

Section 1: Product and Company Identification

Middlesex Gases & Technologies

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Product Code: Boron Trifluoride

Section 2: Hazards Identification



Danger

Hazard Classification:

Acute Gas Inhale Toxicity (Category 2)
Corrosive To Metal (Category 1)
Gases Under Pressure
Skin Corrosion (Category 1.A)

Hazard Statements:

Causes severe skin burns and eye damage
Contains gas under pressure; may explode if heated
Fatal if inhaled
May be corrosive to metals

Precautionary Statements

Prevention:

Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
[In case of inadequate ventilation] wear respiratory protection.
Do not breathe dust/fume/gas/mist/ vapors/spray..
Keep only in original container.
Wear protective gloves, protective clothing, eye protection and face protection.

Response:

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Immediately call a poison center or doctor.
Absorb spillage to prevent material damage.
Specific treatment is urgent.
If swallowed: Rinse mouth. Do NOT induce vomiting.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 If inhaled: Remove person to fresh air and keep comfortable for breathing.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
 Protect from sunlight.
 Store locked up.
 Store in corrosive resistant container with a resistant inner liner.

Disposal:

Dispose of contents and/or container in accordance with applicable regulations.

Section 3: Composition/Information on Ingredients

CAS #
7637-07-2

Chemical Substance	Chemical Family	Trade Names
BORON TRIFLUORIDE	inorganic, gas, non-metallic, halides	BORON FLUORIDE; BORANE, TRIFLUORIDE; TRIFLUOROBORANE; TRIFLUOROBORON; BORON FLUORIDE (BF3); UN 1008; BF3

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes.	Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	If a large amount is swallowed, get medical attention.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Non-flammable.	Non-flammable	<ul style="list-style-type: none"> ▪ Any self-contained breathing apparatus with a full facepiece. ▪ Non-flammable

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet.	Environmental effects unknown, avoid contamination of the environment.	Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material.

Methods for Cleanup	Other Information

Methods for Cleanup	Other Information
Use self-contained breathing apparatus.	Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

Section 7: Handling and Storage

Handling	Storage
Store and handle in accordance with all current regulations and standards. Protect from physical damage. Store outside or in a detached building. Store in a well-ventilated area. Store below 54 C. Store in a cool, dry place. Store in a tightly closed container. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). Keep separated from incompatible substances.	Subject to handling regulations: U.S. OSHA 29 CFR 1910.119.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines
BORON TRIFLUORIDE: 1 ppm (3 mg/m ³) OSHA ceiling 1 ppm ACGIH ceiling 1 ppm (3 mg/m ³) NIOSH recommended ceiling

Engineering Controls

Handle only in fully enclosed systems.

Eye Protection	Skin Protection	Respiratory Protection
Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	Wear appropriate chemical resistant clothing.	Any self-contained breathing apparatus with a full facepiece.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas	Colorless	Colorless	N/A	Compressed gas	Pungent odor	N/A

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Not flammable	Not available	N/A	Nonflammable	Nonflammable	Nonflammable

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
-148 F (-100 C)	-197 F (-127 C)	653.9 mmHg @ -120 C	2.3 (Air=1)	Not applicable	Reacts	Not applicable	1.5 ppm	Not applicable	0.0171 cP @ 25 C

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
67.81	B-F3	2.867 g/L	Not available	Not applicable	Not applicable	Soluble: Concentrated sulfuric acid, concentrated nitric acid, benzene, dichlorobenzene, chloroform, carbon tetrachloride, carbon disulfide, aromatic solvents, halogenated solvents

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials

Stability	Conditions to Avoid	Incompatible Materials
May react on contact with water. Releases corrosive gases. Releases toxic gases.	May react on contact with water. Releases corrosive gases. Releases toxic gases.	Metals, oxidizing materials, combustible materials

Hazardous Decomposition Products	Possibility of Hazardous Reactions
Acid halides, halogenated compounds, hydrogen fluoride, organic acids	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
1180 mg/m3 inhalation-rat LC50	Not established	Potentially fatal if inhaled, burns

Eye Irritation	Skin Irritation	Sensitization
Burns	Burns	Potentially fatal if inhaled, respiratory tract burns, skin burns, eye burns, kidney damage

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Not available	Not established	Not established	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: 15000000 ug/L 24 hour(s) LC50 (Mortality) Bluegill (Lepomis macarochirus) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Not available	Not available	Not available

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D003.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Boron trifluoride	UN1008	2.3	Not applicable	2.3	Forbidden	Forbidden	Toxic-Inhalation Hazard Zone B

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
Boron trifluoride, compressed	UN1008	2.3; 8	Not applicable

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
Not regulated.	500 LBS TPQ	500 LBS RQ

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
Yes	Yes	No	Yes	Yes

SARA 372.65

BORON TRIFLUORIDE

OSHA Process Safety

250 LBS TQ

State Regulations

CA Proposition 65
Not regulated.

Canadian Regulations

WHMIS Classification
Included for disclosure at 1% or greater

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Listed on inventory.	Not listed.	Not determined.

Section 16: Other Information

NFPA Rating
HEALTH=3 FIRE=0 REACTIVITY=1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard