

# SAFETY DATA SHEET

Creation Date 22-April-2009

Revision Date 19-December-2025

Revision Number 6

This safety data sheet was created pursuant to the requirements of: Canada WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR) - SOR 2022-272

## 1. Identification

**Product Name** Boron trifluoride etherate

**Cat No. :** AC427110000, AC427111000, AC427118000; AC427110000;  
AC427111000; AC427118000

**CAS-No** 109-63-7  
**Synonyms** Boron trifluoride ethyl 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 Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

#### **Emergency Telephone Number**

For information **US** call: 001-800-227-6701 / **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**

This product is hazardous in accordance with the Canada Hazardous Products Act (HPA) and Hazardous Products Regulation (HPR), as amended (SOR/2022-272)

<b>Flammable liquids</b>	Category 3
<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
Target Organs - Respiratory system.	

### Label Elements

#### **Signal Word**

Danger

**Hazard Statements**

Flammable liquid and vapor

Harmful if inhaled

Causes severe skin burns and eye damage

Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground and bond container and receiving equipment

Use explosion-proof electrical/ventilating/lighting/equipment

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

Use non-sparking tools

Take action to prevent static discharges

**Response**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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 container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Boron trifluoride-diethyl etherate	109-63-7	100

### 4. First-aid measures

**General Advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Most important symptoms/effects</b>	Difficulty in breathing. 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
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	DO NOT USE WATER
<b>Flash Point</b>	58 °C / 136 °F
<b>Method -</b>	CC (closed cup)
<b>Autoignition Temperature</b>	185 °C / 365 °F
<b>Explosion Limits</b>	
<b>Upper</b>	18.20 vol %
<b>Lower</b>	5.10 vol %
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Flammable. Water reactive. Corrosive material. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Oxides of boron. Thermal decomposition can lead to release of irritating gases and vapors.

### 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.

### NFPA

<b>Health</b>	<b>Flammability</b>	<b>Instability</b>	<b>Physical hazards</b>
3	2	2	W

## 6. Accidental release measures

<b>Personal Precautions</b>	Wear self-contained breathing apparatus and protective suit. Evacuate personnel to safe areas. Remove all sources of ignition. Ensure adequate ventilation. Take precautionary measures against static discharges. Do not get in eyes, on skin, or on clothing.
<b>Environmental Precautions</b>	Should not be released into the environment. See Section 12 for additional Ecological Information.

**Methods for Containment and Clean Up** Wear self-contained breathing apparatus and protective suit. Remove all sources of ignition. Do not expose spill to water. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment.

**7. Handling and storage**

**Handling** Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges. Do not allow contact with water.

**Storage.** Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks and flame. Corrosives area. Incompatible Materials. Strong oxidizing agents. Acids. Bases. Water. Metals.

**8. Exposure controls / personal protection**

**Exposure Guidelines**

Component	Alberta	British Columbia	Ontario TWAEV	Quebec
Boron trifluoride-diethyl etherate	-	TWA: 0.1 ppm	-	-

Component	Manitoba	New Brunswick	Newfoundland and Labrador	Nova Scotia
Boron trifluoride-diethyl etherate	TWA: 0.1 ppm Ceiling: 0.7 ppm		TWA: 0.1 ppm Ceiling: 0.7 ppm	TWA: 0.1 ppm Ceiling: 0.7 ppm

Component	Nunavut	Prince Edward Island	Saskatchewan	Yukon
Boron trifluoride-diethyl etherate		TWA: 0.1 ppm Ceiling: 0.7 ppm		

Component	ACGIH TLV	OSHA PEL	NIOSH
Boron trifluoride-diethyl etherate 109-63-7 ( 100 )	TWA: 0.1 ppm Ceiling: 0.7 ppm		

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

**Engineering Measures**

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. 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**

Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber	See manufacturers recommendations	-	Splash protection only
Butyl rubber			
Nitrile rubber			
Neoprene			
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 compatability, 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:** Particulates filter conforming to EN 143 Acid gases filter Type E Yellow 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.

## 9. Physical and chemical properties

### Appearance

#### Physical State

Liquid

#### Color

Light yellow

#### Odor

No information available

#### Odor Threshold

No information available

#### Property

#### Values

#### Remarks

#### Method

#### Melting Point/Range

-60 °C / -76 °F

#### Softening Point

No data available

#### Boiling Point/Range

126 °C / 258.8 °F

@ 760 mmHg

#### Flash Point

58 °C / 136 °F

**Method -** CC (closed cup)

#### Flammability (liquid)

Flammable

On basis of test data

#### Flammability (solid,gas)

Not applicable

Liquid

#### Explosion Limits

**Lower** 5.1 vol%

**Upper** 18.2 vol%

#### Autoignition Temperature

185 - °C / 365 - °F

#### Decomposition Temperature

>190 °C

#### pH

No information available

#### Viscosity

1.89 mPa.s at 20 °C

#### Water Solubility

Reacts with water

#### Solubility in other solvents

No information available

#### Partition Coefficient (n-octanol/water)

#### Component

#### log Pow

Boron trifluoride-diethyl etherate

0.8

#### Vapor Pressure

20-50 mbar @ 20 °C

#### Density / Specific Gravity

1.120

#### Bulk Density

Not applicable

Liquid

#### Vapor Density

4.9

(Air = 1.0)

#### Particle characteristics

Not applicable (liquid)

### Other Information

#### Molecular Formula

C4 H10 B F3 O

#### Molecular Weight

141.93

#### Explosive Properties

explosive air/vapour mixtures possible

## 10. Stability and reactivity

<b>Reactive Hazard</b>	Yes
<b>Stability</b>	Hygroscopic. Water reactive.
<b>Conditions to Avoid</b>	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water. Temperatures above 35°C.
<b>Incompatible Materials</b>	Strong oxidizing agents, Acids, Bases, Water, Metals
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Oxides of boron, Thermal decomposition can lead to release of irritating gases and vapors
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Information on expected route of exposure

<b>Inhalation</b>	Causes severe burns. Harmful by inhalation.
<b>Ingestion</b>	Causes severe burns. Harmful if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts. Can burn mouth, throat, and stomach.
<b>Eyes</b>	Causes severe burns. May cause blindness or permanent eye damage. Causes burns. Corrosive to the eyes and may cause severe damage including blindness. Risk of serious damage to eyes.
<b>Skin</b>	Causes severe burns. May be harmful in contact with skin. Causes burns.

### Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Boron trifluoride-diethyl etherate	-	-	1.21 mg/L/4h ( Rat )

<b>Toxicologically Synergistic Products</b>	No information available
<b>(b) skin corrosion/irritation;</b>	Category 1 B
<b>(c) serious eye damage/irritation;</b>	Category 1
<b>(d) respiratory or skin sensitization;</b>	
<b>Respiratory</b>	Based on available data, the classification criteria are not met
<b>Skin</b>	Based on available data, the classification criteria are not met
<b>(e) germ cell mutagenicity;</b>	Based on available data, the classification criteria are not met
<b>(f) carcinogenicity;</b>	Based on available data, the classification criteria are not met
	The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Boron trifluoride-diethyl etherate	109-63-7	Not listed	Not listed	Not listed	Not listed	Not listed

<b>(g) reproductive toxicity;</b>	Based on available data, the classification criteria are not met
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- (h) STOT-single exposure; Based on available data, the classification criteria are not met
- (i) STOT-repeated exposure; Category 1
- Target Organs** Skin, Respiratory system, Eyes, Gastrointestinal tract (GI).
- (j) aspiration hazard; Based on available data, the classification criteria are not met
- Other Adverse Effects** The toxicological properties have not been fully investigated.
- Symptoms / effects, both acute and delayed** 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.
- Other Adverse Effects** The toxicological properties have not been fully investigated.
- Endocrine Disrupting Properties** This product does not contain any known or suspected endocrine disruptors.

## 12. Ecological information

### Ecotoxicity

This product contains the following substance(s) which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Boron trifluoride-diethyl etherate	Not listed	Leuciscus idus: LC50: 22-46 mg/L/96h	Not listed	Daphnia magna: EC50: 32 mg/L/48h

**Persistence and Degradability** Persistence is unlikely based on information available. Reacts with water Hydrolyses

**Bioaccumulation/ Accumulation** No information available.

### Mobility

Component	log Pow
Boron trifluoride-diethyl etherate	0.8

## 13. Disposal considerations

**Waste Disposal Methods** 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.

## 14. Transport information

### DOT

UN-No UN2604  
 Proper Shipping Name BORON TRIFLUORIDE DIETHYL ETHERATE  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group I

### TDG

UN-No UN2604  
 Proper Shipping Name BORON TRIFLUORIDE DIETHYL ETHERATE  
 Hazard Class 8  
 Subsidiary Hazard Class 3  
 Packing Group I

**IATA**

<b>UN-No</b>	UN2604
<b>Proper Shipping Name</b>	Boron trifluoride diethyl etherate
<b>Hazard Class</b>	8
<b>Subsidiary Hazard Class</b>	3
<b>Packing Group</b>	I

**IMDG/IMO**

<b>UN-No</b>	UN2604
<b>Proper Shipping Name</b>	Boron trifluoride diethyl etherate
<b>Hazard Class</b>	8
<b>Subsidiary Hazard Class</b>	3
<b>Packing Group</b>	I

<b>15. Regulatory information</b>
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**International Inventories**

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Boron trifluoride-diethyl etherate	109-63-7	X	-	X	ACTIVE	203-689-8	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Boron trifluoride-diethyl etherate	109-63-7	X	KE-34240	X	X	X	X	X	X

**Legend:**

X - Listed '-' - Not listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

**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 its amendments and meets the requirements of the HPR (Paragraph 13(1)(a) of the revised Hazardous Products Act (HPA)).

**Other International Regulations**

**Authorisation/Restrictions according to EU REACH** Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**

Not applicable

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Boron trifluoride-diethyl etherate	109-63-7	Not applicable	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Boron trifluoride-diethyl etherate	109-63-7	Not applicable	Not applicable	Not applicable	Not applicable

## 16. Other information

<b>Prepared By</b>	Product stewardship (Regulatory Affairs) Thermo Fisher Scientific email - begel.sdsdesk@thermofisher.com
<b>Creation Date</b>	22-April-2009
<b>Revision Date</b>	19-December-2025
<b>Print Date</b>	19-December-2025
<b>Revision Summary</b>	This document has been updated to comply with the requirements of WHMIS 2015 which includes the amended Hazardous Products Act (HPA) and the Hazardous Products Regulation (HPR) to align with the Globally Harmonised System (GHS) (V7/8) 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**