SAFETY DATA SHEETS

According to the UN GHS revision 9

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

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2,3-epoxypropan-1-ol

1.2 Other means of identification

Product number -
Other names 2,3-Epoxy-1-propanol;Epihydrin alcohol;oxiran-2-ylmethanol

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 Yien Chemical Technology Co., Ltd
Address Building 6, 28 Yingong Road, Fengxian District, Shanghai Chemical Industry Zone, Shanghai, 201400, China
Telephone +86-400-133-2688

1.5 Emergency phone number

Emergency phone number +86-400-133-2688
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 4, Oral
Acute toxicity - Category 4, Dermal
Skin irritation, Category 2
Eye irritation, Category 2
Acute toxicity - Category 3, Inhalation
Specific target organ toxicity – single exposure, Category 3
Germ cell mutagenicity, Category 2
Carcinogenicity, Category 1B
Reproductive toxicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Danger
Hazard statement(s)	H302 Harmful if swallowed H312 Harmful in contact with skin H315 Causes skin irritation H319 Causes serious eye irritation H331 Toxic if inhaled H335 May cause respiratory irritation H341 Suspected of causing genetic defects H350 May cause cancer
Precautionary statement(s)	
Prevention	P264 Wash ... thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P271 Use only outdoors or in a well-ventilated area. P203 Obtain, read and follow all safety instructions before use.
Response	P301+P317 IF SWALLOWED: Get medical help. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of water/... P317 Get medical help. P321 Specific treatment (see ... on this label). P362+P364 Take off contaminated clothing and wash it before reuse. P332+P317 If skin irritation occurs: Get medical help. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P316 Get emergency medical help immediately. P319 Get medical help if you feel unwell. P318 IF exposed or concerned, get medical advice.
Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
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

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,3-epoxypropan-1-ol	2,3-epoxypropan-1-ol	556-52-5	209-128-3	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

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. Do NOT induce vomiting. Give one or two glasses of water to drink. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Exposure Routes: inhalation, ingestion, skin and/or eye contact Symptoms: Irritation eyes, skin, nose, throat; narcosis Target Organs: Eyes, skin, respiratory system, central nervous system (NIOSH, 2016)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Suitable extinguishing media. For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Special protective equipment for fire-fighters: Wear self contained breathing apparatus for fire fighting if necessary. Further information: Use water spray to cool unopened containers.

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable glass or mild steel containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable glass or mild steel containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES. Personal precautions: Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. NO contact with incompatible substances. See Chemical Dangers. Above 72°C use a closed system and ventilation. 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

Store only if stabilized. Cool. Dry. Well closed. Ventilation along the floor. Separated from strong bases, strong acids and food and feedstuffs.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Recommended storage temperature: 2 - 8 deg C Moisture sensitive. Handle and store under inert gas.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 2 ppm as TWA; A3 (confirmed animal carcinogen with unknown relevance to humans).MAK: skin absorption (H); carcinogen category: 2; germ cell mutagen group: 3A

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 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

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid.
Colour	Colourless.
Odour	no data available
Melting point/freezing	-45 °C. Atm. press.:Ca. 1 atm.

point	
Boiling point or initial boiling point and boiling range	163 °C. Atm. press.:1 atm.
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit	no data available
Flash point	72 °C. Atm. press.:Ca. 1 atm.
Auto-ignition temperature	415 °C. Atm. press.:Ca. 1 atm.
Decomposition temperature	166°C
pH	no data available
Kinematic viscosity	no data available
Solubility	greater than or equal to 100 mg/mL at 64° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = -0.95. Temperature:25 °C.
Vapour pressure	1.2 hPa. Temperature:25 °C.
Density and/or relative density	1.12 g/cm³. Temperature:20 °C.
Relative vapour density	2.15 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance may polymerize. Decomposes on contact with strong acids, strong bases, metal salts or metals. This generates fire and explosion hazard. Attacks plastics and rubber.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

GLYCIDOL is sensitive to moisture. It is also sensitive to light. It may polymerize if heated above room temperature. It may darken on storage. Stability studies of this chemical stored for two week protected from light indicated definite decomposition at 140° F, and strongly indicated instability at 77° F. A solution of this compound in water was found to be unstable when stored at room temperature, even after one day in the dark. This chemical is incompatible with strong oxidizers. It will undergo explosive decomposition in the presence of strong acids or bases, salts (such as aluminum chloride, iron(III)chloride or tin(IV) chloride) or metals (such as copper and zinc). It is also incompatible with nitrates. It will attack some forms of plastics, rubber and coatings. (NTP, 1992)

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Violent reaction with strong oxidizers, nitrates. Decomposes on contact (especially in the presence of heat) with strong acids, strong bases, water, metal salts (e.g., aluminum chloride, ferric chloride, tin chloride) or metals (copper, zinc), causing fire and explosion hazard ... Attacks some plactics, rubber, and coatings.

10.6 Hazardous decomposition products

When heated to decomposition it emits acrid smoke and fumes.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 420 mg/kg
- Inhalation: LC50 Rat inhalation 580 ppm/8 hr
- Dermal: no data available

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

No epidemiological data relevant to the carcinogenicity of glycidol were available. There is sufficient evidence in experimental animals for the carcinogenicity of glycidol. Overall evaluation: Glycidol is probably carcinogenic to humans (Group 2A).

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause lowering of consciousness.

STOT-repeated exposure

This substance is probably carcinogenic to humans. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Aspiration hazard

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

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC0 - Leuciscus idus melanotus - 140 mg/L - 48 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - ca. 2 176.8 mg/L - 48 h.
- Toxicity to algae: EC50 - Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum) - 144.7 mg/L - 96 h.
- Toxicity to microorganisms: LC0 - activated sludge - 5 600 mg/L - 3 h.

12.2 Persistence and degradability

AEROBIC: Glycidol, present at 100 mg/L, reached 85% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1). It was below the detection limit of 1 ppm after approximately 4 days at a test chemical concentration of 100 mg/L and added to an activated sludge inoculum in 250-ml Erlenmeyer shaker flasks incubated in both nutrient broth and basal salts media at 30 deg C. When present as the sole source of carbon present, glycidol was below the detection limit after approximately 10 days(2).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for glycidol(SRC), using a log Kow of -0.95(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of glycidol is estimated as 1(SRC), using a log Kow of -0.95(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that glycidol is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

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.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN2810 (For reference only, please check.)	IMDG: UN2810 (For reference only, please check.)	IATA: UN2810 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)	IMDG: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)	IATA: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)	IMDG: 6.1 (For reference only, please check.)	IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)	IMDG: I (For reference only, please check.)	IATA: I (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

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
2,3-epoxypropan-1-ol	2,3-epoxypropan-1-ol	556-52-5	209-128-3
European Inventory of Existing Commercial Chemical Substances			Listed.

(EINECS)	
EC Inventory	Listed.
United States Toxic Substances Control Act (TSCA) Inventory	Listed.
China Catalog of Hazardous chemicals 2015	Not Listed.
New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.
Korea Existing Chemicals List (KECL)	Listed.

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
- 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

Depending on the degree of exposure, periodic medical examination is suggested.Other CAS numbers for the optical active forms are: d-Glycidol CAS 57044-25-4, l-Glycidol CAS 60456-23-7, dl-Glycidol CAS 61915-27-3.

Any questions regarding this SDS, Please send your inquiry to sds@xixisys.com

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