



Material Safety Data Sheet

1. Product and Company Identification

Product name : **Boron Trichloride**

Chemical formula : BCl₃

Synonyms : Trichloroborane; Chlorure De Bore; Trichloroborane; Trichloroboron; Borane; Trichloro-; Boron Chloride (BCL3); UN 1741; BCL3

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 Trichloride	10294-34-5	100%

3. Hazards Identification

Emergency Overview

May cause respiratory tract burns, skin burns, eye burns, mucous membrane burns.
Containers may rupture or explode if exposed to heat. May react on contact with water.
Releases toxic, corrosive, flammable or explosive gas.

Potential Health Effects

Inhalation : Burns.
Eye contact : Burns.
Skin contact : Burns.
Ingestion : Burns.
Chronic Health Hazard : None.

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 clothes and shoes. Get immediate medical attention. Thoroughly clean and dry clothing before reuse. Destroy contaminated shoes.

Ingestion : If swallowed, drink plenty of water for at least 15 minutes. Then get immediate 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. Avoid gastric lavage or emesis.

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. Containers may rupture or explode if exposed to heat.
Fire fighting	: Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure. Do not get water inside container. 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.
Thermal decomposition products	: Combustion: chlorine Water or Moisture: boron compounds, hydrochloric acid

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. Do not get water inside container. Keep unnecessary people away, isolate hazard area and deny entry. Small spills: Flood with water. Large spills: Dike for later disposal. 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

Do not breathe gas, fumes, vapor or spray. When using, do not eat, drink or smoke. Wash thoroughly after handling.

Storage

Store in accordance with all current regulations and standards. Notify 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 Part B). Subject to storage regulation: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances. Store in a well-ventilated area. Store below 52°C. Store in a cool, dry place. Protect from sunlight.

8. Exposure Controls / Personal Protection

Engineering measures / Ventilation

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

Personal protective equipment

Respiratory protection : Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any chemical cartridge respirator with acid gas cartridge(s).
 Any chemical cartridge respirator with a full facepiece and acid gas cartridge(s).
 Any air-purifying respirator with a full facepiece and an acid gas canister.
 For unknown concentrations or immediately dangerous to life or health –
 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.
 Any self-contained breathing apparatus that has a full facepiece and is operated in pressure-demand or other positive-pressure mode.

- Hand protection : Wear appropriate chemical-resistant gloves.
 Eye protection : Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick shower drench in the immediate work area.
 Skin and body protection : Wear appropriate protective and chemical-resistant clothing.
 Protective materials: Butyl rubber, neoprene, polyvinyl chloride (PVC), polyethylene.

9. Physical and Chemical Properties

- Form : Gas.
 Color : Colorless.
 Odor : Pungent odor.
 Molecular weight : 117.16
 Vapor pressure : 131.7 kPa @ 21.1°C
 Vapor density : 4.03 (air = 1)
 Specific gravity : 1.349 @ 11°C (water = 1)
 Boiling point : -54.5 F (12.5°C)
 Melting point : -161 F (-107°C)
 Water solubility : Decomposes/reacts

10. Stability and Reactivity

- Stability : May react with evolution of heat on contact with water. Releases corrosive gases.
 Conditions to avoid : Minimize contact with material. Avoid inhalation of material or combustion by-products. Containers may rupture or explode if exposed to heat.
 Materials to avoid : Combustible materials, amines.
 Water or Moisture: boron compounds, hydrochloric acid
 Combustion: Chlorine
 Hazardous reactions : Will not polymerize.

11. Toxicological Information

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

- BORON TRICHLORIDE (10294-34-5) : Inhalation LC50 Rat: 2541 ppm/1H

Acute Toxicity Level

- BORON TRICHLORIDE (10294-34-5) : Moderately toxic: inhalation.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, NTP, OSHA or DFG.

Irritation

No animal testing data available for skins or eyes.

Local Effects

BORON : Corrosive: inhalation, skin, eye, ingestion.
TRICHLORIDE
(10294-34-5)

Medical Conditions Aggravated by Exposure

Respiratory disorders.

12. Ecological Information

No LOLI ecotoxicity data are available for this product's components.

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 Trichloride
Class : 2.3
UN/ID No. : UN1741
Labeling : Poison Gas, Corrosive
Additional Info : Toxic-Inhalation Hazard Zone C

Further information

Cylinders should be transported in a secure upright position in a well ventilated truck.

15. Regulatory Information

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified 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 TRICHLORIDE (10294-34-5) – SARA 302: 500 lb TPQ
SARA 313: 1.0% de minimis concentration
OSHA (Safety): 2500 lb TQ

SARA 311/312

Acute: Yes
Chronic: No
Fire: Yes
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 TRICHLORIDE	10294-34-5	No	Yes	No	Yes	Yes	No

Not regulated under California Proposition 65