

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
959 ROUTE 46 EAST
PARSIPPANY, NEW JERSEY 07054-0624

EMERGENCY CONTACT:
CHEMTREC 1-800-424-9300
INFORMATION CONTACT:
973-257-1100

SUBSTANCE: BORON TRICHLORIDE

TRADE NAMES/SYNONYMS:

MTG MSDS 8; BORON CHLORIDE; CHLORURE DE BORE; TRICHLOROBORANE;
TRICHLOROBORON; BORANE, TRICHLORO-; BORON CHLORIDE (BCL3); UN 1741; BCL3;
MAT03310; RTECS ED1925000

CHEMICAL FAMILY: non-metallic, halides

CREATION DATE: Jan 24 1989

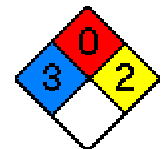
REVISION DATE: Mar 19 2003

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: BORON TRICHLORIDE
CAS NUMBER: 10294-34-5
PERCENTAGE: 100.0

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=3 FIRE=0 REACTIVITY=2



EMERGENCY OVERVIEW:

COLOR: colorless

PHYSICAL FORM: fuming liquid, gas

ODOR: pungent odor

MAJOR HEALTH HAZARDS: respiratory tract burns, skin burns, eye burns, mucous membrane burns

PHYSICAL HAZARDS: Containers may rupture or explode if exposed to heat. May react on contact with water. Releases toxic, corrosive, flammable or explosive gases.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: same as effects reported in short term exposure

SKIN CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: same as effects reported in short term exposure

EYE CONTACT:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: same as effects reported in short term exposure

INGESTION:

SHORT TERM EXPOSURE: burns

LONG TERM EXPOSURE: same as effects reported in short term exposure

4. FIRST AID MEASURES

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.

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 and shoes before reuse. Destroy contaminated shoes.

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

INGESTION: If swallowed, drink plenty of water, do NOT induce vomiting. Get immediate medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. Avoid gastric lavage or emesis.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Negligible fire hazard. Containers may rupture or explode if exposed to heat.

EXTINGUISHING MEDIA: carbon dioxide, regular dry chemical

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING: 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.

FLASH POINT: not flammable

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL 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).

7. HANDLING AND STORAGE

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

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

BORON TRICHLORIDE:

No occupational exposure limits established.

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

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

PROTECTIVE MATERIAL TYPES: butyl rubber, neoprene, polyvinyl chloride (PVC), polyethylene

RESPIRATOR: 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 full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.

Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: gas

COLOR: colorless

PHYSICAL FORM: fuming liquid, gas

ODOR: pungent odor

MOLECULAR WEIGHT: 117.16

MOLECULAR FORMULA: B-CL₃

BOILING POINT: 54.5 F (12.5 C)

FREEZING POINT: -161 F (-107 C)

VAPOR PRESSURE: 131.7 kPa @ 21.1 C

VAPOR DENSITY (air=1): 4.03

SPECIFIC GRAVITY (water=1): 1.349 @ 11 C

WATER SOLUBILITY: decomposes/reacts

PH: acidic

VOLATILITY: Not applicable

ODOR THRESHOLD: Not available

EVAPORATION RATE: Not applicable

VISCOSITY: 0.342 cP @ 0 C

COEFFICIENT OF WATER/OIL DISTRIBUTION: Not applicable

SOLVENT SOLUBILITY:

Decomposes: alcohol

10. STABILITY AND REACTIVITY

REACTIVITY: 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.

INCOMPATIBILITIES: combustible materials, amines

HAZARDOUS DECOMPOSITION:

Decomposition products on contact with water or moisture: boron compounds, hydrochloric acid

Thermal decomposition products: chlorine

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

BORON TRICHLORIDE:

TOXICITY DATA:

2541 ppm/1 hour(s) inhalation-rat LC50

LOCAL EFFECTS:

Corrosive: inhalation, skin, eye, ingestion

ACUTE TOXICITY LEVEL:

Moderately Toxic: inhalation

12. ECOLOGICAL INFORMATION

Not available

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.

14. TRANSPORT INFORMATION

U.S. DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Boron trichloride

ID NUMBER: UN1741

HAZARD CLASS OR DIVISION: 2.3

LABELING REQUIREMENTS: 2.3; 8

QUANTITY LIMITATIONS:

PASSENGER AIRCRAFT OR RAILCAR: Forbidden

CARGO AIRCRAFT ONLY: Forbidden

ADDITIONAL SHIPPING DESCRIPTION: Toxic-Inhalation Hazard Zone C



CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

SHIPPING NAME: Boron trichloride

UN NUMBER: UN1741

CLASS: 2.3; 8

15. REGULATORY INFORMATION

U.S. REGULATIONS:

CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):
BORON TRICHLORIDE: 500 LBS TPQ**

**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):
BORON TRICHLORIDE: 500 LBS RQ**

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):

ACUTE: Yes

CHRONIC: No

FIRE: No

REACTIVE: Yes

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):
BORON TRICHLORIDE**

**OSHA PROCESS SAFETY (29CFR1910.119):
BORON TRICHLORIDE: 2500 LBS TQ**

STATE REGULATIONS:

California Proposition 65: Not regulated.

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION: AD1E

NATIONAL INVENTORY STATUS:

U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

©Copyright 1984-2005 MDL Information Systems, Inc. All rights reserved.

MATHESON TRI-GAS, INC. MAKES NO EXPRESS OR IMPLIED WARRANTIES, GUARANTEES OR REPRESENTATIONS REGARDING THE PRODUCT OR THE INFORMATION HEREIN, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR USE. MATHESON TRI-GAS, INC. SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY, PROPERTY OR OTHER DAMAGES OF ANY NATURE, WHETHER COMPENSATORY, CONSEQUENTIAL, EXEMPLARY, OR OTHERWISE, RESULTING FROM ANY PUBLICATION, USE OR RELIANCE UPON THE INFORMATION HEREIN.