

Shanghai Aladdin Biochemical Technology Co., Ltd.  
No. 809, Chuhua Branch Road, Fengxian District, Shanghai

# SAFETY DATA SHEET

Version: v1  
Revision Date: 2024-01-26  
Print Date: 2024-02-02

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

### 1.1 Product identifiers

Product name : Boron trifluoride-methanol  
Product Number : B140671  
Brand : aladdin  
CAS-No. : 373-57-9(methanol)

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

Identified uses : Laboratory chemicals, Manufacture of substances.

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

Company : Shanghai Aladdin Biochemical Tech Co., Ltd  
Address : 36 Xinjinqiao Road, Shanghai  
Telephone : 400-620-6333  
Fax : no data available

### 1.4 Emergency telephone number

Emergency Phone : 0532-83889090

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquid (Class 2), h225

Acute toxicity, oral (Class 3), h301

Acute toxicity, inhalation (Category 3), H331

Acute toxicity, percutaneous (Class 3), h311

Skin corrosion / irritation (category 1a), H314

Severe eye damage / eye irritation (Category 1), h318

Specific target organ systemic toxicity (single exposure) (Category 1), eye, central nervous system, h370

Specific target organ systemic toxicity (repeated exposure), inhalation (Category 2), kidney, h373

### 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225

Highly Flammable liquid and vapor

H314

Causes severe skin burns and eye damage

H370

Causes damage to organs

H373

Causes damage to organs through prolonged or repeated exposure

H301+H311+H331

Toxic if swallowed, in contact with skin or if inhaled

Precautionary statement(s)

P210

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

P240

Ground/bond container and receiving equipment.

P241

Use explosion-proof [electrical/ventilating/lighting/.../] equipment.

P243

Take precautionary measures against static discharge.

P260

Do not breathe dust/fume/gas/mist/vapors/spray.

P264

Wash hands [and ...] thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P280

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

P310

Immediately call a POISON CENTER or doctor/physician.

P303+P361+P353

IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower].

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P308+P311

IF exposed or concerned: Call a POISON CENTER/doctor/...

P361+P364

Take off immediately all contaminated clothing and wash it before reuse.

P370+P378

In case of fire: Use ... to extinguish.

P403+P233

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

P403+P235

Store in a well-ventilated place. Keep cool.

P501

Dispose of contents/container to an approved waste disposal plant.

## 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Synonyms	: Trifluoroborane;Boron trifluoride-methanol solution
Formula	: no data available
Molecular weight	: no data available

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Component	Classification	Concentration
<b>Methanol</b>		
CAS-No.: 67-56-1 EC-No.:	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301, H331, H311, H370 Concentration limits: $\geq 10\%$ : STOT SE 1, H370; $3 - < 10\%$ : STOT SE 2, H371	
<b>Boron trifluoride-methanol</b>		
CAS-No.: 373-57-9 EC-No.: 206-766-4	Flammable liquid category 2; Acute toxicity category 4; Acute toxicity category 2; Skin corrosion / irritation category 1A; Severe eye injury / eye irritation category 1; Specific target organ systemic toxicity (single exposure) Category 3; Specific target organ systemic toxicity (repeated exposure) category 2; Acute (short-term) aquatic hazard Category 3; H225, H302, H330, H314, H318, H335, H373, H402	

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

In case of skin contact

Use calcium gluconate paste for emergency treatment. In case of skin contact: immediately remove / remove all contaminated clothing. Wash skin with water / shower Bath. Call a doctor now

In case of eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

If swallowed

Never feed anything to an unconscious person. Rinse your mouth with water. Consult a doctor.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

no data available

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

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Unsuitable extinguishing media  
no data available

## 5.2 Special hazards arising from the substance or mixture

Carbon oxide Hydrogen fluoride Borane / boron oxide Flammable Beware of backfire. Vapor is heavier than air, so it can spread over the ground. A fire may cause the generation of hazardous gases or vapors Form explosive mixture with air at mild temperature

## 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

## 5.4 Further information

no data available

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# SECTION 6: Accidental release measures

## 6.1 Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

## 6.2 Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

## 6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

## 6.4 Reference to other sections

For disposal see section 13.

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# SECTION 7: Handling and storage

## 7.1 Precautions for safe handling

Operators should be specially trained and strictly abide by the operating procedures. Operation and disposal should be carried out in a place with local ventilation or general ventilation facilities. Avoid eye and skin contact and avoid breathing vapor. See Section 8 for personal protective measures. Keep away from fire and heat sources, and smoking is strictly prohibited in the workplace. Use explosion-proof ventilation systems and equipment. If canning is required, the flow rate should be controlled, and there should be a grounding device to prevent the accumulation of static electricity. Avoid contact with incompatible substances such as oxidizing agents (see section 10 for incompatible substances). When handling, it should be lightly loaded and unloaded to prevent damage to packaging and containers. Empty containers may be harmful residues. Wash hands after use and prohibit eating or drinking in

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the workplace. Equipped with the corresponding variety and quantity of fire fighting equipment and leakage emer

## 7.2 Conditions for safe storage, including any incompatibilities

Recommended storage temperature 2 - 8 °C Sensitive to humidity

## 7.3 Specific end use(s)

no data available

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# SECTION 8: Exposure controls/personal protection

## 8.1 Control parameters

## 8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU)2016/425 and the standard EN 374 derived from it.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a fullface particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection,use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN(EU).

Control of environmental exposure

If safety requires, prevent further leakage or spillage. Do not let the product enter the sewer.

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# SECTION 9: Physical and chemical properties

## 9.1 Information on basic physical and chemical properties

a) Appearance

no data available

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b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	no data available
f) Initial boiling point and boiling range	no data available
g) Flash point	no data available
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	no data available
k) Vapour pressure	no data available
l) Vapour density	no data available
m) Relative density	no data available
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	no data available
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties N	no data available
t) Oxidizing properties N	no data available

## 9.2 Other safety information

no data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

Warming

### 10.5 Incompatible materials

Acid, oxidant, alkali metal, acyl chloride, anhydride, reductant, boron trifluoride and alkyl nitrate will react violently after induction for several hours. With alkali or alkali Earth metal reaction. Do not use mercury U-tube manometer because boron trifluoride is soluble in mercury. Magnesium, zinc alloy, various plastics, strong oxidizer, alkali metal, three Boron fluoride reacts violently with alkyl nitrate after induction for several hours. React with alkali or alkaline

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earth metals. Do not use mercury U-tube manometer because three Boron fluoride is soluble in mercury.

## 10.6 Hazardous decomposition products

no data available

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Acute toxicity

Acute toxicity of mixture

Acute toxicity estimate oral - 107.55 mg/kg

(calculation method)

Symptoms: swallowing can severely burn the mouth and throat, and there is a risk of perforation of the esophagus and stomach.

Acute toxicity estimate inhalation - 4 h - 2.04 mg/l - vapor (calculation method)

Symptoms: mucous membrane irritation, cough, shortness of breath, possible damage:, damage to respiratory tract

Acute toxicity estimate percutaneous - 333.44 mg/kg

(calculation method)

Skin corrosion/irritation

The mixture can cause severe burns.

Serious eye damage/eye irritation

The mixture can cause serious eye injury. Danger of blindness!

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

Specific target organ toxicity - repeated exposure

The mixture causes organ damage- Eyes, central nervous system

Aspiration hazard

no data available

Additional Information

This substance causes great damage to mucosal tissue, upper respiratory tract, eyes and skin., Spasm,

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inflammation, sore throat, spasm, inflammation, bronchitis,

Pneumonia, pulmonary edema, burns; cough, wheezing, laryngitis, shortness of breath, headache, nausea

Vomiting, fever, shortness of breath, pneumonia, pulmonary edema, cough, wheezing, laryngitis, shortness of breath, headache, abdominal pain

Fluoride can reduce serum calcium concentration, which may lead to fatal hypocalcemia.

To the best of our knowledge, this chemical, physical and toxic property has not been fully studied.

Other hazards cannot be excluded.

Operate in accordance with good industrial hygiene and safety practices.

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## SECTION 12: Ecological information

### 12.1 Toxicity

methanol

Toxicity to fish flow test LC50 - Blue gill sunfish - 15400.0 mg/l - 96 h (US-EPA)

Semi static toxicity test on *Daphnia magna* and other aquatic invertebrates EC50 - *Daphnia magna* - 18260 mg/l - 96 h (OECD Test Guideline 202)

Static toxicity test on algae erc50 - *pseudokirchneriella subcapitata* (green algae) - about 22000.0 mg/l - 96 h (OECD Test Guideline 201)

Static toxicity test to bacteria IC50 - activated sludge - > 1000 mg/l - 3 h (OECD Test Guideline 209)

Boron trifluoride methanol mixture

Static toxicity test on fish LC50 - *Leuciscus IDUs* - 22 - 46 mg/l - 96 h (German industrial standard (DIN) 38412) Note: corresponding values are specified for the following substances: boron trifluoride dihydrate

Static toxicity test on *Daphnia magna* and other aquatic invertebrates EC50 - *Daphnia magna* - 21.3 mg/l - 48 h (international standard iso6341) Note: corresponding values are specified for the following substances: boron trifluoride dihydrate

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

no data available

### 12.4 Mobility in soil

no data available



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## 12.5 Results of PBT and vPvB assessment

no data available

## 12.6 Other adverse effects

no data available

## SECTION 13:

### 13.1 Disposal considerations

Product

Recycle to process, if possible. Consult your local regional authorities and an expert of disposal. You may be able to dissolve or mix material with a combustible solvent and little by little burn in a chemical incinerator equipped with an afterburner and scrubber system. If a large amount of the substance is burned at a time, an explosion may occur.

Observe all federal, state and local regulations when disposing of the substance.

Contaminated packaging

Dispose of as unused product.

## SECTION 14: Transport information

DOT (US)

UN number: 3286

Packing group: I

Class: 3 (6.1, 8)

Proper shipping name: Flammable

Reportable Quantity(RQ): no data

Poison Inhalation Hazard: no data available

liquid, toxic, corrosive, n.o.s. (Methanol, available

boron trifluoridemethanol complex)

Environmental Hazards: no

IMDG

UN number: 3286

Packing group: I

EMS-No: no data available

Proper shipping name: Flammable liquid, toxic, corrosive, n.o.s. (Methanol, boron trifluoridemethanol complex)

IATA

UN number: 3286

Packing group: I

Class: 3 (6.1, 8)

Proper shipping name: Flammable liquid, toxic, corrosive, n.o.s. (Methanol, boron trifluoridemethanol complex)

## SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

## SECTION 16: Other information

Further information

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