MATERIAL SAFETY DATA SHEET

SULPHUR HEXAFLUORIDE

(Please ensure that this MSDS is received by an appropriate person)

Date: June 2017 Version1

Ref no.: MSNIG025

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name	SULPHUR HEXAFLUORIDE
Chemical Formula	SF6
Trade Name	Sulphur Hexafluoride
Colour coding	Protea Pink (A.58) body with "Sulphur Hexafluoride" stencilled on the body.
Valve	3 S – Brass, 5/8 inch BSP right hand Male (BS341 No6)
Company Identification	BOC Gases Nigeria Plc Block H Plot 1-3 Apapa Oshodi Expressway Oshodi, Lagos, Nigeria Tel No: +234 (01) 3429178
EMERGENCY NUMBER	**+234(0)8076411479 (24 hours)**

2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Sulphur hexafluoride
Chemical Abstract Service Number (CAS No.): 2551-62-4
UN No.: 1080
ERG No.: 126
Hazchem Warning: Non-flammable compressed gas

3 HAZARDS IDENTIFICATION

Main Hazards	All cylinders are transportable gas containers. Sulphur hexafluoride can act as a simple asphyxiant by displacing the amount of oxygen in air necessary to support life.
Adverse health effects	The coordinating capacity of the nervous system is impaired by even slight degrees of oxygen deficiency; the subject cannot think clearly, or control his limbs accurately. The development of symptoms depends on the degree and duration of the oxygen deficiency, and also on the rapidity with which the deficiency is developed. In sudden and acute asphyxia, unconsciousness is immediate. When asphyxia develops slowly enough the following symptoms appear; increased volume of breathing, accelerated pulse rate, muscular inco-ordination, faulty judgement, emotional instability, fatigue, fainting, nausea, vomiting, disorientation, respiration in gasps.
Chemical Hazards	Inhalation of gaseous decomposition products of sulphur hexafluoride resulting from electrical decomposition should be avoided
Biological Hazards	See above
Vapour Inhalation	Sulphur hexafluoride has a low order of inhalation toxicity. Sulphur hexafluoride can, however, act as a simple asphyxiant by displacing the necessary amount of oxygen to support life.
Eye Contact	No known effect
Skin Contact	No known effect
Ingestion	No known effect

4 FIRST AID MEASURES

If the subject is conscious and becomes aware of symptoms of asphyxia, he/she should go to an uncontaminated area and inhale fresh air or oxygen. An unconscious subject must be carried to an uncontaminated area and given artificial respiration with simultaneous administration of oxygen as promptly as possible. Few, even those who have been severely asphyxiated, and who have not died during the asphyxiation, fail to make complete recoveries after receiving oxygen inhalation. Treat symptomatically thereafter.

5 FIRE FIGHTING MEASURES

Extinguishing media	As sulphur hexafluoride is non-flammable, it will not add to the fire, but could act as an extinguishant. Suitable extinguishing media should be used for surrounding fire.
Specific Hazards	Overheating of the cylinder could cause rupturing due to the build up of pressure.
Emergency Actions	Using water, keep all cylinders in the vicinity of the fire cool. Remove cylinders from the vicinity of the fire if possible. CONTACT BOC EMERGENCY NUMBER.
Protective Clothing	Should there have been a major leak of SF6; self-contained breathing apparatus should be worn as the oxygen concentration in the air could have been diluted to a level which will not support life.
Environmental Precautions	When discharge into the atmosphere, sulphur hexafluoride may contribute to greenhouse effect. It has a largest global warming potential of any chemical yet assessed, 23,900. (CO_2 = 1). As the gas is approximately five times heavier than air, it will not disperse rapidly.. Evacuate any confined spaces using forced draught ventilation ensuring that there is sufficient replacement air for that which has been removed by exhaust system.

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6 ACCIDENTAL RELEASE MEASURES

Personal Precautions	As sulphur hexafluoride is a simple asphyxiant, care should be taken when entering confined spaces where leaks have occurred
Environmental Precautions	When discharge into the atmosphere, sulphur hexafluoride may contribute to greenhouse effect. It has a largest global warming potential of any chemical yet assessed, 23,900. (CO_2 = 1).
Small Spills	Allow to disperse. Use forced-draught if required.
Large Spills	Beware of possibility of depleting the oxygen concentration of the air to a level below which it becomes life-threatening. Use forced-draught ventilation to clear confined spaces.

7 HANDLING AND STORAGE

Do not allow cylinders to slide or come into contact with sharp edges. Sulphur hexafluoride cylinders may be stacked horizontal provided that they are firmly secured at each end to prevent rolling. Use a "First in – First out" inventory system to prevent full cylinders from being stored for excessive periods of time. Keep out of reach of children.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure hazards	Sulphur hexafluoride is completely non-toxic. TLV (8hour) = 1000 ppm
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. Use a suitable ventilation system separate from other exhaust ventilation systems.

Exhaust direct to outside. Supply sufficient replacement air to make up for air removed by exhaust system.

9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Chemical Symbol	SF6
Molecular Weight	146,054g/mol
Melting point @ 224 kPa	-50.8^{o}C
Relative density, Gas @ 101.325kPa @ 20^{o}C	5.114
Specific Volume @ 21.1^{o}C, 101.325 kPa	156.1 dm^3/kg
Dielectric constant; Gas @ 25^{o}C, @ 101.325kPa	1.002 049

10 STABILITY AND REACTIVITY

Conditions to avoid	Sulphur hexafluoride may be partially decomposed if subjected to an electrical discharge. Some of the breakdown products are corrosive, this corrosion being enhanced by the presence of moisture or at high temperature.
Incompatible Materials	Since sulphur hexafluoride is non-corrosive any of the common structural metals may be used under ordinary conditions. At temperatures of the order of 150^{o}C copper, stainless steel, and aluminium are resistant to attack by decomposition products.
Hazardous Decomposition Products	Lower fluorides of sulphur hexafluoride, some of which are toxic, may be produced if sulphur hexafluoride is subjected to electrical discharge, and inhalation of the gas after electrical discharge must be guarded against.

11 TOXICOLOGICAL INFORMATION

Acute Toxicity	No known effect
Skin & eye contact	No known effect
Chronic Toxicity	No known effect
Carcinogenicity	No known effect
Mutagenicity	No known effect
Reproductive Hazards	No known effect

12 ECOLOGICAL INFORMATION

Sulphur hexafluoride does not pose hazard to the ecology.

13 DISPOSAL CONSIDERATIONS

Disposal methods	Small amounts may be blown to the atmosphere under controlled conditions. Large amounts should only be handled by the gas supplier.
Disposal of Packaging	The disposal of containers must only be handled by the gas supplier

14 TRANSPORT INFORMATION

ROAD TRANSPORTATION

UN No.	1080
Class	2.2
Subsidiary risk	Asphyxiant
ERG No.	126
Hazchem warning	Non-flammable gas

SEA TRANSPORTATION

IMDG	1080
Class	2.2
Label	Non-flammable gas

AIR TRANSPORTATION

ICAO/IATA Code	1080
Class	2.2
Subsidiary risk	Asphyxiant
Packaging instructions	
- Cargo	200
- Passenger	200
Maximum quantity allowed	
- Cargo	150 kg
- Passenger	75 kg

BOC Gases Nigeria Plc
Block H, Plot 1-3 Apapa Oshodi Expressway,
PMB 1053 Oshodi, Lagos
Tel: 01-3429179, Email: Nigeria.customer.service@boc.com

Maximum quantity allowed

15 REGULATORY INFORMATION

Reference standard: SANS 10234 and supplement
National legislation: OHSAct and Regulation (85 of 1993)

16 OTHER INFORMATION

Bibliography

SANS 10234-Globally Harmonized System of Classification and Labelling of Chemicals and Matheson Gas data book

EXCLUSION OF LIABILITY

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