook of Compressed Gases - 3rd Edition
Matheson Gas Data Book - 6th Edition
SANS 11014 - Safety data sheet for chemical products: Content and order of sections
SANS 10234 - List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)
SANS 10265 - Classification and Labelling of Dangerous Substances

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