

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	<b>Combustible material; avoid heat and sources of ignition.</b> <b>Corrosive to eyes and skin on contact.</b> <b>This compound reacts violently with water.</b> <b>Moisture sensitive material.</b> <b>Refrigerate and vent pressure slowly before opening.</b>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Boron Trifluoride, Ethyl Ether Complex</b>		
Catalog Number	B0527	Supplier	TCI America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	Boron Trifluoride Etherate		
Chemical Formula	BF <sub>3</sub> ·(C <sub>2</sub> H <sub>5</sub> ) <sub>2</sub> O		
CAS Number	109-63-7	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Boron Trifluoride, Ethyl Ether Complex	109-63-7	Min. 98.0 (W)	Not available.	Not available.

## Section III. Hazards Identification

Acute Health Effects	Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
Chronic Health Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively.
Skin Contact	If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing.
Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform artificial respiration. WARNING: It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.
Ingestion	DO NOT induce vomiting. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively.

## Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	47°C (116.6°F).	Flammable Limits	LOWER: 1.9% UPPER: 36.0%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), halogenated compounds, borates. WARNING: Highly toxic HF gas is produced during combustion.		
Fire Hazards	Flammable in presence of open flames and sparks, of shocks, of heat. Reacts violently with water. Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.		

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Emergency phone number (800) 424-9300

Explosion Hazards Risks of explosion of the product in presence of mechanical impact: Not available.  
Risks of explosion of the product in presence of static discharge: Not available.  
No additional information is available regarding the risks of explosion.

Fire Fighting Media and Instructions DO NOT USE WATER.  
SMALL FIRE: Use DRY chemicals, CO<sub>2</sub>, water spray or foam.  
LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.

### Section VI. Accidental Release Measures

Spill Cleanup Instructions Combustible material. Corrosive liquid.  
Reacts violently with water.  
Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas.  
Keep away from heat and sources of ignition. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed.  
Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

### Section VII. Handling and Storage

Handling and Storage Information COMBUSTIBLE. CORROSIVE. MOISTURE SENSITIVE. REACTS VIOLENTLY WITH WATER. WATER HYDROLYZES MATERIAL LIBERATING ACIDIC GAS WHICH IN CONTACT WITH METAL SURFACES CAN GENERATE FLAMMABLE AND/OR EXPLOSIVE HYDROGEN GAS. Keep container dry. Keep away from heat and sources of ignition. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe gas, fumes, vapor or spray. Avoid contact with eyes. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Treat symptomatically and supportively.  
Always store away from incompatible compounds such as oxidizing agents, metals, acids, alkalis (bases), moisture.

### Section VIII. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



Exposure Limits Not available.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid.	Solubility	Easily soluble in alcohol, diethyl ether.
Specific Gravity	1.154		
Molecular Weight	141.93	Partition Coefficient	Not available.
Boiling Point	126°C (258.8°F)	Vapor Pressure	4.2 mm of Hg (@ 20°C)
Melting Point	-58°C (-72.4°F)	Vapor Density	4.9 (Air = 1)
Refractive Index	1.4447 @ 20 degrees C/D	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

### Section X. Stability and Reactivity Data

Stability This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability Reacts violently with water especially when water is added to the product. Water hydrolyzes material liberating acidic gas which in contact with metal surfaces can generate flammable and/or explosive hydrogen gas. Avoid excessive heat and light.

Incompatibilities Reactive with oxidizing agents, alkali metals, acids, alkalis (bases), moisture, alcohols, corrodes steel.

### Section XI. Toxicological Information

RTECS Number KX7375000

Routes of Exposure Ingestion. Inhalation. Eye contact. Skin contact.

Toxicity Data Not available.

Chronic Toxic Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.  <b>MUTAGENIC EFFECTS</b> : Not available.  <b>TERATOGENIC EFFECTS</b> : Not available.  <b>DEVELOPMENTAL TOXICITY</b> Not available.</p> <p>Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.</p>
Acute Toxic Effects	<p>Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>

### Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Not available.

### Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance.
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### Section XIV. Transport Information

DOT Classification	DOT CLASS 8: Corrosive liquid. DOT CLASS 3: Flammable liquid.
PIN Number	UN2604
Proper Shipping Name	Boron trifluoride diethyl etherate.
Packing Group (PG)	I
DOT Pictograms	

### Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory.
WHMIS Classification (Canada)	WHMIS CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). WHMIS CLASS E: Corrosive liquid.
EINECS Number (EEC)	203-689-8
EEC Risk Statements	R10- Flammable. R14- Reacts violently with water. R34- Causes burns. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.
Japanese Regulatory Data	Not available.

### Section XVI. Other Information

**Version 1.0**  
**Validated on 8/4/1997.**  
**Printed 1/21/2005.**

#### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.