

## SAFETY DATA SHEET

Revision Date 25-April-2019

Revision Number 4

### 1. Identification

**Product Name** Boron trifluoride dimethyl etherate  
**Cat No. :** AC204060000; AC204060500; AC204062500  
**CAS-No** 353-42-4  
**Synonyms** Boron trifluoride dimethyl ether  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

**Importer/Distributor**  
Fisher Scientific  
112 Colonnade Road,  
Ottawa, ON K2E 7L6,  
Canada  
Tel: 1-800-234-7437

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

##### **Manufacturer**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

**WHMIS 2015 Classification** Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

<b>Flammable liquids</b>	Category 4
<b>Acute oral toxicity</b>	Category 4
<b>Acute Inhalation Toxicity</b>	Category 4
<b>Skin Corrosion/Irritation</b>	Category 1 B
<b>Serious Eye Damage/Eye Irritation</b>	Category 1
<b>Specific target organ toxicity - (repeated exposure)</b>	Category 1
<b>Physical Hazards Not Otherwise Classified</b>	Category 1
Reacts violently with water	

#### Label Elements

**Signal Word**  
Danger

**Hazard Statements**

Combustible liquid  
 Harmful if swallowed or if inhaled  
 Causes severe skin burns and eye damage  
 Causes damage to organs through prolonged or repeated exposure  
 Harmful if inhaled  
 Reacts violently with water



### Precautionary Statements

#### Prevention

Do not allow contact with water  
 Keep container tightly closed  
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
 Do not breathe dust/fumes/gas/mist/vapours/spray  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Use only outdoors or in a well-ventilated area  
 Wear protective gloves/protective clothing/eye protection/face protection

#### Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 Immediately call a POISON CENTER/doctor  
 Rinse mouth  
 Do NOT induce vomiting  
 Wash contaminated clothing before reuse  
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep cool

#### Disposal

Dispose of contents/container to an approved waste disposal plant

## 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Boron trifluoride compound with Methyl ether	353-42-4	100

## 4. First-aid measures

<b>Eye Contact</b>	Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.
<b>Inhalation</b>	Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink

plenty of water. Call a physician immediately. If possible drink milk afterwards.

**Most important symptoms/effects** Breathing difficulties. Causes burns by all exposure routes. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Carbon dioxide (CO<sub>2</sub>). Dry chemical. Chemical foam. Cool closed containers exposed to fire with water spray.

**Unsuitable Extinguishing Media** No information available

**Flash Point** 62 °C / 143.6 °F

**Method -** No information available

**Autoignition Temperature** 234 °C / 453.2 °F

### Explosion Limits

**Upper** 21.6%

**Lower** 6.4%

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

### Specific Hazards Arising from the Chemical

Combustible material. Flammable. Contact with water liberates toxic gas. Water reactive. Vapors may travel to source of ignition and flash back. Produce flammable gases on contact with water. Containers may explode when heated.

### Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) Oxides of boron Gaseous hydrogen fluoride (HF)

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

**Health**  
3

**Flammability**  
2

**Instability**  
0

**Physical hazards**  
W

## 6. Accidental release measures

**Personal Precautions** Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions** See Section 12 for additional ecological information.

**Methods for Containment and Clean Up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Do not expose spill to water. Do not let this chemical enter the environment.

## 7. Handling and storage

**Handling** Do not breathe vapors or spray mist. Do not get in eyes, on skin, or on clothing. Do not ingest. Use only in area provided with appropriate exhaust ventilation. Use explosion-proof equipment. Use only non-sparking tools. Contents may develop pressure upon prolonged storage. Do not allow contact with water because of violent reaction. Keep under nitrogen. Keep away from open flames, hot surfaces and sources of ignition.

**Storage** Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Protect from moisture. Never allow product to get in

contact with water during storage. Keep under nitrogen. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure controls / personal protection

### Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH IDLH
Boron trifluoride compound with Methyl ether	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup>	TWA: 2.5 mg/m <sup>3</sup>	TWA: 0.1 ppm TWA: 2.5 mg/m <sup>3</sup> Ceiling: 0.7 ppm	(Vacated) TWA: 2.5 mg/m <sup>3</sup>	IDLH: 250 mg/m <sup>3</sup>

#### Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

#### Eye Protection

Goggles

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	Glove comments
Nitrile rubber	See manufacturers recommendations	-	Splash protection only
Neoprene			
Natural rubber			
PVC			

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Recommended Filter type:** Organic gases and vapours filter Type A Brown conforming to EN14387

When RPE is used a face piece Fit Test should be conducted

### Environmental exposure controls

No information available.

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and at the end of workday.

## 9. Physical and chemical properties

Physical State

Liquid

Appearance	Light brown
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-14 °C / 6.8 °F
Boiling Point/Range	126 - 127 °C / 258.8 - 260.6 °F @ 760 mmHg
Flash Point	62 °C / 143.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	21.6%
Lower	6.4%
Vapor Pressure	17.3 mmHg @ 20 °C
Vapor Density	3.93
Specific Gravity	1.230
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	234 °C / 453.2 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C <sub>2</sub> H <sub>6</sub> B F <sub>3</sub> O
Molecular Weight	113.87

## 10. Stability and reactivity

Reactive Hazard	Yes
Stability	Moisture sensitive.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.
Incompatible Materials	Acids, Bases, Water, Strong oxidizing agents, Alcohols, Metals
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Oxides of boron, Gaseous hydrogen fluoride (HF)
Hazardous Polymerization	No information available.
Hazardous Reactions	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Boron trifluoride compound with Methyl ether	LD50 = 496 mg/kg ( Rat )	Not listed	Not listed

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico

Boron trifluoride compound with Methyl ether	353-42-4	Not listed	Not listed	Not listed	Not listed	Not listed
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<b>Mutagenic Effects</b>	No information available
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>STOT - single exposure</b>	None known
<b>STOT - repeated exposure</b>	None known
<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains.

<b>Persistence and Degradability</b>	Soluble in water Persistence is unlikely based on information available.
<b>Bioaccumulation/ Accumulation</b>	No information available.
<b>Mobility</b>	Will likely be mobile in the environment due to its water solubility.

## 13. Disposal considerations

<b>Waste Disposal Methods</b>	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
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## 14. Transport information

**DOT**

<b>UN-No</b>	UN2965
<b>Hazard Class</b>	4.3
<b>Subsidiary Hazard Class</b>	8; 3
<b>Packing Group</b>	I

**TDG**

<b>UN-No</b>	UN2965
<b>Hazard Class</b>	4.3
<b>Subsidiary Hazard Class</b>	8; 3
<b>Packing Group</b>	I

**IATA**

<b>UN-No</b>	UN2965
<b>Proper Shipping Name</b>	BORON TRIFLUORIDE DIMETHYL ETHERATE
<b>Hazard Class</b>	4.3
<b>Subsidiary Hazard Class</b>	3, 8
<b>Packing Group</b>	I

**IMDG/IMO**

<b>UN-No</b>	UN2965
<b>Proper Shipping Name</b>	BORON TRIFLUORIDE DIMETHYL ETHERATE
<b>Hazard Class</b>	4.3
<b>Subsidiary Hazard Class</b>	3, 8
<b>Packing Group</b>	I

## 15. Regulatory information

### International Inventories

Component	DSL	NDSL	TSCA	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Boron trifluoride compound with Methyl ether	-	X	X	206-532-1	-		X	X	X	X	-

### Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

## 16. Other information

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**Revision Date** 25-April-2019

**Print Date** 25-April-2019

**Revision Summary** This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**