

Section 1. Product and Company Identification

Product Name Epichlorohydrin
CAS Number 106-89-8

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Section 2. Hazards Identification

Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
 Acute toxicity, Oral (Category 3), H301
 Acute toxicity, Inhalation (Category 3), H331
 Acute toxicity, Dermal (Category 3), H311
 Skin corrosion (Category 1B), H314
 Serious eye damage (Category 1), H318
 Skin sensitization (Category 1), H317
 Carcinogenicity (Category 1B), H350
 Acute aquatic toxicity (Category 3), H402

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard Statements

H226 Flammable liquid and vapor.
 H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H318 Causes serious eye damage.
 H350 May cause cancer.
 H402 Harmful to aquatic life.



Precautionary Statements

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P240 Ground/bond container and receiving equipment.
- P241 Use explosion-proof electrical/ventilating/lighting/equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.
- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P308 + P313 IF exposed or concerned: Get medical advice/attention.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

Section 3. Composition / Information on Ingredients

Common Name Epichlorohydrin
Synonym(s) (±)-Epichlorohydrin; 1-Chloro-2,3-epoxypropane; (±)-2-(Chloromethyl)oxirane
Formula C₃H₅ClO
CAS Number 106-89-8

COMPONENT	CAS NUMBER	CONCENTRATION
Epichlorohydrin	106-89-8	<= 100%

Section 4. First Aid Measures

Description of first-aid measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed: No data available

Section 5. Firefighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

Special hazards arising from the substance or mixture: No data available

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Use water spray to cool unopened containers

Section 6. Accidental Release Measures

Personal precautions, protective equipment, and emergency procedures: 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. For personal protection see section 8.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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 (see section 13).

Reference to other sections: For disposal see section 13.

Section 7. Handling and Storage

Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge. For precautions see section 2.

Conditions for safe storage, including any incompatibilities: 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. Store under inert gas.
 Storage class (TRGS 510): Flammable liquids

Section 8. Exposure Controls / Personal Protection

Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Epichlorhydrin	106-89-8	TWA	0.500000 ppm	USA ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Male reproductive Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		Potential Occupational Carcinogen See Appendix A		
		TWA	5.000000 ppm 19.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m ³ is approximate		
		PEL	0.05 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		



Exposure controls

Appropriate engineering controls: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection: Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9. Physical and Chemical Properties

Appearance: Clear, liquid

Color: Colorless

Odor: No data available

Odor Threshold: No data available

pH: No data available

Melting point/freezing point: -57°C (-71°F)

Initial boiling point and boiling range: 115 - 117°C (239 - 243°F)

Flash point (Closed Cup): 32°C (90°F)

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits

Upper explosion limit: 21% (V)

Lower explosion limit: 3.8% (V)

Vapor pressure: 18.4 hPa (13.8 mmHg) at 21.1°C (70.0°F)

Vapor density: 3.19 - (Air = 1.0)

Relative density: 1.183 g/mL at 25 °C (77 °F)

Water solubility: No data available
Partition coefficient (n-octanol/water): No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Viscosity: No data available
Explosive properties: No data available
Oxidizing properties: No data available

Other Safety Information

Relative vapor density: 3.19 - (Air = 1.0)

Section 10. Stability and Reactivity

Reactivity: No data available
Chemical stability: Stable under recommended storage conditions.
Possibility of hazardous reactions: Vapors may form explosive mixture with air.
Conditions to avoid: Heat, flames and sparks.
Incompatible materials: Acids, Bases, Ammonia, Amines, Sodium/sodium oxides, Zinc, Magnesium, Aluminum, and its alloys, Halides
Hazardous decomposition products
Hazardous decomposition products formed under fire conditions: Carbon oxides, Hydrogen chloride gas
Other decomposition products: No data available
In the event of fire: see section 5

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat: 90 mg/kg

LC50 Inhalation - Rat: 250 ppm (8h)

Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Open irritation test - 24 h

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Severe eye irritation

Respiratory or skin sensitization: May cause sensitization by skin contact.

Germ cell mutagenicity: May alter genetic material.



Carcinogenicity: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.
Possible human carcinogen

IARC: 2A - Group 2A: Probably carcinogenic to humans (Epichlorohydrin)

NTP: Reasonably anticipated to be a human carcinogen (Epichlorohydrin)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available

Specific target organ toxicity - single exposure: No data available

Specific target organ toxicity - repeated exposure: No data available

Aspiration hazard: No data available

Additional Information

RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough

Stomach - Irregularities - Based on Human Evidence

Section 12. Ecological Information

Toxicity

Toxicity to fish

LC50 - Pimephales promelas (fathead minnow) - 10.6 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

LC50 - Daphnia magna (Water flea) - 21 mg/l - 48 h

Persistence and degradability: No data available

Bioaccumulative potential: No data available

Mobility in soil: No data available

Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.



Section 14. Transport Information

DOT (US)

UN number: 2023

Class: 6.1(3)

Packing group: II

Proper shipping name: Epichlorohydrin

Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2023

Class: 6.1(3)

Packing group: II

EMS-No: F-E, S-D

Proper shipping name: Epichlorohydrin

Marine pollutant: Yes

IATA

UN number: 2023

Class: 6.1(3)

Packing group: II

Proper shipping name: Epichlorohydrin

Section 15. Regulatory Information

DOT (US)

UN number: 2023

Class: 6.1(3)

Packing group: II

Proper shipping name: Epichlorohydrin

Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2023

Class: 6.1(3)

Packing group: II

EMS-No: F-E, S-D

Proper shipping name: Epichlorohydrin

Marine pollutant: Yes

IATA

UN number: 2023



Class: 6.1(3)

Packing group: II

Proper shipping name: Epichlorohydrin

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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