



TCI (Shanghai) DEVELOPMENT CO., LTD.

Revision number: 1

Revision date: 09/05/2019

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## SAFETY DATA SHEET

### 1. IDENTIFICATION

**Product name:** (S)-(-)-Butylene Oxide  
**Product code:** B3833  
**Company:** TCI (Shanghai) DEVELOPMENT CO., LTD.  
**Address:** No.96 Pu Gong Road, Shanghai Chemical Industry Park, Shanghai 201507 China  
**Responsible Department:** Sales Department  
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**Emergency telephone:** 0532-83889090  
**Revision number:** 1

### 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

#### PHYSICAL HAZARDS

Flammable liquids Category 2

#### HEALTH HAZARDS

Acute toxicity (Oral) Category 4  
Acute toxicity (Dermal) Category 4  
Acute toxicity (Inhalation) Category 4  
Skin corrosion/irritation Category 2  
Serious eye damage/eye irritation Category 2A  
Carcinogenicity Category 2  
Reproductive toxicity Category 2  
Specific target organ toxicity  
Respiratory tract irritation

- Single exposure [Category 3]  
Specific target organ toxicity  
Olfactory system Respiratory system Nervous system  
- Repeated exposure [Category 2]  
Kidney

#### ENVIRONMENTAL HAZARDS

Acute aquatic hazard Category 3

#### Label elements

#### Pictograms or hazard symbols



Signal word

Hazard statements

Danger  
Highly flammable liquid and vapour  
Harmful if swallowed, in contact with skin or if inhaled  
Causes skin irritation  
Causes serious eye irritation  
Suspected of causing cancer  
Suspected of damaging fertility or the unborn child  
May cause damage to organs through prolonged or repeated exposure : Olfactory system Respiratory system  
Nervous system Kidney  
May cause respiratory irritation  
Harmful to aquatic life

Precautionary statements  
[Prevention]

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.  
 Keep away from heat, sparks, open flames and hot surfaces. -No smoking.  
 Keep container tightly closed.

Ground and bond container and receiving equipment.  
 Use explosion-proof electrical, ventilating and lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge.

Do not breathe mist, vapors or spray.  
 Use only outdoors or in a well-ventilated area.

Avoid release to the environment.  
 Do not eat, drink or smoke when using this product.  
 Wash hands and face thoroughly after handling.

**[Response]**

Wear protective gloves, protective clothing, face protection.  
 IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.  
 IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse.  
 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.

IF exposed or concerned: Get medical advice or attention.  
 In case of fire: Use dry chemical, dry sand or foam to extinguish.

**[Storage]**

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

**[Disposal]**

Store locked up.  
 Dispose of contents and container in accordance with local, regional, national regulations.

**Other hazards which do not result in classification**

May cause polymerization.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

<b>Substance/mixture:</b>	Substance
<b>Components:</b>	(S)-(-)-Butylene Oxide
<b>Percent:</b>	>98.0%(GC)
<b>CAS RN:</b>	30608-62-9
<b>Synonyms:</b>	(S)-(-)-1,2-Epoxybutane , (S)-(-)-Ethylethylene Oxide , (S)-(-)-Ethyloxirane
<b>Chemical Formula:</b>	C <sub>4</sub> H <sub>8</sub> O

**4. FIRST AID MEASURES**

<b>Inhalation:</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
<b>Skin contact:</b>	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.
<b>Eye contact:</b>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.
<b>Ingestion:</b>	Get medical advice/attention.Rinse mouth.
<b>Protection of first-aiders:</b>	A rescuer should wear personal protective equipment, such as rubber gloves and air-tight goggles.

## 5. FIRE-FIGHTING MEASURES

<b>Suitable extinguishing media:</b>	Dry chemical, foam, carbon dioxide.
<b>Unsuitable extinguishing media:</b>	Water (It may scatter and spread fire.)
<b>Specific hazards arising from the chemical:</b>	This substance may polymerize explosively when heated or involved in a fire. Container may explode when heated. Combat fire from a sheltered position.
<b>Precautions for firefighters:</b>	Fire-extinguishing work is done from the windward and the suitable fire-extinguishing method according to the surrounding situation is used. Uninvolved persons should evacuate to a safe place. In case of fire in the surroundings: Keep containers cool by spraying with water. Eliminate all ignition sources if safe to do so.
<b>Special protective equipment for firefighters:</b>	When extinguishing fire, be sure to wear personal protective equipment

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal precautions, protective equipment and emergency procedures:</b>	Use extra personal protective equipment (self-contained breathing apparatus). 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.
<b>Environmental precautions:</b>	Prevent product from entering drains.
<b>Methods and materials for containment and cleaning up:</b>	Absorb spilled material in dry sand or inert absorbent before recovering it into a covered container. In case of large amount of spillage, contain a spill by bunding. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
<b>Prevention of secondary hazards:</b>	Remove all sources of ignition. Fire-extinguishing devices should be prepared in case of a fire. Use spark-proof tools and explosion-proof equipment.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

<b>Technical measures:</b>	Handling is performed in a well ventilated place. Wear suitable protective equipment. Prevent generation of vapour or mist. Keep away from heat/sparks/open flame/hot surfaces. -No smoking. Take measures to prevent the build up of electrostatic charge. Use explosion-proof equipment. Wash hands and face thoroughly after handling. Use a closed system if possible. Use a ventilation, local exhaust if vapour or aerosol will be generated.
<b>Advice on safe handling:</b>	Avoid all contact! May develop pressure. Open carefully.

### Conditions for safe storage, including any incompatibilities

<b>Storage conditions:</b>	Keep container tightly closed. Store in a cool, dark and well-ventilated place. Store under inert gas. Protect from moisture. Store locked up. Store away from incompatible materials such as oxidizing agents. Hygroscopic
<b>Packaging material:</b>	Comply with laws.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Engineering controls:</b>	Install a closed system or local exhaust. Also install safety shower and eye bath.
<b>Personal protective equipment</b>	
<b>Respiratory protection:</b>	Half or full facepiece respirator, self-contained breathing apparatus(SCBA), supplied air respirator, etc. Use respirators approved under appropriate government standards and follow local and national regulations.
<b>Hand protection:</b>	Impervious gloves.
<b>Eye protection:</b>	Safety goggles. A face-shield, if the situation requires.
<b>Skin and body protection:</b>	Impervious protective clothing. Protective boots, if the situation requires.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C):	Liquid
Form:	Clear
Colour:	Colorless - Almost colorless
Odour:	No data available
pH:	No data available
Melting point/freezing point:	No data available
Boiling point/range:	63°C
Flash point:	-22°C
Flammability or explosive limits:	
Lower:	3.9%
Upper:	20.6%
Relative density:	0.83
Solubility(ies):	
[Water]	No data available
[Other solvents]	No data available
Log Pow:	0.416

## 10. STABILITY AND REACTIVITY

Chemical stability:	Polymerization may occur under the influences of heat, light or on contact with polymerization initiators such as peroxides etc.
Possibility of hazardous reactions:	No special reactivity has been reported.
Conditions to avoid:	Heat, Spark, Open flame, Static discharge, Light
Incompatible materials:	Oxidizing agents, Acids, Bases, Aluminium, Tin
Hazardous decomposition products:	Carbon dioxide, Carbon monoxide

## 11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	No data available
Skin corrosion/irritation:	No data available
Serious eye damage/irritation:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	
IARC =	Group 2B (Possibly carcinogenic to humans)
NTP =	No data available
Reproductive toxicity:	No data available

## 12. ECOLOGICAL INFORMATION

Ecotoxicity:	
Fish:	No data available
Crustacea:	No data available
Algae:	No data available
Persistence / degradability:	No data available
Bioaccumulative potential(BCF):	No data available
Mobility in soil	
Log Pow:	0.416
Soil adsorption (Koc):	No data available
Henry's Law (PaM <sup>3</sup> /mol):	No data available

## 13. DISPOSAL CONSIDERATIONS

Recycle to process, if possible. Consult your local regional authorities. You may be able to burn in a chemical incinerator equipped with an afterburner and scrubber system but exert extra care in igniting as this material is highly flammable. Observe all federal, state and local regulations when disposing of the substance

#### 14. TRANSPORT INFORMATION

**Hazards Class:** 3: Flammable liquid.  
**UN-No:** 3022  
**Proper shipping name:** 1,2-Butylene oxide, stabilized  
**Packing group:** II

#### 15. REGULATORY INFORMATION

**Regulations on the Control over Safety of Dangerous Chemicals (State Council announces on January 26, 2002 and revised on February 16,2011):** Safe use and production, the storage of a dangerous chemical, transport, loading and unloading were prescribed.

#### 16. OTHER INFORMATION

**The reference company name of written contents**

**Company:** TCI (Shanghai) DEVELOPMENT CO., LTD.  
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This SDS was prepared sincerely on the basis of the information we could obtained, however, any warranty shall not be given regarding the data contained and the assessment of hazards and toxicity. Prior to use, please investigate not only the hazards and toxicity information but also the laws and regulations of the organization, area and country where the products are to be used, which shall be given the first priority.

The products are supposed to be used promptly after purchase in consideration of safety. Some new information or amendments may be added afterwards. If the products are to be used far behind the expected time of use or you have any questions, please feel free to contact us. The stated cautions are for normal handling only. In case of special handling, sufficient care should be taken, in addition to the safety measures suitable for the situation. All chemical products should be treated with the recognition of "having unknown hazards and toxicity", which differ greatly depending on the conditions and handling when in use and/or the conditions and duration of storage. The products must be handled only by those who are familiar with specialized knowledge and have experience or under the guidance of those specialists throughout use from opening to storage and disposal. Safe usage conditions shall be set up on each user's own responsibility.