BOC GASES

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: SELENIUM HEXAFLUORIDE

1. Chemical Product and Company Identification

BOC Gases,
Division of
The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, NJ 07974

TELEPHONE NUMBER: (908) 464-8100
24-HOUR EMERGENCY TELEPHONE NUMBER:
CHEMTREC (800) 424-9300

BOC Gases
Division of
BOC Canada Limited
5975 Falbourne Street, Unit 2
Mississauga, Ontario L5R 3W6

TELEPHONE NUMBER: (905) 501-1700
24-HOUR EMERGENCY TELEPHONE NUMBER:
(905) 501-0802
EMERGENCY RESPONSE PLAN NO: 20101

PRODUCT NAME: SELENIUM HEXAFLUORIDE
CHEMICAL NAME: Selenium hexafluoride
COMMON NAMES/SYNONYMS: Selenium Fluoride (SeF6)
TDG (Canada) CLASSIFICATION: 2.3 (8)
WHMIS CLASSIFICATION: A, E, D1A, D2B

PREPARED BY: Loss Control (908)464-8100/(905)501-1700
PREPARATION DATE: 6/1/95
REVIEW DATES: 6/7/96

2. Composition, Information on Ingredients

INGREDIENT	% VOLUME	PEL-OSHA[1]	TLV-ACGIH[2]	LD_{50} or LC_{50} Route/Species
Selenium Hexafluoride FORMULA: SeF_6 CAS: 7783-79-1 RTECS #: VS9450000	100.0	0.05 ppm TWA	0.05 ppm TWA	Not Available

[1] As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)

[2] As stated in the ACGIH 1994-95 Threshold Limit Values for Chemical Substances and Physical Agents

3. Hazards Identification

EMERGENCY OVERVIEW

Corrosive to exposed tissues. Inhalation of vapors may result in pulmonary edema and chemical pneumonitis. Decomposes into selenium and hydrofluoric acid on contact with moisture. May cause a sensitization reaction in the respiratory system. Nonflammable.

ROUTE OF ENTRY:

Skin Contact	Skin Absorption	Eye Contact	Inhalation	Ingestion
Yes	Yes	Yes	Yes	No

HEALTH EFFECTS:

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

Carcinogenicity: -- NTP: No IARC: No OSHA: No

EYE EFFECTS:
Selenium hexafluoride is corrosive. Contact with the eyes may cause severe irritation, possibly leading to burns and permanent eye damage.

SKIN EFFECTS:
Selenium hexafluoride is corrosive to the skin. Contact may cause severe irritation, leading to burns and irreversible skin damage. Selenium hexafluoride may cause skin sensitization.

INGESTION EFFECTS:
None known.

INHALATION EFFECTS:
May cause respiratory tract irritation and sensitization.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
Individuals with a previous history of liver, thyroid or respiratory dysfunction should avoid exposure.

NFPA HAZARD CODES	HMIS HAZARD CODES	RATINGS SYSTEM
Health: 3	Health: 2	0 = No Hazard
Flammability: 0	Flammability: 0	1 = Slight Hazard
Reactivity: 1	Reactivity: 1	2 = Moderate Hazard
		3 = Serious Hazard
		4 = Severe Hazard

4. First Aid Measures

EYES:
Flush eyes immediately with plenty of water for at least 15 minutes. Get immediate medical attention.

SKIN:
Wash skin immediately with water for at least 15 minutes and then soak in 0.2% Hyamine solution or 13% Zephiran for 1 to 4 hours, depending upon the severity of the burns. Seek medical attention.

INGESTION:
None required.

INHALATION:
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.

5. Fire Fighting Measures

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

FIRE AND EXPLOSION HAZARDS:
None.

EXTINGUISHING MEDIA:
Carbon dioxide, dry chemical.

FIRE FIGHTING INSTRUCTIONS:
Apply water from a safe distance to cool container and protect surrounding area.

6. Accidental Release Measures

Evacuate all personnel from affected area. Use appropriate protective equipment. 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

Do not store around combustible materials.

Wash thoroughly after handling. Do not get in eyes, skin or clothing. Do not store near combustibles. Do not breathe dust, vapor, mist or gas. Keep container closed. Avoid ingestion and skin contact.

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve 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 system.

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 130^{o}F (54^{o}C).

Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in-first out" inventory system to prevent full cylinders being stored for excessive periods of time.

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

EXPOSURE LIMITS[1]:

INGREDIENT	% VOLUME	PEL-OSHA[2]	TLV-ACGIH[3]	LD_{50} or LC_{50} Route/Species
Selenium Hexafluoride FORMULA: SeF_6 CAS: 7783-79-1 RTECS #: VS9450000	100.0	0.05 ppm TWA	0.05 ppm TWA	Not Available

[1] Refer to individual state of provincial regulations, as applicable, for limits which may be more stringent than those listed here.
[2] As stated in 29 CFR 1910, Subpart Z (revised July 1, 1993)
[3] As stated in the ACGIH 1994-1995 Threshold Limit Values for Chemical Substances and Physical Agents.

ENGINEERING CONTROLS:
Hood with forced ventilation. Use local exhaust to prevent accumulation of high concentrations which are above the exposure limit.

EYE/FACE PROTECTION:
Gas-tight chemical goggles or full-face respirator.

SKIN PROTECTION:
Plastic or rubber gloves.

RESPIRATORY PROTECTION:
Self-contained breathing apparatus should be available for routine and emergency use.

OTHER/GENERAL PROTECTION:
Safety shoes, safety shower, eyewash "fountain".

9. Physical and Chemical Properties

PARAMETER	VALUE	UNITS
Physical state (gas, liquid, solid)	: Gas	
Vapor pressure	: Not Available	
Vapor density (Air = 1)	: 3.25	
Evaporation point	: Not Available	
Boiling point	: -30.1	^{o}F
	: -34.5	^{o}C
Freezing point	: Not Available	
	: Not Available	
pH	: Not Available	
Specific gravity	: Not Available	
Oil/water partition coefficient	: Not Available	
Solubility (H20)	: Decomposes (hydrolyzes)	
Odor threshold	: Not Available	
Odor and appearance	: Colorless gas (Poison)	

10. Stability and Reactivity

STABILITY:
Stable

INCOMPATIBLE MATERIALS:
Contact with strong acids or water vapor at elevated temperatures may produce HF, a toxic liquid or vapor which causes burns.

HAZARDOUS DECOMPOSITION PRODUCTS:
Hydrogen fluoride and selenium.

HAZARDOUS POLYMERIZATION:
Will not occur.

11. Toxicological Information

No chronic effects data given in the Registry of Toxic Effects of Chemical Substances (RTECS) or Sax, Dangerous Properties of Industrial Materials, 7th ed.

12. Ecological Information

No data given.

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	United States DOT	Canada TDG
PROPER SHIPPING NAME:	Selenium Hexafluoride	Selenium Hexafluoride
HAZARD CLASS:	2.3	2.3 (8)
IDENTIFICATION NUMBER:	UN 2194	UN 2194
SHIPPING LABEL:	POISON GAS, CORROSIVE	POISON GAS, CORROSIVE

Additional Marking Requirement: "Inhalation Hazard"
Additional Shipping Paper Description Requirement: "Poison-Inhalation Hazard, Zone A"

15. Regulatory Information

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES:
Acute Health Hazard
Sudden Release of Pressure Hazard

16. Other Information

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.

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