

## Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

### \*\*\* Section 1 - PRODUCT AND COMPANY IDENTIFICATION \*\*\*

**Material Name:** BORON TRICHLORIDE

#### Manufacturer Information

MATHESON TRI-GAS, INC.

150 Allen Road, Suite 302

Basking Ridge, NJ 07920

General Information: 1-800-416-2505

Emergency #: 1-800-424-9300 (CHEMTREC)

Outside the US: 703-527-3887 (Call collect)

#### Chemical Family

non-metallic, halides

#### Synonyms

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

#### Product Use

industrial

#### Usage Restrictions

None known.

### \*\*\* Section 2 - HAZARDS IDENTIFICATION \*\*\*

#### EMERGENCY OVERVIEW

**Color:** colorless

**Physical Form:** fuming liquid gas

**Odor:** pungent odor

**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.

# Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

## POTENTIAL HEALTH EFFECTS

### Inhalation

**Short Term:** burns

**Long Term:** same as effects reported in short term exposure

### Skin

**Short Term:** burns

**Long Term:** same as effects reported in short term exposure

### Eye

**Short Term:** burns

**Long Term:** same as effects reported in short term exposure

### Ingestion

**Short Term:** burns

**Long Term:** same as effects reported in short term exposure

<b>*** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS ***</b>
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CAS	Component	Percent
10294-34-5	BORON TRICHLORIDE	100.0

<b>*** Section 4 - FIRST AID MEASURES ***</b>
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### 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

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.

# Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

## Eyes

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 Physicians

For inhalation, consider oxygen.

Avoid gastric lavage or emesis.

## \* \* \* Section 5 - FIRE FIGHTING MEASURES \* \* \*

See Section 9 for Flammability Properties

**NFPA Ratings: Health: 3 Fire: 0 Reactivity: 2**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

## Flammable Properties

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.

## Unsuitable Extinguishing Media

None known.

## Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

## Fire Fighting Measures

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

# Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

Combustion: chlorine

## Thermal Decomposition Products

Water or Moisture: boron compounds, hydrochloric acid

## \*\*\* Section 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).

## \*\*\* Section 7 - HANDLING AND STORAGE \*\*\*

### Handling Procedures

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

### Storage Procedures

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 Part B). Subject to storage regulations: 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.

## \*\*\* Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION \*\*\*

### Component Analysis

ACGIH, OSHA and NIOSH have not developed exposure limits for any of this product's components.

### Component Biological Limit Values

There are no biological limit values for any of this product's components.

### Ventilation

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

# Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

## PERSONAL PROTECTIVE EQUIPMENT

### Eyes/Face

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

### Protective Clothing

Wear appropriate chemical resistant clothing.

### Glove Recommendations

Wear appropriate chemical resistant gloves.

### Protective Materials

butyl rubber, neoprene, polyvinyl chloride (PVC), polyethylene

### 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 a pressure-demand or other positive-pressure mode.

<b>*** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ***</b>
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SDS ID: MAT03310

<b>Physical State:</b>	Gas	<b>Appearance:</b>	Not available
<b>Color:</b>	colorless	<b>Physical Form:</b>	fuming liquid gas
<b>Odor:</b>	pungent odor	<b>Odor Threshold:</b>	Not available
<b>pH:</b>	acidic	<b>Melting/Freezing Point:</b>	-107 °C
<b>Boiling Point:</b>	12.5 °C	<b>Flash Point:</b>	not flammable
<b>Decomposition:</b>	Not available	<b>LEL:</b>	Not available
<b>UEL:</b>	Not available	<b>Vapor Pressure:</b>	131.7 kPa @ 21.1 °C
<b>Vapor Density (air = 1):</b>	4.03	<b>Specific Gravity (water=1):</b>	1.349 @ 11 °C
<b>Water Solubility:</b>	decomposes/reacts	<b>Log KOW:</b>	Not available
<b>Auto Ignition:</b>	Not available	<b>Viscosity:</b>	0.342 cP @ 0 °C
<b>Molecular Weight:</b>	117.16	<b>Molecular Formula:</b>	B-CL3

## Solvent Solubility

**Decomposes:** alcohol

## \* \* \* Section 10 - STABILITY AND REACTIVITY \* \* \*

## Chemical 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

# Safety Data Sheet

Material Name: BORON TRICHLORIDE

SDS ID: MAT03310

## Possibility of Hazardous Reactions

Will not polymerize.

<b>*** Section 11 - TOXICOLOGICAL INFORMATION ***</b>
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## Component Analysis - LD50/LC50

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 1 h

## 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 skin or eyes.

## Local Effects

### **BORON TRICHLORIDE (10294-34-5)**

**Corrosive:** inhalation, skin, eye, ingestion.

## Medical Conditions Aggravated by Exposure

respiratory disorders

## Tumorigenic

No data available.

## Mutagenic

No data available.

## Reproductive Effects

No data available.

# Safety Data Sheet

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SDS ID: MAT03310

## \*\*\* Section 12 - ECOLOGICAL INFORMATION \*\*\*

### Component Analysis - Aquatic Toxicity

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

## \*\*\* Section 13 - DISPOSAL CONSIDERATIONS \*\*\*

### Disposal Methods

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

### Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

## \*\*\* Section 14 - TRANSPORT INFORMATION \*\*\*

### US DOT Information

**Shipping Name:** Boron trichloride

**UN/NA #:** UN1741 **Hazard Class:** 2.3

**Required Label(s):** 2.3, 8

**Additional Info.:** Toxic-Inhalation Hazard Zone C

### TDG Information

**Shipping Name:** Boron trichloride

**UN #:** UN1741 **Hazard Class:** 2.3

**Required Label(s):** 2.3, (8)



# Safety Data Sheet

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## \*\*\* Section 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 304:** 500 lb EPCRA RQ

**SARA 313:** 1.0 % de minimis concentration

**OSHA (safety):** 2500 lb TQ

#### SARA 311/312

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

### Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

#### BORON TRICHLORIDE (10294-34-5)

1 %

### Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
BORON TRICHLORIDE	10294-34-5	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

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SDS ID: MAT03310

## \*\*\* Section 16 - OTHER INFORMATION \*\*\*

### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

### Other Information

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End of Sheet MAT03310