

# SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.0  
Creation Date: July 15, 2019  
Revision Date: July 15, 2019

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## SECTION 1: Identification

### 1.1 GHS Product identifier

**Product name** Allyl 2,3-epoxypropyl ether

### 1.2 Other means of identification

**Product number** -  
**Other names** 3-allyloxy-1,2-epoxypropane; Allylglycide ether;  
allyloxymethyloxirane

### 1.3 Recommended use of the chemical and restrictions on use

**Identified uses** Industrial and scientific research use.  
**Uses advised against** no data available

### 1.4 Supplier's details

**Company** Shanghai Baishun Biotechnology Co., Ltd  
**Address** No. 26, Lane 918, Lianye Road, Zhelin Town, Fengxian  
District, Shanghai, 201400, China  
**Telephone** +86-21-37581181

### 1.5 Emergency phone number

**Emergency phone number** +86-21-37581181  
**Service hours** Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

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## SECTION 2: Hazard identification

### 2.1 Classification of the substance or mixture

Flammable liquids, Category 3  
Acute toxicity - Category 4, Oral  
Skin irritation, Category 2  
Serious eye damage, Category 1  
Skin sensitization, Category 1  
Acute toxicity - Category 4, Inhalation  
Specific target organ toxicity – single exposure, Category 3  
Germ cell mutagenicity, Category 2  
Carcinogenicity, Category 2  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3  
Reproductive toxicity, Category 2

### 2.2 GHS label elements, including precautionary statements

**Pictogram(s)**



<b>Signal word</b>	Danger
<b>Hazard statement(s)</b>	<p>H226 Flammable liquid and vapour  H302 Harmful if swallowed  H315 Causes skin irritation  H318 Causes serious eye damage  H317 May cause an allergic skin reaction  H332 Harmful if inhaled  H335 May cause respiratory irritation  H341 Suspected of causing genetic defects  H351 Suspected of causing cancer  H412 Harmful to aquatic life with long lasting effects</p>
<b>Precautionary statement(s)</b>	
<b>Prevention</b>	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  P233 Keep container tightly closed.  P240 Ground and bond container and receiving equipment.  P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.  P242 Use non-sparking tools.  P243 Take action to prevent static discharges.  P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...  P264 Wash ... thoroughly after handling.  P270 Do not eat, drink or smoke when using this product.  P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  P272 Contaminated work clothing should not be allowed out of the workplace.  P271 Use only outdoors or in a well-ventilated area.  P203 Obtain, read and follow all safety instructions before use.  P273 Avoid release to the environment.</p>
<b>Response</b>	<p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].  P370+P378 In case of fire: Use ... to extinguish.  P301+P317 IF SWALLOWED: Get medical help.  P330 Rinse mouth.  P302+P352 IF ON SKIN: Wash with plenty of water/...  P321 Specific treatment (see ... on this label).  P332+P317 If skin irritation occurs: Get medical help.  P362+P364 Take off contaminated clothing and wash it before reuse.  P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  P317 Get medical help.  P333+P317 If skin irritation or rash occurs: Get medical help.  P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  P319 Get medical help if you feel unwell.  P318 IF exposed or concerned, get medical advice.</p>
<b>Storage</b>	<p>P403+P235 Store in a well-ventilated place. Keep cool.  P403+P233 Store in a well-ventilated place. Keep container tightly closed.  P405 Store locked up.</p>

**Disposal** P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

### 2.3 Other hazards which do not result in classification

no data available

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Allyl 2,3-epoxypropyl ether	Allyl 2,3-epoxypropyl ether	106-92-3	203-442-4	100%

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## SECTION 4: First-aid measures

### 4.1 Description of necessary first-aid measures

#### If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

#### Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

#### Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

#### Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

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

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: May cause toxic effects if inhaled or absorbed through skin. Inhalation or contact with material may irritate or burn skin and eyes. Fire will produce irritating, corrosive and/or toxic gases. Vapors may cause dizziness or suffocation. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

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## SECTION 5: Fire-fighting measures

### 5.1 Suitable extinguishing media

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]:  
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. SMALL FIRE: Dry chemical, CO<sub>2</sub>, water spray or alcohol-resistant foam. Do not use dry chemical extinguishers to control fires involving nitromethane (UN1261) or nitroethane (UN2842). LARGE FIRE: Water spray, fog or alcohol-resistant foam. Do not use straight streams. Move containers from fire area if you can do it without risk. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

## 5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 129 [Flammable Liquids (Water-Miscible / Noxious)]: HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Vapor explosion hazard indoors, outdoors or in sewers. Those substances designated with a (P) may polymerize explosively when heated or involved in a fire. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Many liquids are lighter than water. (ERG, 2016)

## 5.3 Special protective actions for fire-fighters

Use powder, foam, carbon dioxide, water. In case of fire: keep drums, etc., cool by spraying with water.

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## SECTION 6: Accidental release measures

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

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in inert absorbent. Wash away remainder with plenty of water. Store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

### 6.2 Environmental precautions

Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water.

### 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.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 48°C use a closed system, ventilation and explosion-proof electrical equipment. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

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

Fireproof. Separated from strong oxidants, strong bases and strong acids. Cool. Keep in the dark.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure limit values

TLV: 1 ppm as TWA; A4 (not classifiable as a human carcinogen). MAK: carcinogen category: 2; skin absorption (H); sensitization of skin (SH)

#### Biological limit values

no data available

### 8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Wear face shield, safety goggles or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use ventilation, local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties and safety characteristics

<b>Physical state</b>	Liquid.
<b>Colour</b>	Colorless.
<b>Odour</b>	CHARACTERISTIC, NOT UNPLEASANT ODOR
<b>Melting point/freezing point</b>	-100 °C.
<b>Boiling point or initial boiling point and boiling range</b>	153.9 °C. Atm. press.:1 023.25 hPa.
<b>Flammability</b>	Class II Combustible Liquid: Fl.P. at or above 100°F and below 140°F.
<b>Lower and upper explosion limit/flammability limit</b>	no data available
<b>Flash point</b>	45 °C. Atm. press.:1 013.25 hPa.
<b>Auto-ignition temperature</b>	264 °C. Atm. press.:763 mm Hg. Remarks:22 °C / 48 % humidity.
<b>Decomposition temperature</b>	no data available
<b>pH</b>	no data available
<b>Kinematic viscosity</b>	dynamic viscosity (in mPa s) = 1.2. Temperature:20°C.
<b>Solubility</b>	greater than or equal to 100 mg/mL at 65.3° F (NTP, 1992)
<b>Partition coefficient n-octanol/water</b>	log Pow = 0.45. Temperature:25 °C.
<b>Vapour pressure</b>	4.8 mBar. Temperature:20 °C.;7.7 mBar. Temperature:30 °C.;20 mBar. Temperature:50 °C.
<b>Density and/or relative density</b>	0.97 g/cm <sup>3</sup> . Temperature:20 °C.
<b>Relative vapour density</b>	3.9 (vs air)
<b>Particle characteristics</b>	no data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

The substance can presumably form explosive peroxides. The substance may readily polymerize. Decomposes on burning. This produces toxic gases. Reacts violently with strong oxidants, acids and bases.

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

ALLYL GLYCIDYL ETHER reacts violently with oxidizing agents. Can form peroxides. Polymerizes readily [Handling Chemicals Safely 1980. p.128].

#### **10.4 Conditions to avoid**

no data available

#### **10.5 Incompatible materials**

Strong oxidizers.

#### **10.6 Hazardous decomposition products**

no data available

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### **SECTION 11: Toxicological information**

#### **Acute toxicity**

- Oral: LD50 - rat (male) - 1 600 mg/kg bw.
- Inhalation: LC50 - rat (male) - ca. 1.46 mg/L air.
- Dermal: LD50 - rabbit (male) - 2 550 mg/kg bw.

#### **Skin corrosion/irritation**

no data available

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

no data available

#### **Respiratory or skin sensitization**

no data available

#### **Germ cell mutagenicity**

no data available

#### **Carcinogenicity**

A4; Not classifiable as a human carcinogen.

#### **Reproductive toxicity**

no data available

#### **STOT-single exposure**

Corrosive. The substance is corrosive to the eyes, skin and respiratory tract. Inhalation of the vapour may cause lung oedema. See Notes. Exposure could cause central nervous system depression. Exposure could cause lowering of consciousness. Medical observation is indicated.

#### **STOT-repeated exposure**

Repeated or prolonged contact with skin may cause dermatitis. Repeated or prolonged contact may cause skin sensitization. May cause genetic damage in humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development. This substance is possibly carcinogenic to humans.

#### **Aspiration hazard**

A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

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### **SECTION 12: Ecological information**

#### **12.1 Toxicity**

- Toxicity to fish: LC50 - *Cyprinus carpio* - 36 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 50 mg/L - 48 h.

- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - > 79 mg/L - 72 h.
- Toxicity to microorganisms: EC0 - activated sludge, domestic - 1.5 mg/L - 28 d.  
Remarks: Respiration rate.

## 12.2 Persistence and degradability

no data available

## 12.3 Bioaccumulative potential

no data available

## 12.4 Mobility in soil

no data available

## 12.5 Other adverse effects

no data available

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# SECTION 13: Disposal considerations

## 13.1 Disposal methods

### Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

### Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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# SECTION 14: Transport information

## 14.1 UN Number

ADR/RID: UN2219 (For reference only, please check.)

IMDG: UN2219 (For reference only, please check.)

IATA: UN2219 (For reference only, please check.)

## 14.2 UN Proper Shipping Name

ADR/RID: ALLYL GLYCIDYL ETHER (For reference only, please check.)

IMDG: ALLYL GLYCIDYL ETHER (For reference only, please check.)

IATA: ALLYL GLYCIDYL ETHER (For reference only, please check.)

## 14.3 Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)

IMDG: 3 (For reference only, please check.)

IATA: 3 (For reference only, please check.)

## 14.4 Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

## 14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

## 14.6 Special precautions for user

no data available

## 14.7 Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Allyl 2,3-epoxypropyl ether	Allyl 2,3-epoxypropyl ether	106-92-3	203-442-4
<b>European Inventory of Existing Commercial Chemical Substances (EINECS)</b>			Listed.
<b>EC Inventory</b>			Listed.
<b>United States Toxic Substances Control Act (TSCA) Inventory</b>			Listed.
<b>China Catalog of Hazardous chemicals 2015</b>			Listed.
<b>New Zealand Inventory of Chemicals (NZIoC)</b>			Listed.
<b>Philippines Inventory of Chemicals and Chemical Substances (PICCS)</b>			Listed.
<b>Vietnam National Chemical Inventory</b>			Listed.
<b>Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)</b>			Listed.
<b>Korea Existing Chemicals List (KECL)</b>			Listed.

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## SECTION 16: Other information

### Information on revision

**Creation Date** July 15, 2019  
**Revision Date** July 15, 2019

### Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

### References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### Other Information

Explosive limits are unknown in literature, although the substance is combustible and has a flash point < 61°C. Use of alcoholic beverages enhances the harmful effect. Depending on

the degree of exposure, periodic medical examination is suggested. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. The odour warning when the exposure limit value is exceeded is insufficient. Check for peroxides prior to distillation; eliminate if found.

**Any questions regarding this SDS, Please send your inquiry to [sds@xixisys.com](mailto:sds@xixisys.com)**

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