



# TCI AMERICA

## SAFETY DATA SHEET

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Revision number: 1  
Revision date: 07/06/2018

### 1. IDENTIFICATION

**Product name:** 1,2-Butylene Oxide  
**Product code:** B0719  
**Product use:** For laboratory research purposes.  
**Restrictions on use:** Not for drug or household use.

Company:  
TCI America  
9211 N. Harborside Street  
Portland, OR 97203 U.S.A.  
Telephone:  
+1-800-423-8616 / +1-503-283-1681  
Fax:  
+1-888-520-1075 / +1-503-283-1987  
e-mail:  
sales-US@TCIchemicals.com  
www.TCIchemicals.com

**Emergency telephone number:**  
Chemical Emergencies:  
TCI America (8:00am - 5:00pm) PST  
+1-503-286-7624  
Transportation Emergencies:  
Chemtrec 24-Hour  
+1-800-424-9300 (U.S.A.)  
+1-703-527-3887 (International)  
**Responsible department:**  
TCI America  
Environmental Health Safety and Security  
+1- 503-286-7624

### 2. HAZARD(S) IDENTIFICATION

**OSHA Haz Com: CFR 1910.1200:**  
**WHMIS 2015:**  
Acute Toxicity - Oral [Category 4]  
Acute Toxicity - Dermal [Category 4]  
Acute Toxicity - Inhalation [Category 4]  
Skin Corrosion/Irritation [Category 2]  
Eye Damage/Irritation [Category 2A]  
Carcinogenicity [Category 2]  
Toxic to Reproduction [Category 2]  
Specific Target Organ Toxicity (Single Exposure) [Category 3]  
Specific Target Organ Toxicity (Repeated Exposure) [Category 2]  
Flammable Liquids [Category 2]  
Aquatic Hazard (Acute) [Category 3]

**Signal word:** Danger!

**Hazard Statement(s):**  
Highly flammable liquid and vapor  
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  
Harmful to aquatic life  
May cause respiratory irritation.  
May cause damage to organs through prolonged or repeated exposure: Olfactory System Respiratory System Nervous System Kidney

**Pictogram(s) or Symbol(s):**



**Precautionary Statement(s):**  
[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. Wear protective gloves, protective clothing, face protection.

[Response]

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

[Storage]  
[Disposal]

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.  
Store in a well-ventilated place. Keep container tightly closed. Store locked up.  
Dispose of contents and container in accordance with local, regional, national regulations (e.g. US: 40 CFR Part 261, EU:91/156/EEC, JP: Waste Disposal and Cleaning Act, etc.).

Hazards not otherwise classified:  
[HNOC]

May develop pressure

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/mixture:	Substance
Components:	1,2-Butylene Oxide
Percent:	>99.0%(GC)
CAS RN:	106-88-7
Molecular Weight:	72.11
Chemical Formula:	C <sub>4</sub> H <sub>8</sub> O
Synonyms:	1,2-Epoxybutane , Ethylethylene Oxide , Ethyloxirane

### 4. FIRST-AID MEASURES

#### Description of first aid measures

Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
Skin contact:	Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Get medical advice/attention.
Eye contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention.
Ingestion:	Get medical advice/attention. Rinse mouth.

#### Symptoms/effects:

Acute:	Redness.
Delayed:	May have effects on the respiratory tract. Possibly carcinogenic to humans.

#### Indication of any immediate medical attention:

Not available.

#### Notes to physician:

No data available

### 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media:	Dry chemical, foam, carbon dioxide.
Unsuitable extinguishing media:	Water (It may scatter and spread fire.)
Hazardous combustion products:	These products include: Carbon oxides
Other specific hazards:	Closed containers may explode from heat of a fire.
Advice for firefighters:	Wear self-contained breathing apparatus if possible.

### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	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.
Environmental precautions:	Prevent product from entering drains.
Methods and materials for containment and cleaning up:	Absorb spilled material in dry sand or inert absorbent before recovering it into an airtight 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.
Prevention of secondary hazards:	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**

<b>Precautions for safe handling:</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. Avoid all contact! May develop pressure. Open carefully.
<b>Conditions for safe storage, including any incompatibilities</b>	
<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. Light-sensitive Hygroscopic
<b>Packaging material:</b>	Comply with laws.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>Appropriate engineering controls:</b>	Follow safe industrial engineering/laboratory practices when handling any chemical. 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**

<b>Physical state (20°C):</b>	Liquid		
<b>Form:</b>	Clear		
<b>Colour:</b>	Colorless - Almost colorless		
<b>Odour:</b>	Characteristic		
<b>Odor threshold:</b>	No data available		
<b>Odour threshold:</b>	No data available		
<b>Melting point/freezing point:</b>	No data available	<b>pH:</b>	No data available
<b>Boiling point/range:</b>	63°C (145°F)	<b>Vapour pressure:</b>	No data available.
<b>Decomposition temperature:</b>	No data available	<b>Vapour density:</b>	2.2
<b>Relative density:</b>	0.83	<b>Dynamic Viscosity:</b>	No data available
<b>Kinematic viscosity:</b>	No data available	<b>Evaporation rate(Butyl Acetate=1):</b>	No data available
<b>Log Pow:</b>	No data available		
<b>Flash point:</b>	-22°C (-8°F)	<b>Autoignition temperature:</b>	439°C (822°F)
<b>Flammability(solid, gas):</b>	No data available	<b>Flammability or explosive limits:</b>	
		<b>Lower:</b>	3.9%
		<b>Upper:</b>	20.6%
<b>Solubility(ies):</b>			
<b>[Water]</b>	Soluble (9.5g/100mL, 25°C)		
<b>[Other solvents]</b>	No data available		

**10. STABILITY AND REACTIVITY**

<b>Reactivity:</b>	No data available
<b>Chemical stability:</b>	Stable under proper conditions.
<b>Possibility of hazardous reactions:</b>	No special reactivity has been reported.
<b>Conditions to avoid:</b>	Spark, Open flame, Static discharge
<b>Incompatible materials:</b>	Oxidizing agents, Acids, Bases, Aluminium, Tin, Iron chlorides
<b>Hazardous decomposition products:</b>	Carbon dioxide, Carbon monoxide

**11. TOXICOLOGICAL INFORMATION****RTECS Number:** EK3675000**Acute Toxicity:**ihl-rat LC50:6300 mg/m<sup>3</sup>/4H  
skn-rbt LD50:2100 uL/kg

orl-rat LD50:500 mg/kg

**Skin corrosion/irritation:**

skn-rbt 500 mg/24H MLD

**Serious eye damage/irritation:**

eye-rbt 100 mg/24 MOD

**Respiratory or skin sensitization:**

No data available

**Germ cell mutagenicity:**mmo-klp 1 mmol/L (-S9)  
mmo-ssp 1600 umol/L (+S9)

mmo-sat 3333 ug/plate (+S9)

**Carcinogenicity:**

ihl-rat TCLo:12360 mg/kg/13W-I

ihl-rat TCLo:400ppm/6H/5D/2Y-C

**IARC:** Group 2B (Possibly carcinogenic to humans) .**NTP:** No data available**OSHA:** No data available**Reproductive toxicity:**

ihl-rbt TCLo: 1000 ppm/7H (1-24D preg)

**Target organ(s):**

May cause respiratory irritation.

May cause damage to organs through prolonged or repeated exposure: Olfactory System Respiratory System Nervous System Kidney

**12. ECOLOGICAL INFORMATION****Ecotoxicity:****Fish:** No data available  
**Crustacea:** No data available  
**Algae:** No data available**Persistence / degradability:**

109% (by BOD) , 77% (by TOC) , 81% (by GC)

**Bioaccumulative potential(BCF):**

0.96

**Mobility in soil****Log Pow:** 0.416  
**Soil adsorption (Koc):** 8  
**Henry's Law (PaM<sup>3</sup>/mol):** 18**13. DISPOSAL CONSIDERATIONS****Disposal of product:**

Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. 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. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.

**Disposal of container:**

Dispose of as unused product. Do not re-use empty containers.

**Other considerations:**

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

**14. TRANSPORT INFORMATION****DOT (US)**

<b>UN number:</b> UN3022	<b>Proper Shipping Name:</b> 1,2-Butylene oxide, stabilized	<b>Class or Division:</b> 3 Flammable liquid	<b>Packing Group:</b> II
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**IATA**

<b>UN number:</b> UN3022	<b>Proper Shipping Name:</b> 1,2-Butylene oxide, stabilized	<b>Class or Division:</b> 3 Flammable liquid	<b>Packing Group:</b> II
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**IMDG**

<b>UN number:</b> UN3022	<b>Proper Shipping Name:</b> 1,2-Butylene oxide, stabilized	<b>Class or Division:</b> 3 Flammable liquid	<b>Packing Group:</b> II
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**EmS number:** F-E, S-D

**15. REGULATORY INFORMATION****Toxic Substance Control Act (TSCA 8b.):**

This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

**US Federal Regulations****CERCLA Hazardous substance and Reportable Quantity:**

<b>SARA 313:</b>	Listed
<b>SARA 302:</b>	Not Listed

**State Regulations****State Right-to-Know**

<b>Massachusetts</b>	Listed
<b>New Jersey</b>	Listed
<b>Pennsylvania</b>	Listed
<b>California Proposition 65:</b>	Not Listed

**Other Information****NFPA Rating:**

<b>Health:</b>	2
<b>Flammability:</b>	3
<b>Instability:</b>	0

**HMIS Classification:**

<b>Health:</b>	2
<b>Flammability:</b>	3
<b>Physical:</b>	0

**International Inventories**

<b>Canada: DSL</b>	On DSL
<b>EC-No:</b>	203-438-2

**16. OTHER INFORMATION**

**Revision date:** 07/06/2018

**Revision number:** 1

TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, 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 affiliates or 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 SDS 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 SDS 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, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.