



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Boron Trifluoride**

Chemical formula : BF₃

Synonyms : Boron fluoride; Trifluoroborane; Borane, Trifluoride; Trifluoroboron; BF₃; UN 1008

Company : Med-Tech Gases, Inc.
20 Hall Street
Medford, MA 02155

Telephone : 800-FINE-GAS

Emergency : 800-424-9300

2. Composition/Information on Ingredients

Components	CAS Number	% Volume
Boron Trifluoride	7637-07-2	100%

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following:
Fluorides.

3. Hazards Identification

Emergency Overview

Potentially fatal if inhaled, respiratory tract burns, skin burns, eye burns, kidney damage.
May react on contact with water. Releases corrosive gases. Releases toxic gases.
Pressurized containers may rupture or explode if exposed to sufficient heat.

Potential Health Effects

Inhalation : Potentially fatal if inhaled, burns.
Eye contact : Burns.
Skin contact : Burns.
Ingestion : Ingestion of a harmful amount is unlikely.
Chronic Health Hazard : None known.

4. First Aid Measures

General advice : None.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Skin contact : 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.

Ingestion : If a large amount is swallowed, get medical attention.

- Inhalation : 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.
- Note to physicians : For inhalation, consider oxygen.

5. Fire-Fighting Measures

- Suitable extinguishing media : Carbon dioxide, regular dry chemical.
Large fires: Use regular foam or flood with fine water spray.
- Specific hazards : Negligible fire hazard. Pressurized containers may rupture or explode if exposed to sufficient heat.
- Fire fighting : Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Keep unnecessary people away, isolate hazard area and deny entry. Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. Accidental Release Measures

- Occupational spill/release : Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. 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. 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).
- Additional advice : None.

7. Handling and Storage

Handling

Subject to regulations: U.S. OSHA 29 CFR 1910.119.

Storage

Store 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 regulation: U.S. OSHA 29 CFR 1910.101. Notify Local Emergency Planning Committee and State Emergency Response Commission for storage or use at amounts greater than or equal to 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 Part B). Keep separated from incompatible substances.

8. Exposure Controls / Personal Protection

Exposure limits

- ACGIH : 2.5 mg/m³ TWA (as F)
1 ppm Ceiling
- OSHA (final) : 2.5 mg/m³ TWA F
1 ppm Ceiling; 3 mg/m³ Ceiling
- OSHA (vacated) : 2.5 mg/m³ TWA
1 ppm Ceiling; 3 mg/m³ Ceiling
- NIOSH : 1 ppm Ceiling; 3 mg/m³ Ceiling

IDLH
25 ppm

Engineering measures/Ventilation

Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Personal protective equipment

- Respiratory protection : The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
10 ppm – Any supplied-air respirator.
25 ppm – Any supplied-air respirator operated in a continuous-flow mode.
Any self-contained breathing apparatus with a full facepiece.
Any supplied-air respirator with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLS conditions –
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape – Any air-purifying full-face respirator (gas mask) with a chin-style, front-mounted or back-mounted canister providing protection against the compound of concern.
Any appropriate escape-type, self-contained breathing apparatus.
- Hand protection : Wear appropriate chemical resistant gloves.
- Eye protection : Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
- Skin and body protection : Wear appropriate chemical resistant clothing.

9. Physical and Chemical Properties

- Form : Gas.
Color : Colorless.
Odor : Pungent odor.
Molecular weight : 67.81
Vapor pressure : 653.9 mmHg @ -120°C
Vapor density : 2.3 (air = 1)
Specific gravity : N/A
Boiling point : -100°C
Melting point : -127°C
Water solubility : Reacts.
Solvent solubility : Soluble: concentrated sulfuric acid, concentrated nitric acid, benzene, dichlorobenzene, chloroform, carbon tetrachloride, carbon disulfide, aromatic solvents, halogenated solvents.

10. Stability and Reactivity

- Stability : May react on contact with water. Releases corrosive gases. Releases toxic gases.
- Conditions to avoid : Minimize contact with water. Containers may rupture or explode if exposed to heat.
- Materials to avoid : Metals, oxidizing materials, combustible materials.
Water or moisture: acid halides, halogenated compounds, hydrogen fluoride,

organic acids.
Hazardous decomposition products : None.

11. Toxicological Information

The components of this material have been reviewed in various sources and the following endpoints are published:

BORON : Inhalation LC50 Rat: 1.18 mg/L/4H
TRIFLUORIDE
(7637-07-2)

Acute Toxicity Level

BORON : Highly toxic: Inhalation
TRIFLUORIDE
(7637-07-2)

Component Carcinogenicity

ACGIH : A4 – Not Classifiable as a Human Carcinogen.

Local Effects

BORON : Corrosive: inhalation, skin, eye, ingestion.
TRIFLUORIDE
(7637-07-2)

Target Organs

BORON : Kidneys.
TRIFLUORIDE
(7637-07-2)

Medical Conditions Aggravated by Exposure

Eye disorders, skin disorders, kidney disorders, respiratory disorders.

12. Ecological Information

Aquatic Toxicity

BORON : Fish: 24 Hr LC50 *Lepomis macrochirus*: 15000mg/L [static]
TRIFLUORIDE : Invertebrate: 48 Hr EC50 *Daphnia magna*: 21.3 mg/L
(7637-07-2)

13. Disposal Considerations

Waste from residues : Dispose in accordance with all applicable regulations. Subject to disposal
/ unused products regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D003.
Contaminated : Return cylinder to supplier.
packaging

14. Transport Information

DOT (US only)

Proper shipping name : Boron trifluoride
Class : 2.3
UN/ID No. : UN1008

Labeling : Poison Gas

15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required under SARA Section 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

BORON : SARA 302: 500 lb TPQ
TRIFLUORIDE : SARA 313: 1.0% de minimis concentration
(7637-07-2) OSHA (safety): 250 lb TQ

SARA 311/312

Acute: Yes
Chronic: Yes
Fire: No
Reactive: Yes
Pressure: Yes

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
BORON TRIFLUORIDE	7637-07-2	Yes	Yes	Yes	Yes	Yes	Yes

Not regulated under California Proposition 65