



## Safety Data Sheet

**Material Name: BORON TRICHLORIDE****SDS ID: 00244144****SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product Identifier****Material Name**

BORON TRICHLORIDE

**Synonyms**

MTG MSDS 8; BORON CHLORIDE; CHLORURE DE BORE; TRICHLOROBORANE;  
TRICHLOROBORON; BORANE, TRICHLORO-; BORON CHLORIDE (BCL<sub>3</sub>); UN 1741; BCL<sub>3</sub>

**Chemical Family**

non-metallic, halides

**Product Use**

Industrial and Specialty Gas Applications.

**Restrictions on Use**

None known.

**Supplier Information**

MATHESON GAS PRODUCT KOREA

91-1 Samgeo-ri; Umbong-myun

Asan City, Korea

Phone: 041-539-7400 (day)

Emergency Phone #: 041-539-7488 (night/weekend/holiday)

Department in charge: SHE

**SECTION 2: Hazards identification****Hazard/Risk Classification**

Gases Under Pressure - Liquefied gas

Acute Toxicity - Inhalation - Gas - Category 3

Skin Corrosion/Irritation - Category 1

Serious Eye Damage/Eye Irritation - Category 1

Specific Target Organ Toxicity - Single Exposure - Category 3

**Label elements****Hazard symbols**



## Safety Data Sheet

**Material Name: BORON TRICHLORIDE****SDS ID: 00244144****Signal word**

Danger

**Hazard/Risk Statement****H280** Contains gas under pressure; may explode if heated.**H331** Toxic if inhaled.**H314** Causes severe skin burns and eye damage.**H335** May cause respiratory irritation.**Precautionary statements****Prevention**

P280 Wear protective gloves/protective clothing/eye protection/face protection

**Response**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 Immediately call a POISON CENTER or doctor

P321 Specific treatment (see label)

**Storage**

P403+P233 Store in a well-ventilated place. Keep container tightly closed

**Disposal**

P501 Dispose of contents/container in accordance with local/regional/national/international regulations

**Other Hazards Which Do Not Result in Classification**

May cause frostbite upon sudden release of liquefied gas.

**SECTION 3: Composition / information on ingredients**

CAS	Chemical name	Other Names	Percent
10294-34-5	Boron trichloride	--	100

**Impurities and stabilizing additives contributing to the GHS Classification**



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None

### SECTION 4: First aid measures

#### **Eye contact**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical attention.

#### **Skin contact**

If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115°F; 41-46°C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets.

#### **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.

#### **Ingestion**

If swallowed, do not induce vomiting. Get immediate medical attention.

#### **Most Important Symptoms/Effects**

##### **Symptoms: Immediate**

suffocation, frostbite, respiratory tract burns, skin burns, eye burns, lung congestion

##### **Symptoms: Delayed**

No information on significant adverse effects.

#### **Indication of any immediate medical attention and special treatment needed**

For inhalation, consider oxygen. Avoid gastric lavage or emesis.

### SECTION 5: Firefighting measures

#### **Suitable extinguishing media**

carbon dioxide, regular dry chemical, Large fires: Use regular foam or flood with fine water spray.

#### **Unsuitable Extinguishing Media**

None known.

#### **Specific hazards arising from the chemical**

Negligible fire hazard. Containers may rupture or explode if exposed to heat.

#### **Protective Equipment and Precautions for Firefighters**

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



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**Material Name: BORON TRICHLORIDE****SDS ID: 00244144****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. Stop flow of gas. Do not attempt to extinguish fire unless flow of material can be stopped first.

**Combustion**

Chlorine

**SECTION 6: Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Wear personal protective clothing and equipment, see Section 8.

**Environmental precautions**

Avoid release to the environment.

**Methods for Containment**

Do not touch or walk through spilled material. Stop leak if safe to do so - Prevent entry into waterways, drains, or confined areas. Eliminate all ignition sources if safe to do so. Keep unnecessary people away, isolate hazard area and deny entry.

**Cleanup Methods**

Reduce vapors with water spray. Ventilate closed spaces before entering. Damaged cylinders should be handled only by specialists.

**SECTION 7: Handling and storage****Precautions for safe handling**

Do not breathe gas, fumes, vapor, or spray. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Use only outdoors or in a well-ventilated area. Keep only in original container. Wear protective gloves and protective clothing.

**Conditions for safe storage, including any incompatibilities**

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Protect from sunlight. Store in a well-ventilated place.

Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances. Store below 52 C. Store in a cool, dry place.

**Incompatible Materials**



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combustible materials, amines

**SECTION 8: Exposure controls/personal protection****Exposure Guidelines****Component Exposure Limits**

Boron trichloride	10294-34-5
ACGIH:	0.7 ppm Ceiling
AIHA	0.7 ppm Ceiling

**ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)**

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

**Appropriate engineering controls**

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

**PERSONAL PROTECTIVE EQUIPMENT****Eye/face protection**

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

**Skin and Body Protection**

Wear appropriate chemical resistant clothing.

**Hand protection**

For the gas: Protective gloves are not required. For the liquid: Wear appropriate protective, cold insulating clothing.

**Protective Materials**

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

**Respiratory Protection**

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

**Further information**

No data available.



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**SECTION 9: Physical and chemical properties**

Appearance	Not available
Physical State	gas
Physical Form	fuming liquid , gas
Color	colorless
Odor	pungent odor
Odor Threshold	Not available
pH	(Acidic )
Melting Point	-107 °C (-161 °F )
Freezing point	Not available
Boiling Point	12.5 °C (54 °F )
Boiling Point Range	Not available
Flash Point	(Not flammable )
Evaporation Rate	Not available
Flammability (solid, gas)	Not available
Upper Explosive Limit	Not available
Lower Explosive Limit	Not available
Vapor Pressure	131.7 kPa @ 21.1 °C
Solubility (Other)	Not available
Water Solubility	(Decomposes, Reacts )



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Vapor Density (air=1)	4.03
Specific Gravity (water=1)	1.349 at 11 °C
Partition coefficient: n-octanol/water	Not available
Autoignition Temperature	Not available
Decomposition temperature	Not available
Viscosity	0.342 cp
Molecular Weight	117.16
Density	Not available
Molecular Formula	B-CL3

**Solvent Behavior****Decomposes**

alcohol

**SECTION 10: Stability and reactivity****Reactivity**

Exothermic reaction with water.

**Chemical stability**

May react with evolution of heat on contact with water. Releases corrosive gases.

**Possibility of Hazardous Reactions**

Will not polymerize.

**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 (Incompatibilities)**

combustible materials, amines

**Hazardous Decomposition Products**

Chlorine



## Safety Data Sheet

**Material Name: BORON TRICHLORIDE****SDS ID: 00244144****Water or Moisture**

boron compounds, hydrochloric acid

**SECTION 11: Toxicological information****Information on Likely Routes of Exposure****Inhalation**

burns

**Skin**

burns

**Eye**

burns

**Ingestion**

burns

**Health Hazards****Acute and Chronic Toxicity****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 Estimate**

Inhalation - Gas	1270.5 ppm
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**Immediate Effects**

respiratory tract burns, skin burns, eye burns, lung congestion

**Delayed Effects**

No information on significant adverse effects.

**Skin corrosive/irritant**

Causes skin burns.

**Serious eye damage/irritation**

Causes serious eye damage.

**Respiratory Sensitization**

No data available.





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**Dermal Sensitization**

No data available.

**Component Carcinogenicity**

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

**Mutagenic Data**

No data available.

**Reproductive Effects Data**

No data available.

**Specific Target Organ Toxicity - Single Exposure**

Respiratory system

**Specific Target Organ Toxicity - Repeated Exposure**

No target organs identified.

**Aspiration hazard**

Not applicable.

**Medical Conditions Aggravated by Exposure**

respiratory disorders

<b>SECTION 12: Ecological information</b>
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**Ecotoxicity**

**Component Analysis - Aquatic Toxicity**

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

**Abiotic degradation**

Hydrolyzes on contact with water releasing hydrogen chloride and hydrochloric acid.

**Persistence and degradability**

No data available.

**Bioaccumulative Potential**

No data available.

**Mobility in soil**

No data available.

**Other adverse effects**

None



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### SECTION 13: Disposal considerations

**Disposal Methods**

Dispose in accordance with all applicable regulations.

**Disposal Precaution**

Empty containers may contain product residue. Dispose in accordance with all applicable regulations.

### SECTION 14: Transport information

**IATA Information:**

**UN#:** UN1741

**Shipping Name:** BORON TRICHLORIDE

**Hazard Class:** 2.3

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

**Packing Group:** Not applicable

Forbidden by Air

**Marine pollutant:** Not a marine pollutant

**ICAO Information:**

**UN#:** UN1741

**Shipping Name:** BORON TRICHLORIDE

**Hazard Class:** 2.3

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

**Packing Group:** Not applicable

Forbidden by Air

**Marine pollutant:** Not a marine pollutant

**IMDG Information:**

**UN#:** UN1741

**Shipping Name:** BORON TRICHLORIDE , ( Contains: Boron trichloride )

**Hazard Class:** 2.3

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

**Packing Group:** Not applicable

**Marine pollutant:** Not a marine pollutant



## Safety Data Sheet

**Material Name: BORON TRICHLORIDE****SDS ID: 00244144****International Bulk Chemical Code**

This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

**Special precautions**

No information available.

**SECTION 15: Regulatory information****Korea Regulations****Industrial Safety and Health Act**

Boron trichloride	10294-34-5
Matters subject to Submission of Process Safety Reports (PSM):	
Manufacturing or Handling	Yes
Storage	Yes

**Chemicals Control Act (CCA)**

The following component(s) of this material are listed:

Boron trichloride	10294-34-5
Accident Precaution Chem. - Quantity Lmt. Man./Use:	150000 kg/yr
Accident Precaution Chem. - Quantity Lmt. Custody/Storage:	1000 kg/yr
Accident Precaution Chemicals:	10 %

**Dangerous Materials Safety Control Act**

This product is not regulated under the Dangerous Materials Safety Control Act.

**Waste Management Act**

Not applicable

**Other requirements in domestic and other countries**

No data available.

**Component Analysis - Inventory**

**Boron trichloride (10294-34-5)**

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US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
Yes	DSL	Yes	Yes	EIN	Yes	Yes	Yes	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW	VN (Draft)
No	Yes	Yes	Yes	Yes	Yes	Yes

### SECTION 16: Other information

#### Information sources and references

No data available.

#### Preparation Date

01 May 2015

#### Revision date

28 April 2016

#### Issue Date

28 April 2016

#### Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania\*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); 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; ISHL - Japan Industrial Safety and

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Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX - Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL - Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA - Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW - Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

### Other Information

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