

# BORON TRIFLUORIDE ETHYL ETHER COMPLEX FOR SYNTHESIS MSDS

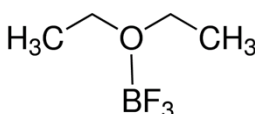
CAS No: 109-63-7 MSDS

## MATERIAL SAFETY DATA SHEET (MSDS)

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product form : Substance  
Trade name : Boron Trifluoride Ethyl Ether Complex  
EC no : 203-689-8  
CAS No : 109-63-7  
Product code : 2223A  
Chemical structure :



Synonyms : Trifluoro[1,1'-oxybis [ethane]]-(T-4)-boron / Boron trifluoride ethyl etherate

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

##### 1.2.1. Relevant identified uses

Use of the substance/mixture : Laboratory chemicals, Manufacture of substances

##### 1.2.2. Uses advised against

No additional information available

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

LOBA CHEMIE PVT.LTD.  
107 Wode House Road, Jehangir Villa, Colaba  
400005 Mumbai - INDIA  
T +91 22 6663 6663 - F +91 22 6663 6699  
[info@lobachemie.com](mailto:info@lobachemie.com) - [www.lobachemie.com](http://www.lobachemie.com)

#### 1.4. Emergency telephone number

Emergency number : + 91 22 6663 6663 (9:00am - 6:00 pm)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, H226  
Category 3  
Acute toxicity (oral), H302  
Category 4  
Acute toxicity (inhal.), H330  
Category 1  
Skin corrosion/irritation, H314  
Category 1A  
Specific target organ toxicity — Repeated exposure, Category 1 H372

Full text of classification categories and H statements : see section 16

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

### Classification according to Directive 67/548/EEC or 1999/45/EC

T; R23  
Xn; R20  
Xn; R22  
C; R35  
R14  
R10  
R48

Full text of R-phrases: see section 16

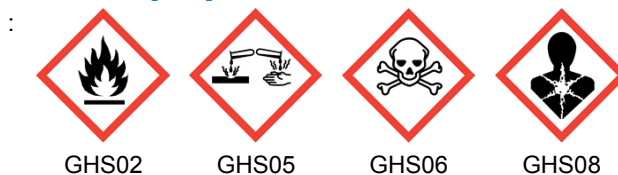
### Adverse physicochemical, human health and environmental effects

No additional information available

## 2.2. Label elements

### Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS02

GHS05

GHS06

GHS08

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H226 - Flammable liquid and vapour  
H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H330 - Fatal if inhaled  
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary statements (CLP)

: P260 - Do not breathe vapours, dust, fume, gas  
P280 - Wear protective gloves, protective clothing, eye protection, face protection  
P284 - [In case of inadequate ventilation] wear respiratory protection  
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/doctor/...

EUH phrases

: EUH014 - Reacts violently with water

## 2.3. Other hazards

No additional information available

## SECTION 3: Composition/information on ingredients

### 3.1. Substance

Name : BORON TRIFLUORIDE ETHYL ETHER COMPLEX FOR SYNTHESIS  
CAS No : 109-63-7  
EC no : 203-689-8

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

Full text of R- and H-phrases: see section 16

### 3.2. Mixture

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

- |                                       |  |
|---------------------------------------|--|
| First-aid measures after inhalation   | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.                                 |
| First-aid measures after skin contact | : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.                                 |
| First-aid measures after eye contact  | : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. |
| First-aid measures after ingestion    | : Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.                    |

### 4.2. Most important symptoms and effects, both acute and delayed

- |                                   |  |
|-----------------------------------|--|
| Symptoms/injuries                 | : Causes severe skin burns and eye damage. Causes damage to organs through prolonged or repeated exposure. |
| Symptoms/injuries after ingestion | : Swallowing a small quantity of this material will result in serious health hazard.                       |

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

- |                                |  |
|--------------------------------|--|
| Suitable extinguishing media   | : Carbon dioxide. Dry powder. Foam. Water spray.   |
| Unsuitable extinguishing media | : Do not use extinguishing media containing water. |

### 5.2. Special hazards arising from the substance or mixture

- |                  |  |
|------------------|--|
| Fire hazard      | : Flammable liquid and vapour.                     |
| Explosion hazard | : May form flammable/explosive vapour-air mixture. |

### 5.3. Advice for firefighters

- |                                |   |
|--------------------------------|---|
| Protection during firefighting | : Do not enter fire area without proper protective equipment, including respiratory protection. |
|--------------------------------|---|

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

- |                  |  |
|------------------|--|
| General measures | : Remove ignition sources. Use special care to avoid static electric charges. No naked lights. No smoking. |
|------------------|--|

#### 6.1.1. For non-emergency personnel

- |                      |                                   |
|----------------------|-----------------------------------|
| Emergency procedures | : Evacuate unnecessary personnel. |
|----------------------|-----------------------------------|

#### 6.1.2. For emergency responders

- |                      |  |
|----------------------|--|
| Protective equipment | : Use personal protective equipment as required. |
| Emergency procedures | : Ventilate area.                                |

### 6.2. Environmental precautions

Do not allow water (or moist air) contact with this material.

### 6.3. Methods and material for containment and cleaning up

- |                         |  |
|-------------------------|--|
| Methods for cleaning up | : Collect spillage. On land, sweep or shovel into suitable containers. |
|-------------------------|--|

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

### 6.4. Reference to other sections

No additional information available

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Additional hazards when processed	: Handle empty containers with care because residual vapours are flammable.
Precautions for safe handling	: Do not breathe vapours. Take precautionary measures against static discharge. Use only non-sparking tools. Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes.
Hygiene measures	: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

Technical measures	: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Comply with applicable regulations.
Storage conditions	: Keep container tightly closed. Store in dry protected location to prevent any moisture contact.
Incompatible materials	: Heat sources.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

No additional information available

### 8.2. Exposure controls

Hand protection	: Protective gloves
Eye protection	: Chemical goggles or face shield
Skin and body protection	: Wear suitable protective clothing
Respiratory protection	: Wear respiratory protection

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Colour	: Pale yellow to brownish.
Odour	: pungent odor.
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -58 °C

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

Freezing point	: No data available
Boiling point	: 126 - 129 °C
Flash point	: 48 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable liquid and vapour
Vapour pressure	: 5.6 hPa at 20 °C
Relative vapour density at 20 °C	: 4.9
Relative density	: No data available
Density	: 1.15 g/cm <sup>3</sup>
Solubility	: Water: Decomposed by water
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: 0.019 - 0.36 vol %

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Thermal decomposition generates : Corrosive vapours. Reacts violently with water.

### 10.2. Chemical stability

Flammable liquid and vapour. May form flammable/explosive vapour-air mixture.

### 10.3. Possibility of hazardous reactions

Highly reactive material. Reacts violently with water.

### 10.4. Conditions to avoid

Open flame. Heat. Sparks. Moisture.

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

May release flammable gases. Thermal decomposition generates : Corrosive vapours.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation: Fatal if inhaled.

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

Skin corrosion/irritation	: Causes severe skin burns and eye damage.
Serious eye damage/irritation	: Serious eye damage, category 1, implicit
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	: Not classified
Potential adverse human health effects and symptoms	: Harmful if swallowed.

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

No additional information available

### 12.4. Mobility in soil

No additional information available

### 12.5. Results of PBT and vPvB assessment

No additional information available

### 12.6. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product/Packaging disposal recommendations	: Dispose of contents/container to ...
Additional information	: Handle empty containers with care because residual vapours are flammable. Do not allow water (or moist air) contact with this material.

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

UN-No. (ADR)	: 2604
UN-No. (IMDG)	: 2604
UN-No.(IATA)	: 2604
UN-No.(ADN)	: 2604
UN-No. (RID)	: 2604

#### 14.2. UN proper shipping name

Proper Shipping Name (ADR)	: BORON TRIFLUORIDE DIETHYL ETHERATE
Proper Shipping Name (IMDG)	: BORON TRIFLUORIDE DIETHYL ETHERATE
Proper Shipping Name (IATA)	: BORON TRIFLUORIDE DIETHYL ETHERATE
Proper Shipping Name (ADN)	: BORON TRIFLUORIDE DIETHYL ETHERATE
Proper Shipping Name (RID)	: BORON TRIFLUORIDE DIETHYL ETHERATE
Transport document description (ADR)	: UN 2604 BORON TRIFLUORIDE DIETHYL ETHERATE, 8 (3), I, (D/E)
Transport document description (IMDG)	: UN 2604 BORON TRIFLUORIDE DIETHYL ETHERATE, 8 (3), I (59°C c.c.)
Transport document description (IATA)	: UN 2604 BORON TRIFLUORIDE DIETHYL ETHERATE, 8 (3), I
Transport document description (ADN)	: UN 2604 BORON TRIFLUORIDE DIETHYL ETHERATE, 8 (3), I
Transport document description (RID)	: UN 2604 BORON TRIFLUORIDE DIETHYL ETHERATE, 8 (3), I

#### 14.3. Transport hazard class(es)

##### ADR

Transport hazard class(es) (ADR)	: 8 (3)
Danger labels (ADR)	: 8, 3



##### IMDG

Transport hazard class(es) (IMDG)	: 8 (3)
Danger labels (IMDG)	: 8, 3



##### IATA

Transport hazard class(es) (IATA)	: 8 (3)
Hazard labels (IATA)	: 8, 3



##### ADN

Transport hazard class(es) (ADN)	: 8 (3)
----------------------------------	---------

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

Danger labels (ADN) : 8, 3



### RID

Transport hazard class(es) (RID) : 8 (3)

Danger labels (RID) : 8, 3



### 14.4. Packing group

Packing group (ADR) : I

Packing group (IMDG) : I

Packing group (IATA) : I

Packing group (ADN) : I

Packing group (RID) : I

### 14.5. Environmental hazards

Dangerous for the environment : No

Marine pollutant : No

Other information : No supplementary information available

### 14.6. Special precautions for user

#### - Overland transport

Classification code (ADR) : CF1

Limited quantities (ADR) : 0

Excepted quantities (ADR) : E0

Packing instructions (ADR) : P001

Mixed packing provisions (ADR) : MP8, MP17

Portable tank and bulk container instructions (ADR) : T10

Portable tank and bulk container special provisions (ADR) : TP2

Tank code (ADR) : L10BH

Vehicle for tank carriage : FL

Transport category (ADR) : 1

Special provisions for carriage - Operation (ADR) : S2, S14

Hazard identification number (Kemler No.) : 883

Orange plates :

Tunnel restriction code (ADR) : D/E

EAC code : 4WE

APP code : A(fl)



# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

### - Transport by sea

Limited quantities (IMDG)	: 0
Excepted quantities (IMDG)	: E0
Packing instructions (IMDG)	: P001
Packing provisions (IMDG)	: PP31
Tank instructions (IMDG)	: T10
Tank special provisions (IMDG)	: TP2
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-C
Stowage category (IMDG)	: D
Stowage and handling (IMDG)	: SW2
Flash point (IMDG)	: 59°C c.c.
MFAG-No	: 132

### - Air transport

PCA Excepted quantities (IATA)	: E0
PCA Limited quantities (IATA)	: Forbidden
PCA limited quantity max net quantity (IATA)	: Forbidden
PCA packing instructions (IATA)	: 850
PCA max net quantity (IATA)	: 0.5L
CAO packing instructions (IATA)	: 854
CAO max net quantity (IATA)	: 2.5L
ERG code (IATA)	: 8F

### - Inland waterway transport

Classification code (ADN)	: CF1
Limited quantities (ADN)	: 0
Excepted quantities (ADN)	: E0
Equipment required (ADN)	: PP, EP, EX, A
Ventilation (ADN)	: VE01
Number of blue cones/lights (ADN)	: 1

### - Rail transport

Classification code (RID)	: CF1
Limited quantities (RID)	: 0
Excepted quantities (RID)	: E0
Packing instructions (RID)	: P001
Mixed packing provisions (RID)	: MP8, MP17
Portable tank and bulk container instructions (RID)	: T10
Portable tank and bulk container special provisions (RID)	: TP2
Tank codes for RID tanks (RID)	: L10BH
Special provisions for RID tanks (RID)	: TU38, TE22
Transport category (RID)	: 1
Hazard identification number (RID)	: 883

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

No REACH Annex XVII restrictions

Boron Trifluoride Ethyl Ether Complex is not on the REACH Candidate List

Boron Trifluoride Ethyl Ether Complex is not on the REACH Annex XIV List

### 15.1.2. National regulations

#### Germany

AwSV/VwVwS Annex reference : Water hazard class (WGK) 1, slightly hazardous to water (Classification according to VwVwS, Annex 3; WGK No 9090)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

#### Denmark

Class for fire hazard : Class II-1

Store unit : 5 liter

Classification remarks : R10 <H226;H302;H314;H330;H372>; Emergency management guidelines for the storage of flammable liquids must be followed

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product  
Pregnant/breastfeeding women working with the product must not be in direct contact with the product

### 15.2. Chemical safety assessment

No additional information available

## SECTION 16: Other information

Full text of R-, H- and EUH-phrases:

Acute Tox. 1 (Inhalation)	Acute toxicity (inhal.), Category 1
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Flam. Liq. 3	Flammable liquids, Category 3
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
STOT RE 1	Specific target organ toxicity — Repeated exposure, Category 1
H226	Flammable liquid and vapour
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H330	Fatal if inhaled
H372	Causes damage to organs through prolonged or repeated exposure
EUH014	Reacts violently with water
R10	Flammable
R14	Reacts violently with water
R20	Harmful by inhalation

# Boron Trifluoride Ethyl Ether Complex

## Safety Data Sheet

R22	Harmful if swallowed
R23	Toxic by inhalation
R35	Causes severe burns
R48	Danger of serious damage to health by prolonged exposure
C	Corrosive
T	Toxic
Xn	Harmful

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product*