



Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Chloromethyloxirane

SDS No. : 2812E-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

PHYSICAL AND CHEMICAL HAZARDS

Flammable liquids: Category 3

HEALTH HAZARDS

Acute toxicity (Oral): Category 3

Acute toxicity (Dermal): Category 3

Acute toxicity (Inhalation): Category 2

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Skin sensitization: Category 1

Germ cell mutagenicity: Category 2

Carcinogenicity: Category 1B

Reproductive toxicity: Category 2

Specific target organ toxicity – single exposure: Category 1 (respiratory system; liver; kidney)

Specific target organ toxicity – repeated exposure: Category 1 (respiratory system; kidney)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Acute): Category 3

Label elements



Signal word: Danger

HAZARD STATEMENT

Flammable liquid and vapor

Toxic if swallowed

Toxic in contact with skin

Fatal if inhaled

Causes severe skin burns and eye damage

May cause an allergic skin reaction

Suspected of causing genetic defects

May cause cancer

Suspected of damaging fertility or the unborn child



Causes damage to organs (respiratory system; liver; kidney)

Causes damage to organs through prolonged or repeated exposure (respiratory system; kidney)

Harmful to aquatic life

PRECAUTIONARY STATEMENT

Prevention

Avoid release to the environment.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Keep container tightly closed.

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

Do not breathe dust/fume/gas/mist/vapors/spray.

In case of inadequate ventilation wear respiratory protection.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Contaminated work clothing should not be allowed out of the workplace.

Wear protective gloves/protective clothing/eye protection/face protection.

Do not eat, drink or smoke when using this product.

Response

In case of fire: Use appropriate media other than water to extinguish.

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF exposed or concerned: Call a POISON CENTER/doctor/physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

IF ON SKIN: Wash with plenty of soap and water.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

Take off immediately all contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

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

Disposal

Dispose of contents/container in accordance with local/national regulation.

Specific Physical and Chemical hazards

Flammable liquid. Vapor/air mixture may explode.

3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name: Chloromethyloxirane

Content (%): 99 (min)

Chemical formula: C2H3OCH2Cl

Chemicals No, Japan: 2-275

CAS No.: 106-89-8

MW: 92.52

ECNO: 203-439-8



Note : The figures shown above are not the specifications of the product.

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash with plenty of soap and water.

If skin irritation or rash occurs: Get medical advice/attention.

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/attention.

IF SWALLOWED

Rinse mouth. Do NOT induce vomiting.

Immediately call a POISON CENTER/doctor/physician.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

In case of fire, use foam, dry powder, CO2 to extinguish.

Unsuitable extinguishing media

Indoor firefighting equipment or outdoor firefighting equipment

Sprinkler equipment

Dry-powder firefighting equipment – except for phosphate etc.,hydrogen carbonate etc.

Straight stream water extinguisher

Water mist extinguisher

Reinforcing liquid jet extinguisher

Dry-powder extinguisher – except for phosphate etc.,hydrogen carbonate etc.

Bucket of water or tank of water

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.



6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Ground and bond container and receiving equipment.

Use explosion-proof electrical/ventilating/lighting equipment.

Use non-sparking tools.

Take action to prevent static discharges.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Contaminated work clothing should not be allowed out of the workplace.

Take off immediately all contaminated clothing and wash it before reuse.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Keep under lock and key.

Container and packaging materials for safe handling

Glass

Polyethylene

8. Exposure controls/personal protection

Control parameters

Adopted value

(Chloromethyloxirane)

ACGIH(1997) TWA: 0.5ppm (URT irr; male repro)

Notation

(Chloromethyloxirane)

Skin

OSHA-PEL

(Chloromethyloxirane)

TWA: 5ppm, 19mg/m³

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Colorless

Odor: Characteristic odor

Melting point/Freezing point: -48°C

Boiling point or initial boiling point: (Chloromethyloxirane)116°C

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit:

Lower explosion limit: 3.8 vol %

Upper explosion limit: 21 vol %

Flash point: (Chloromethyloxirane)31°C

Auto-ignition temperature: (Chloromethyloxirane)385°C

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: 6 g/100 ml

n-Octanol/water partition coefficient: log Pow0.26

Vapor pressure: 1.6 kPa (20°C)

Density and/or relative density: 1.2

Relative vapor density (Air=1): 3.2

Relative density of the Vapor/air - mixture at 20°C (Air = 1): 1.05

Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

The substance polymerizes due to heating or under the influence of strong acids and bases.

On combustion, forms toxic and corrosive fumes of hydrogen chloride and chlorine. Reacts violently with strong oxidants. Reacts violently with aluminium, zinc, alcohols, phenols, amines (especially aniline) and organic acids. This generates fire and explosion hazard.

Attacks steel in the presence of water. (ICSC 0043)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Strong acids, Bases, Strong oxidizing agents, Aluminium, Zinc, Alcohols, Phenols, Amines (especially aniline), Organic acids

Hazardous decomposition products

Hydrogen chloride, Chlorine

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

rat LD50=90mg/kg (MOE assessment vol.1, 2002)

Acute toxicity (Dermal)

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

rat LD50=591.5mg/kg (PATTY 5th, 2001)

Acute toxicity (Inhalation)

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

vapor: rat LC50=251.1ppm (MOE risk assessment vol.1, 2002)

Irritant properties

Skin corrosion/irritation

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

rabbit/human severe (CERI/NITE risk assessment ver.1.1 No.74, 2004)

Serious eye damage/irritation

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

skin corrosion/irritation cat.1

Sensitization

Skin sensitization

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

cat. 1B; NITE risk assessment, 2008; CICAD 30, 2001; ATSDR, 2012; EU-RAR, 2002; CaPSAR, 1999

Germ cell mutagenicity

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

cat. 2; CERI/NITE risk assessment No.74, 2004

Carcinogenicity

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

cat.1B; IARC Gr. 2A (IARC, 1999 et al.)

[IARC]

(Chloromethyloxirane)

Group 2A : Probably carcinogenic to humans

[ACGIH]

(Chloromethyloxirane)

A3(1997) : Confirmed Animal Carcinogen with Unknown Relevance to Humans

[EU]

(Chloromethyloxirane)

Category 1B; Substances presumed to have carcinogenic potential for humans

Reproductive toxicity

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

cat. 2; CERI/NITE risk assessment No.74, 2004

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

respiratory system; liver; kidney (CERI/NITE risk assessment, 2008)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

respiratory system; kidney (CERI/NITE risk assessment, 2008)

Aspiration hazard data is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

Harmful to aquatic life

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

Fish (Pimephales promelas) LC50=10.6mg/L/96hr (MOE Japan, 2002)

Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Chloromethyloxirane)

Algae (Pseudokirchneriella subcapitata) NOEC=1.7mg/L/72hr (SIDS, 2009)

Water solubility

(Chloromethyloxirane)

6 g/100 ml (ICSC, 2003)

Persistence and degradability

(Chloromethyloxirane)

Degrade rapidly (Degradation : 75%/48hr (OECD TG301A) (SIDS, 2009))

Bioaccumulative potential

(Chloromethyloxirane)

log Kow=0.45 (PHYSPROP DB, 2009)

Mobility in soil



Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No. or ID No.: 2023

UN Proper Shipping Name :

EPICHLOROHYDRIN

Class or division (Transport hazard class) : 6.1

Subsidiary hazard(s) : 3

Packing group : II

ERG GUIDE No.: 131P

Special provisions No.: 279

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 2023

Proper Shipping Name :

EPICHLOROHYDRIN

Class or division : 6.1

Subsidiary hazard(s) : 3

Packing group : II

Special provisions No.: 279

IATA Dangerous Goods Regulations

UN No.: 2023

Proper Shipping Name :

EPICHLOROHYDRIN

Class or division : 6.1

Subsidiary hazard(s) : 3

Hazard labels : Toxic & Flamm.liquid

Packing group : II

Special provisions No.: A113

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : yes

MARPOL Annex V – Prevention of pollution by garbage discharge

Carcinogenicity: cat.1, 1A, 1B

Chloromethyloxirane

Specific target organ toxicity – repeated exposure: cat.1

Chloromethyloxirane

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Y

Chloromethyloxirane



15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemicals listed in TSCA Inventory

Chloromethyloxirane

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling

Flam. Liq. 3: H226 Flammable liquid and vapor

Acute Tox. 3: H301 Toxic if swallowed

Acute Tox. 3: H311 Toxic in contact with skin

Acute Tox. 2: H330 Fatal if inhaled

Skin Corr. 1: H314 Causes severe skin burns and eye damage

Eye Dam. 1: H318 Causes serious eye damage

Skin Sens. 1: H317 May cause an allergic skin reaction

Muta. 2: H341 Suspected of causing genetic defects

Carc. 1B: H350 May cause cancer

Repr. 2: H361 Suspected of damaging fertility or the unborn child

STOT SE 1: H370 Causes damage to organs

STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Aquatic Acute 3: H402 Harmful to aquatic life

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2021 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2020).