

PRODUCT NAME: SULFUR HEXAFLUORIDE

1. Product and Company Identification

BOC India Limited,
Oxygen House
P-43 Taratala Road
Kolkata 700 0888

BOC India Limited
Unit:

TELEPHONE NUMBER: (033) 24014708-20
Customer Service Center: 1800 345 6789

PRODUCT NAME: SULFUR HEXAFLUORIDE
CHEMICAL NAME: Sulfur hexafluoride
COMMON NAMES/SYNONYMS: None

2. Composition, Information on Ingredients

EXPOSURE LIMITS¹:

INGREDIENT	% VOLUME	PEL	TLV	
Sulfur hexafluoride FORMULA: SF ₆ CAS: 2551-62-4	99.9	1000 ppm	1000 ppm	

OSHA Regulatory Status: This material is classified as hazardous under OSHA regulations.

3. Hazards Identification

EMERGENCY OVERVIEW

Odorless, colorless, non-flammable gas. Simple Asphyxiant - This product does not contain oxygen and may cause asphyxia if released in a confined area. Maintain oxygen levels above 19.5%. Decomposes to toxic fluoride compounds at temperatures above 204 °C. Contents under pressure. Use and store below 52 °C.

PRODUCT NAME: SULFUR HEXAFLUORIDE**ROUTE OF ENTRY:**

Skin Contact No	Skin Absorption No	Eye Contact No	Inhalation Yes	Ingestion No
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HEALTH EFFECTS:

Exposure Limits Yes	Irritant No	Sensitization No
Teratogen No	Reproductive Hazard No	Mutagen No
Synergistic Effects None reported		

Carcinogenicity: -- OSHA: No

EYE EFFECTS: None known.

SKIN EFFECTS: None known.

INGESTION EFFECTS: None known. Ingestion is unlikely, as product is gas at room temperature.

INHALATION EFFECTS: Effects of oxygen deficiency resulting from simple asphyxiants may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgement, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma, and death.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

POTENTIAL ENVIRONMENTAL EFFECTS: Not expected to exert an ecotoxic effect.

4. First Aid Measures

EYES: None required.

SKIN: None required.

INGESTION: None required.

INHALATION: PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS. Victims should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, and if breathing has stopped, administer artificial resuscitation and supplemental oxygen. Further treatment should be symptomatic and supportive.

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5. Fire Fighting Measures

Conditions of Flammability: Nonflammable		
Flash point: None	Method: Not Applicable	Autoignition Temperature: None
LEL(%): None	UEL(%): None	
Hazardous combustion products: Oxides of sulfur, fluorine compounds		
Sensitivity to mechanical shock: None		
Sensitivity to static discharge: None		

FIRE AND EXPLOSION HAZARDS: Nonflammable. Decomposes to highly toxic sulfur oxides and fluorine compounds under fire conditions. Cylinders may vent rapidly or rupture violently from pressure when involved in a fire situation.

EXTINGUISHING MEDIA: None required. Use as appropriate for surrounding materials.

FIRE FIGHTING INSTRUCTIONS:

Fire fighters should wear a full facepiece self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout or bunker gear. Continue to cool fire exposed cylinders until well after flames are extinguished.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment (See Section 8). Stop the flow of gas or remove cylinder to outdoor location if this can be done without risk. Ventilate enclosed areas. If leak is in user's equipment, be certain to purge piping with inert gas prior to attempting repairs. If leak is in container or container valve, contact the appropriate emergency telephone number listed in Section 1 or call your closest BOC location.

7. Handling and Storage

Electrical classification: Non-hazardous.

This gas mixture is noncorrosive and may be used with all common structural materials.

Aluminum, stainless steel, copper, brasses or silver recommended for temperatures above 400 °F (204 °C) to prevent decomposition to toxic fluoride compounds.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve protection outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Do not insert any object (i.e.: screwdriver) into valve cap openings as this can damage the valve causing leakage.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area of non-combustible construction away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 52 °C. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

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Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

8. Exposure Controls, Personal Protection

ENGINEERING CONTROLS: Local exhaust to prevent accumulation of high concentrations and maintain oxygen levels in the air at or above 19.5%.

EYE/FACE PROTECTION: Safety goggles or glasses as appropriate for the job.

SKIN PROTECTION: Protective gloves of material appropriate for the job.

RESPIRATORY PROTECTION: For emergency release and conditions with exposures above the applicable exposure limits use a positive pressure NIOSH approved air-supplying respirator system (SCBA or airline/escape bottle) using a minimum Grade D air.

OTHER/GENERAL PROTECTION: Safety shoes or other footwear as appropriate for the job.

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: 319.1	psia
Vapor density (Air = 1)	: 5.13	
Evaporation Point	: Not Available	
Boiling point	: -63.8	°C
Freezing point	: -50.8	°C
PH	: Not Applicable	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H ₂ O)	: Slight	
Odor threshold	: Not Applicable	
Odor and appearance	: Colorless, odorless gas	

10. Stability and Reactivity

STABILITY: Stable below 204 °C.

INCOMPATIBLE MATERIALS/CONDITIONS: Reported to explode in contact with disilane. Oxygen and certain metals cause slow decomposition to toxic fluorides.

HAZARDOUS DECOMPOSITON PRODUCTS: Thionyl fluoride compounds including SF₂, SF₄, S₂F₂ and S₂F₁₀.

HAZARDOUS POLYMERIZATION: Does not occur.

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11. Toxicological Information

INHALATION: Sulfur hexafluoride is considered to be chemically and physiologically inert in its pure state. Fifty rats exposed to an atmosphere consisting of 80% sulfur hexafluoride and 20% oxygen for 16 to 25 hours exhibited no effects from exposure.

SKIN AND EYE: Does not cause skin and eye irritation.

OTHER: Due to the low toxicity of sulfur hexafluoride, chronic studies have not been conducted.

Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.

12. Ecological Information

Does not contain Class I or Class II ozone depleting substances. Non-toxic. Not expected to bioconcentrate.

13. Disposal Considerations

Do not attempt to dispose of residual waste or unused quantities. Return in the shipping container PROPERLY LABELED, WITH ANY VALVE OUTLET PLUGS OR CAPS SECURED AND VALVE PROTECTION CAP IN PLACE to BOC Gases or authorized distributor for proper disposal.

14. Transport Information

PARAMETER	INDIA	
PROPER SHIPPING NAME:	Sulfur Hexafluoride	
HAZARD CLASS:	2.2	
IDENTIFICATION NUMBER:	UN 1080	
SHIPPING LABEL:	NONFLAMMABLE GAS	

Compressed gas cylinders shall not be refilled without the express written permission of the owner. Shipment of a compressed gas cylinder, which has not been filled by the owner or with his/her (written) consent, is a violation of transportation regulations.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES:

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