



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 (epoxyethyl)benzene

1.2 Other means of identification

Product number -

Other names Phenylloxirane; epoxyethylbenzene; 2-phenyl-oxirane

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, Dermal

Eye irritation, Category 2

Carcinogenicity, Category 1B

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H312 Harmful in contact with skin
H319 Causes serious eye irritation
H350 May cause cancer

Precautionary statement(s)

Prevention	P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
	P264 Wash ... thoroughly after handling.
	P203 Obtain, read and follow all safety instructions before use.
Response	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.
	P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P318 IF exposed or concerned, get medical advice.
Storage	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
(epoxyethyl)benzene	(epoxyethyl)benzene	96-09-3	202-476-7	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

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. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound may include severe irritation of the skin and eyes, and skin sensitization. It can cause corrosion of tissues. Other symptoms may include burns, irritation of mucous membranes and upper respiratory tract, nausea, vomiting and headaches. Exposure may also cause central nervous system depression, hepatic lesions and pain to the eyes. Symptoms of exposure to a related compound include drying and cracking of the skin on contact, primary irritation to mucosal surfaces, fatigue, weakness, depression, unsteadiness, feeling of drunkenness, abnormal electroencephalograms and one case of toxic retrobulbar neuritis. Chronic exposure to a related compound has caused peripheral neuropathies (distal hypesthesia and decreased nerve conduction velocities). **ACUTE/CHRONIC HAZARDS:** This compound is corrosive and can cause burns. It may be toxic by ingestion, inhalation or skin absorption. It is absorbed slowly through the skin. It is an irritant and, when heated to decomposition, it emits acrid fumes and toxic fumes of carbon monoxide and carbon dioxide. (NTP, 1992)

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 as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on 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. Aromatic hydrocarbons and related compounds

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. A water spray may also be used. (NTP, 1992)

5.2 Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

Use powder, foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water. NO direct contact 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 liquid in covered containers. Absorb remaining liquid in 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 liquid in covered containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames. NO contact with acids or bases. Above 76°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

Separated from acids, bases and food and feedstuffs. Ventilation along the floor....
PRECAUTIONS SHOULD BE TAKEN TO PREVENT EXCESSIVE PRESSURE
UNDER STORAGE OR REACTION CONDITIONS & TO RELIEVE SUCH
PRESSURE SHOULD IT OCCUR.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

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 safety goggles or eye protection in combination with breathing protection.

Skin protection

Protective clothing. Protective gloves.

Respiratory protection

Use 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	Sweet, pleasant
Melting point/freezing point	-35.6 °C.
Boiling point or initial boiling point and boiling range	194.1 °C.
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	74 °C. Atm. press.:1 013 hPa.
Auto-ignition temperature	498 °C.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	1.99 cP at 20 deg C
Solubility	less than 1 mg/mL at 67.1° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 1.61.
Vapour pressure	34.9 Pa. Temperature:20 °C.
Density and/or relative density	1.05 g/cm ³ . Temperature:25 °C.
Relative vapour density	4.14 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

The substance may polymerize due to heating above the flash point, under the influence of acids and bases.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

On ... basis /of flash point/, it presents hazard of flammability similar to that encountered with ... o-cresol, o-dichlorobenzene, naphthalene, phenol, and dimethylaniline. Definite hazard exists whenever ... /it/ is heated to temperatures at and above the flash point. STYRENE OXIDE is incompatible with oxidizing agents. Also incompatible with acids and bases. Reacts with 4-(4'-nitrobenzyl)pyridine. Polymerizes exothermally and reacts vigorously with compounds possessing a labile hydrogen (e.g. alcohols and amines) in the presence of catalysts such as acids, bases and certain salts (NTP, 1992).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Reacts vigorously with compd having labile hydrogen, incl water, in presence of catalysts such as acids, bases, & certain salts

10.6 Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat - ca. 4 290 mg/kg bw.
- Inhalation: LC50 - rat (male) - > 500 ppm.
- Dermal: LD50 - rabbit (male) - 1 060 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

Evaluation: There is inadequate evidence in humans for the carcinogenicity of styrene-7,8-oxide. There is sufficient evidence in experimental animals for the carcinogenicity of styrene-7,8-oxide. Overall evaluation: Styrene-7,8-oxide is probably carcinogenic to humans (Group 2A).

Reproductive toxicity

No information is available on the reproductive or developmental effects of styrene oxide in humans. Maternal toxicity and increased fetal mortality have been observed in rats and rabbits exposed to styrene oxide by inhalation. Maternal toxicity, increased preimplantation loss of fetuses, reduced fetal weight, and increased incidence of ossification defects were reported in rats. Maternal toxicity and increased frequency of resorptions were reported in rabbits.

STOT-single exposure

The substance is irritating to the eyes and skin. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness.

STOT-repeated exposure

This substance is probably carcinogenic to humans.

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - *Cyprinus carpio* - 6.9 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - *Daphnia magna* - 13 mg/L - 48 h.
- Toxicity to algae: EC50 - *Desmodesmus subspicatus* (previous name: *Scenedesmus subspicatus*) - ca. 32 mg/L - 96 h.
- Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Styrene-7,8-oxide, present at 100 mg/L, reached 80-82% of its theoretical BOD in 2 weeks using an activated sludge inoculum at 30 mg/L and the Japanese MITI test(1); however, the test results might be for the hydrolysis product, styrene glycol(SRC).

12.3 Bioaccumulative potential

An estimated BCF of 3.5 was calculated in fish for styrene-7,8-oxide(SRC), using a log Kow of 1.61(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). Hydrolytic half-lives of 0.17, 28 and 40.9 hours have been reported for styrene-7,8-oxide at pH 3, 7, and 9, respectively(4). Hydrolysis is likely to be a more important fate than bioconcentration in aquatic organisms, particularly in acidic waters(SRC).

12.4 Mobility in soil

The Koc of styrene-7,8-oxide is estimated as 53(SRC), using a water solubility of 3,000 mg/L(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that styrene-7,8-oxide is expected to have very high mobility in soil. Hydrolytic half-lives of 0.17, 28 and 40.9 hours have been reported for styrene-7,8-oxide at pH 3, 7, and 9, respectively(4). Hydrolysis is likely to be a more important fate than transport through soils, particularly in acidic soils(SRC).

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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (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
(epoxyethyl)benzene	(epoxyethyl)benzene	96-09-3	202-476-7
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			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

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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

Do NOT take working clothes home.

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

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