

SAFETY DATA SHEET (SDS) Sulphur Hexafluoride


Please ensure that this SDS is received by the appropriate persons

Review Date: 24/07/2023

Emergency: 0860 02 02 02

Document Number: AFX-SDS-0069

1. PRODUCT AND COMPANY IDENTIFICATION	
Product Synonym	Sulphur Hexafluoride Sulphur Hexafluoride
Chemical Formula	SF ₆
Trade Name	Sulphur Hexafluoride N3.0 9kg Sulphur Hexafluoride N3.0 20kg Sulphur Hexafluoride N3.0 50kg
Colour Coding	Pink body, with lime green valve guard
Product Code	541601-IE-C 541602-SE-C 541601-SE-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 (Afox)

GHS Pictogram	
GHS Signal Words	Warning
GHS Hazard Statements	- H280: Contains gas under pressure, may explode if heated
GHS Precautionary Statements	Prevention: - P280 : Wear protective gloves/eye protection/face protection Response: - None Storage: - P410+P403 - Protect from sunlight. Store in a well-ventilated place Disposal - None
Other Hazards that do not result in classification	- Contains gas under pressure; may explode if heated. - May displace oxygen and cause rapid suffocation - Asphyxiant in high concentrations - Contact with liquid may cause cold burns/frostbite

2. HAZARD IDENTIFICATION	
Classification	- Classification under South African Hazardous Chemical Substances Regulations subsequently amended. (HCS) - Classification under the Globally Harmonized System of classification and labelling of chemicals (GHS) - Gases under pressure: Liquefied gas
Emergency Overview	Colour: Colourless Odour: Odourless Taste: None Physical State: Liquefied Gas Form: Liquid and Gas under pressure
	- All liquid cylinders and road tankers are portable gas containers and must be regarded as pressure vessels at all times - Sulphur Hexafluoride does not support life
Adverse Health Effects	- Asphyxiant
Chemical Hazards	- Asphyxiant
Biological Hazards	- The greatest physiological effect of Sulphur Hexafluoride is to cause asphyxiation
Vapour Inhalation	- Asphyxiation
GHS Classification	- Gas under pressure

3. COMPOSITION OF INGREDIENTS	
Chemical name	Sulphur Hexafluoride
Chemical family	Sulphur Hexafluoride
CAS No	2551-62-4
UN No	1080
ERG No	126
Hazard class	Class 2.2
Hazchem Warning	2TE Compressed Non-flammable gas

4. FIRST AID MEASURES	
Eye contact	The liquid may cause frostbite - 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	The liquid may cause frostbite - 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

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Ingestion	- Ingestion is not considered a potential route of exposure.
Inhalation	- 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 Sulphur Hexafluoride will not cause irritation

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	- Material will not burn. In case of fire in the surroundings: use appropriate extinguishing agent
Unsuitable extinguishing media:	- Do not use water jet to extinguish
Specific Hazards	- Asphyxiant - Liquid may cause cryogenic burns - Exposure to fire may cause containers to rupture/explode
Special fire fighting procedures:	- In case of fire: Stop leak if safe to do so. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire
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:	- WARNING! Liquid and gas under pressure. Rapid release of gaseous Sulphur Hexafluoride 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 - In an enclosed or non-ventilated space, a self-contained breathing apparatus must be used
Environmental Precautions	- Prevent further leakage or spillage if safe to do so
Methods and material for containment and cleaning up:	- Provide adequate ventilation

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 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. 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.

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8. EXPOSURE CONTROLS AND PERSONAL PROTECTION	
Occupational Exposure Hazards (HCS)	-OEL eight hour TWA 2000ppm
Engineering Control Measures	<p>- 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</p> <p>Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages Ensure exposure is below occupational exposure limits (where available) Oxygen detectors should be used when asphyxiating gases may be released Consider the use of a work permit system e.g. for maintenance activities</p> <p>A Risk assessment should be conducted to evaluate the suitability of PPE to the task being performed</p>
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	- Wear safety glasses
Hands	<p>- Guideline: Protective gloves against mechanical risks.</p> <p>- Additional Information: Wear working gloves while handling containers</p>
Body protection:	-Wear leather apron when handling liquid containers
Feet	- Wear safety shoes while handling containers

9. PHYSICAL AND CHEMICAL PROPERTIES	
Chemical Name	Sulphur Hexafluoride
Chemical Symbol	SF ₆
Physical state	liquid
Form:	liquid
Colour:	Colourless
Odour:	Odourless

Odour Threshold:	No odour
pH:	No effect in water
Melting Point:	-64 °C
Boiling Point:	-50.8 °C
Sublimation Point:	Not applicable
Critical Temp. (°C):	45.55 °C
Flash Point:	Not applicable
Evaporation Rate:	Not applicable
Flammability (gas):	Non-Flammable
Flammability limit - upper (%):	Not applicable
Flammability limit - lower(%):	Not applicable
Vapour pressure:	2155 kPa@20°C
Vapour density	6.17 @ 20°C
Relative density: Air=1	5.14 @ 20 °C
Solubility(ies)	
Solubility in Water:	41mg/kg water 20°C
Liquid density	0.7357 kg/l @20°C
Partition coefficient (n-octanol/water):	1.68
Autoignition Temperature:	Not applicable
Decomposition Temperature:	Not known
Kinematic viscosity:	No data available
Dynamic viscosity:	Not applicable
Explosive properties:	Not applicable
Oxidising Properties:	Not applicable
Molecular weight	146.05g/mol

10. STABILITY AND REACTIVITY	
Reactivity	Not reactive
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	Gas under high pressure.
Conditions to avoid	Overheating of cylinders. Never use cylinders as rollers or supports; or for any other purpose than the storage of Sulphur Hexafluoride
Incompatible Materials	None
Hazardous Decomposition of Products	Will not decompose

11. TOXOLOGICAL INFORMATION	
Acute Toxicity	Nontoxic
Skin & eye contact	No adverse effect
Chronic Toxicity	Based on available data, the classification criteria are not met
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

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12. ECOLOGICAL INFORMATION	
Toxicity	No ecological damage caused by this product
Persistence and degradability	Not applicable
Bioaccumulative Potential Product	No bio-accumulating hazard
Mobility in soil	No hazard
Results of PBT and vPvB assessment	Not classified as persistent, bioaccumulating and toxic (PBT)
Other adverse effects	No ecological damage caused by this product
Effect on ozone layer	None
Effect on the global warming (CO₂=1)	23900 Times more than CO ₂ global warming

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.	1080
Shipping Name	Sulphur Hexafluoride
ERG No.	126
Class	2.2
Subsidiary Risk	Non- flammable, non-toxic gases
Hazchem Warning	Non-Toxic, Non-flammable Gas
Sea Transportation	
IMDG	1080
Shipping Name	Sulphur Hexafluoride
ERG No.	126
Class	2.2
Subsidiary Risk	Non- flammable, non-toxic gases
Label	Non-Toxic Non-flammable Gas
Air Transportation	
ICAO/IATA Code	1080
Class	2.2
Packing Group:	-
Packaging instructions	- Cargo: 150 kg - Passenger: 75 kg

15. REGULATORY INFORMATION	
EEC Hazard class: non-Toxic, non-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	
<ul style="list-style-type: none"> - 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 	
Revision Date	24/7/2023 v01
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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