

## Chemical Safety Data Sheet MSDS / SDS

**Boron Trifluoride - Butanol Reagent (10-20%) [for Esterification] (1ml\*10)**Revision Date:2026-03-20 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : Boron Trifluoride - Butanol Reagent (10-20%) [for Esterification] (1ml\*10)  
CBnumber : CB61570306  
CAS : 692-39-7  
EINECS Number : 231-569-5  
Synonyms : Boron Trifluoride-Butanol;Butoxytrifluoro-lambda4-borane

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 010-86108875

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**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS) : No data available  
Signal word : No data available

**Precautionary statements**

No data available

**Hazard statements**No data available

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**SECTION 3: Composition/information on ingredients****Substance**

Product name : Boron Trifluoride - Butanol Reagent (10-20%) [for Esterification] (1ml\*10)  
Synonyms : Boron Trifluoride-Butanol;Butoxytrifluoro-lambda4-borane  
CAS : 692-39-7

## SECTION 4: First aid measures

### **If inhaled**

Remove person to fresh air and keep comfortable for breathing. Get medical advice/ attention if you feel unwell.

### **In case of skin contact**

Take off all contaminated clothing immediately. If on skin, rinse well with water. If skin irritation or rash occurs: Get medical advice/ attention.

### **In case of eye contact**

Rinse with plenty of water. If easy to do, remove contact lens, if worn. If eye irritation persists: Get medical advice/ attention.

### **If swallowed**

Immediately call a POISON CENTER or doctor/ physician. Rinse mouth. Do NOT induce vomiting.

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

None known.

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## SECTION 5: Firefighting measures

### **Suitable extinguishing media**

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

### **Unsuitable extinguishing media**

Water

### **Specific hazards during fire fighting**

No information available.

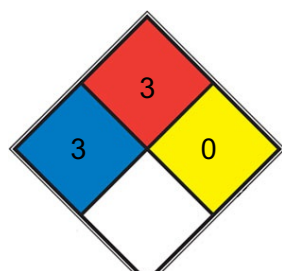
### **Specific extinguishing methods**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate personnel to safe areas. Remove undamaged containers from fire area if it is safe to do so.

### **Special protective equipment for fire-fighters**

Use personal protective equipment.

### **NFPA 704**





|          |   |                                                                                                                                                                                                                                     |
|----------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ■ HEALTH | 3 | Short exposure could cause serious temporary or moderate residual injury (e.g. <a href="#">liquid hydrogen</a> , <a href="#">sulfuric acid</a> , <a href="#">calcium hypochlorite</a> , hexafluorosilicic acid)                     |
|          |   | Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature                                                                                                             |
| ■ FIRE   | 3 | conditions . Liquids having a flash point below 22.8 °C (73 °F) and having a boiling point at or above 37.8 °C (100 °F) or having a flash point between 22.8 and 37.8 °C (73 and 100 °F). (e.g. gasoline, <a href="#">acetone</a> ) |
| ■ REACT  | 0 | Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, <a href="#">N2</a> )                                                                                                             |
| SPEC.    |   |                                                                                                                                                                                                                                     |
| □ HAZ.   |   |                                                                                                                                                                                                                                     |

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Wear suitable protective equipment. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Entry to non-involved personnel should be controlled around the leakage area by roping off, etc.

### Environmental precautions

Prevent product from entering drains.

### Methods and materials for containment and cleaning up

Collect as much of the spill as possible with a suitable absorbent material.

## SECTION 7: Handling and storage

### Handling

#### Technical measures

Prevent generation of vapor or mist. Take precautionary measures against static discharge. Use explosion-proof equipment.

#### Local/Total ventilation

Ensure adequate ventilation. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Use a local exhaust ventilation.

#### Advice on safe handling

Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not subject to grinding, shock or friction. Wash hands and face thoroughly after handling. Open drum carefully as content may be under pressure. Keep only in original packaging.

#### Avoidance of contact

Oxidizing agents, Bases, water, Metals

### Storage

#### Conditions for safe storage

Keep container tightly closed. Store in a freezer. Keep in a well-ventilated place. Use explosion-proof equipment. Protect from moisture. Keep under inert gas. Store locked up.

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## SECTION 8: Exposure controls/personal protection

### Ingredients with workplace control parameters

| Components | CAS RN  | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis  |
|------------|---------|-------------------------------|------------------------------------------------|--------|
| 1-Butanol  | 71-36-3 | PC-TWA                        | 100 mg/m <sup>3</sup>                          | CN OEL |
|            |         | TWA                           | 20 ppm                                         | ACGIH  |

Components CAS RN Value type Control parameters Basis (Form of exposure / Permissible concentration)  
1-Butanol 71-36-3 PC-TWA 100 mg/m<sup>3</sup> CN OEL  
TWA 20 ppm ACGIH

### Engineering measures

Install a closed system or local exhaust.

Also install safety shower and eye bath.

### Personal protective equipment

#### Respiratory protection

Gas mask

Self-contained breathing apparatus

#### Eye/face protection

Safety glasses

Safety goggles

Face-shield

#### Skin and body protection

Impervious protective clothing

#### Hand protection

Impervious gloves \*Use personal protective equipment(PPE) approved under appropriate government standards and follow local and national regulations.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

liquid

#### Color

colorless - yellow

#### Odor

No data available

#### Odor Threshold

No data available

**pH**

No data available

**Melting point/freezing point**

No data available

**Boiling point/boiling range**

No data available

**Flash point**

No data available

**Evaporation rate**

No data available

**Flammability**

No data available

**Upper explosion limit / Upper flammability limit**

No data available

**Lower explosion limit / Lower flammability limit**

No data available

**Vapor pressure**

0.7 kPa (20 °C)

**Relative vapor density**

2.6

**Relative density**

0.90

**Solubility(ies)**

**Water solubility**

No data available

**Solubility in other solvents**

No data available

**Partition coefficient: n-octanol/water (log value)**

No data available

**Autoignition temperature**

No data available

### **Decomposition temperature**

No data available

### **Viscosity**

#### **Viscosity, dynamic**

No data available

#### **Viscosity, kinematic**

No data available

### **Physical state**

clear liquid

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## SECTION 10: Stability and reactivity

### **Reactivity**

No data available

### **Chemical stability**

Stable under normal conditions.

### **Possibility of hazardous reactions**

Decomposes in contact with water and liberates toxic gases.

### **Conditions to avoid**

Heat. Electrical spark Open flame Electrostatic discharge Exposure to moisture.

### **Incompatible materials**

Oxidizing agents, Bases, water, Metals

### **Hazardous decomposition products**

No data available

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## SECTION 11: Toxicological information

### **Acute toxicity**

#### **Product**

#### **Acute oral toxicity**

Assessment: The component/mixture is moderately toxic after single ingestion.

### **Acute inhalation toxicity**

Assessment: The component/mixture is moderately toxic after short term inhalation.

### **Acute dermal toxicity**

Assessment: The component/mixture is moderately toxic after single contact with skin.

### **Components**

#### **1-Butanol**

### **Acute oral toxicity**

LDLo (Humans): 428 mg/kg Assessment: The component/mixture is moderately toxic after single ingestion.

### **LD50 (Rat)**

790 mg/kg

### **Acute inhalation toxicity**

LC50 (Rat): 24,000 mg/m<sup>3</sup> Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity

### **Acute dermal toxicity**

LD50 (Rabbit): 3,400 mg/kg Assessment: The component/mixture is minimally toxic after single contact with skin.

### **Boron Trifluoride - Butanol Complex**

### **Acute oral toxicity**

Assessment: The component/mixture is moderately toxic after single ingestion.

### **Acute inhalation toxicity**

Assessment: The component/mixture is moderately toxic after short term inhalation.

### **Acute dermal toxicity**

Assessment: The component/mixture is moderately toxic after single contact with skin.

### **Skin corrosion/irritation**

### **Product**

### **Result**

Causes burns.

### **Components**

#### **1-Butanol**

### **Result**

Skin irritation

### **Boron Trifluoride - Butanol Complex**

#### **Result**

Causes burns.

### **Serious eye damage/eye irritation**

#### **Product**

#### **Result**

Irreversible effects on the eye

### **Components**

#### **1-Butanol**

#### **Result**

Irreversible effects on the eye

### **Boron Trifluoride - Butanol Complex**

#### **Result**

Irreversible effects on the eye

### **Respiratory or skin sensitization**

No information available.

### **Germ cell mutagenicity**

No information available.

### **Carcinogenicity**

No information available.

### **Reproductive toxicity**

No information available.

### **STOT-single exposure**

#### **Product**

#### **Assessment**

May cause respiratory irritation. May cause drowsiness or dizziness.

### **Target Organs**

Respiratory system, Cardio-vascular system

## **Assessment**

May cause damage to organs.

## **Components**

### **1-Butanol**

## **Assessment**

May cause respiratory irritation. May cause drowsiness or dizziness.

## **Boron Trifluoride - Butanol Complex**

## **Target Organs**

Respiratory system, Cardio-vascular system

## **Assessment**

May cause damage to organs.

## **STOT-repeated exposure**

## **Product**

## **Target Organs**

Respiratory system, Kidney, Central nervous system, Auditory system

## **Assessment**

Causes damage to organs through prolonged or repeated exposure.

## **Target Organs**

Bone, Teeth

## **Assessment**

May cause damage to organs through prolonged or repeated exposure.

## **Components**

### **1-Butanol**

## **Target Organs**

Central nervous system, Auditory system

## **Assessment**

Causes damage to organs through prolonged or repeated exposure.

## **Boron Trifluoride - Butanol Complex**

## **Target Organs**

Respiratory system, Kidney

### **Assessment**

Causes damage to organs through prolonged or repeated exposure.

### **Target Organs**

Bone, Teeth

### **Assessment**

May cause damage to organs through prolonged or repeated exposure.

### **Repeated dose toxicity**

No information available.

### **Aspiration toxicity**

### **Product**

### **Components**

#### **1-Butanol**

### **RTECS No.**

EO1400000 (1-Butanol)

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## **SECTION 12: Ecological information**

### **Ecotoxicity**

#### **Components:**

##### **1-Butanol:**

#### **Toxicity to fish**

LC50 (*Oryzias latipes* (Japanese medaka)): > 100 mg/l Exposure time: 96 h

#### **Toxicity to daphnia and other aquatic invertebrates**

EC50 (*Daphnia magna* (Water flea)): > 1,000 mg/l Exposure time: 48 h

#### **Toxicity to algae/aquatic plants**

EC50 (*Selenastrum capricornutum* (green algae)): > 1,000 mg/l Exposure time: 72 h

### **Persistence and degradability**

No data available

### **Bioaccumulative potential**

#### **Components:**

**1-Butanol:**

octanol/water (log value)

**Partition coefficient: octanol/water (log value)**

0.88

**Mobility in soil****Components:****1-Butanol:**

tal compartments

**Distribution among environmental compartments**

Koc: 72

**Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

**Disposal methods****Waste from residues**

Disposal in accordance with local and national regulations. Take precautions against ignition or explode. Entrust disposal to a licensed waste disposal company.

**Contaminated packaging**

Disposal in accordance with local and national regulations. Before disposal of used container, remove contents completely.

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## SECTION 14: Transport information

**International Regulations****IATA-DGR****UN/ID No.**

UN 2920

**Proper shipping name**

Corrosive liquid, flammable, n.o.s.

**Class**

8

**Subsidiary risk**

3

**Packing group**

II

**IMDG-Code**

**UN number**

UN 2920

**Proper shipping name**

CORROSIVE LIQUID, FLAMMABLE, N.O.S.

**Class**

8

**Subsidiary risk**

3

**Packing group**

II

**EmS Code**

F-E, S-C

**Domestic regulation****GB 6944/12268****UN number**

UN 2920

**Proper shipping name**

CORROSIVE LIQUID, FLAMMABLE, N.O.S.

**Class**

8

**Subsidiary risk**

3

**Packing group**

II

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## SECTION 15: Regulatory information

**Regulations on Safety Management of Hazardous Chemicals****Catalogue of Hazardous Chemicals**

Listed

**Measures on the Environmental Administration of New Chemical Substances Registration****Registration/Notification number**

B1A232216195

Downstream users need to comply with the conditions of safe use of the chemical, understand the environmental and health hazard and risk management measures identified on the SDS as well as the local/national regulations concerning the chemical.

**The ingredients of this product are reported in the following inventories****CH BAGREG**

Not in compliance with the inventory

**TSCA**

Product contains substance(s) not listed on TSCA inventory.

**AIC**

Not in compliance with the inventory

**DSL**

This product contains the following components that are not on the Canadian DSL nor NDSL.

Boron Trifluoride - Butanol Complex

**ENCS**

On the inventory, or in compliance with the inventory

**ISHL**

On the inventory, or in compliance with the inventory

**KECI**

Not in compliance with the inventory

**PICCS**

Not in compliance with the inventory

**IECSC**

Not in compliance with the inventory

**NZIoC**

Not in compliance with the inventory

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## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

TWA: Time-Weighted Average

STEL: Short-Term Exposure Limit

LD50: Lethal Dose 50%

LC50: Lethal Concentration 50%

EC50: Effective Concentration 50%

PEL: Permissible Exposure Limit

TLV: Threshold Limit Value

IMDG: International Maritime Dangerous Goods Code

IATA: International Air Transport Association

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

DOT: US Department of Transportation

NFPA: National Fire Protection Association

NIOSH: National Institute for Occupational Safety and Health

OSHA: Occupational Safety and Health Administration

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.

