

# G.J. CHEMICAL COMPANY, INC. SAFETY DATA SHEET

## 1. PRODUCT IDENTIFIER

1.1 PRODUCT NAME -----> **EPICHLOROHYDRIN**

PRODUCT NUMBER(S)-----> 150800

TRADE NAMES AND SYNONYMS--> 1-Chloro-2,3-Epoxy Propane

CAS-No: 106-89-8

Chemical Family: Chlorinated Hydrocarbon

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

RECOMMENDED USE: Mfg. of Epoxy Resins, Textiles, Printing Inks and Dyes, Mfg. Ion Exchange Resins.

USES ADVISED AGAINST: No information available

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company: **G.J. CHEMICAL CO., INC.**

Address: **40 VERONICA AVENUE  
SOMERSET, NJ 08873**

Telephone: **1-973-589-1450**

Fax: **1-973-589-3072**

1.4 Emergency Telephone Number

Emergency Phone: **1-800-424-9300 (CHEMTREC)**

## 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29CFR 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

## 2.2 GHS Label elements, including precautionary statements



Signal word            **DANGER**

### Hazard statement(s)

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 Serious eye damage

H350 May cause cancer.

H402 Harmful to aquatic life.

### Precautionary statement(s)

#### Prevention:

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.

#### Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

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 IF INHALED:** Remove victim to fresh air and keep at rest in a position comfortable for breathing.

**P305 + P351 + P338 IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**P308 + P313 IF exposed or concerned:** Get medical advice/ attention

**P333 + P313 If skin irritation or rash occurs:** Get medical advice/ attention.

**P362** Take off contaminated clothing and wash before reuse.

**P370 + P378** In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

**Storage:**

**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.

**Disposal:**

**P501** Dispose of contents/ container to an approved waste disposal plant.

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS: Rapidly absorbed through skin**

### **3. INGREDIENTS**

#### **3.1 SUBSTANCE:**

<b>Ingredient</b>	<b>CAS No.</b>	<b>% by WT. Range</b>	<b>CLASSIFICATION</b>
Epichlorohydrin	106-89-8 EC-No.203-439-8 Index-No.603-026-00-6 Reg.-No.01-2119457436-33-XXXX	99+	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
Cis-1, 3- Dichloropropene	10061-01-5	.04	same as Epichlorohydrin plus STOT-SE (Cat. 3) Respiratory Sys., H335 Aspiration Hazard (Category 1), H304 Chronic aquatic toxicity (Category 1), H412
Trans-1, 3- Dichloropropene	10061-02-6	.03	
1, 2, 3-Trichloropropene	96-18-4 EC-No. 202-486-1	>.01	

3.2 MIXTURE: Not applicable

#### 4. FIRST-AID MEASURES

##### 4.1 DESCRIPTION OF FIRST AID MEASURES:

###### EYE CONTACT: EPICHLOROHYDRIN

**\*\*FIRST AID:** Flush eyes with water for 15 minutes while holding eyelids open to completely flush. Remove contact lenses, if worn, after 1 to 2 minutes of flush. Rinse continuously with water while on the way to a physician.

###### SKIN CONTACT: EPICHLOROHYDRIN

**\*\*FIRST AID:** Immediately remove contaminated clothing or shoes. Wipe excess from skin and flush with plenty of water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse clothing until thoroughly cleaned. Get medical attention. Contaminated leather articles cannot be decontaminated and should be destroyed to prevent reuse.

###### INHALATION: EPICHLOROHYDRIN

**\*\*FIRST AID:** Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

###### INGESTION: EPICHLOROHYDRIN

**\*\*FIRST AID:** Do not give liquids if victim is unconscious or very drowsy. Otherwise give no more than 2 glasses of water and induce vomiting by giving 30cc (2tablespoons) syrup of Ipecac. If Ipecac is unavailable, give 2 glasses of water and induce vomiting by touching finger to back of victim's throat. Keep victims head below hips while vomiting. Get medical attention immediately.

##### 4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED:

**Eye:** Based on testing, this product is corrosive to the eyes and may cause severe damage including blindness. Both liquid and vapors are irritating to the eye.

**Skin:** Based on testing this product is corrosive to the skin. Vapors are also

irritating to the skin. May cause skin sensitization. This product is toxic and is harmful if absorbed through the skin. May cause kidney and liver damage. **Inhalation:** Based on testing this product may cause severe irritation to the nose, throat, and respiratory tract. May cause lung sensitization and respiratory depression. This product is toxic and harmful if inhaled; may produce liver, kidney and lung damage and CNS depression.

**Ingestion:** This product is toxic and harmful if swallowed; may produce liver and kidney damage and CNS depression.

**Signs and Symptoms:** Irritation as noted above. Kidney damage may be evidenced by changes in urine output, urine appearance or edema (swelling from fluid retention). Liver damage may be evidenced by loss of appetite, jaundice and sometimes pain in the upper abdomen on the right side. Lung damage may be evidenced by shortness of breath, especially on exertion, and may be accompanied by chronic cough. Lung sensitization may be evidenced by wheezing, shortness of breath and cough. Early to moderate CNS depression may be evidenced by giddiness, headache, dizziness and nausea; in extreme cases unconsciousness and death may occur.

**Medical Conditions Aggravated by Exposure:** Pre-existing eye, skin, respiratory disorders may be aggravated by exposure to this product. Impaired liver, kidney and lung functions may be aggravated by exposure to this product. Skin and lung allergies may increase the chance of developing allergy symptoms from exposure to this product.

#### **4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:**

**Notes to physician:** If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage should be considered following intubation with cuffed endotracheal tube.

### **5. FIRE FIGHTING MEASURES**

FLASH POINT: 32°C (90°F) CC  
AUTO-IGNITION TEMP: 415°C (779°F)

LEL %:3.8 (V)  
UEL %:21 (V)

**5.1 SUITABLE EXTINGUISHING MEDIA:** Foam--> x CO2--> x Dry Chemical-->  
x Water-fog--> x Other-->

Unsuitable extinguishing media: Do not use waterjet.

### **5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR**

**MIXTURE:** At high temperatures this product decomposes to give off hydrogen chloride gas plus other toxic and irritating vapors such as phosgene, chlorine. Vapor may form flammable mixture in atmosphere that contains a high percentage of oxygen. Keep containers tightly closed. Flammable liquid; isolate from all sources of ignition. May polymerize and burst containers when exposed to extreme heat. Container areas exposed to direct flame should be cooled with a large quantity of water to prevent weakening of the container structure.

**CONDITIONS OF FLAMMABILITY:** Flammable in the presence of a source of ignition when the temperature is above the flash point.

**HAZARDOUS COMBUSTION PRODUCTS:** Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides, hydrogen chloride, chlorine and phosgene evolve when this material undergoes combustion.

**5.3 ADVICE FOR FIREFIGHTERS:** Shut off source. Water fog may be used to cool closed containers to prevent pressure build up and possible auto ignition or explosion when exposed to extreme heat. Do not enter confined spaces without full bunker gear (helmet with face shield, bunker coats gloves and boots, including a positive pressure NIOSH/MSHA approved self-contained breathing apparatus (SCBA).

## **6. ACCIDENTAL RELEASE MEASURES**

**6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** Flammable Liquid; Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations. Minimize breathing vapors and skin contact, Clean up personnel should have NIOSH/MSHA approved positive pressure self-contained breathing apparatus.

### **6.2 ENVIRONMENTAL PRECAUTIONS:**

Keep out of water sources, drains and sewers. Do not flush into surface water or sanitary sewer system

### **METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP:**

Methods for cleanup and containment:

**Warning!** Do not use clay-based absorbents such as Speedi-dri, Millsorb etc. as very exothermic explosive reaction will occur. Use Soda Ash  $\text{Na}_2\text{CO}_3$  in conjunction with water, which will react with the epichlorohydrin to yield glycerine: Use explosion proof equipment. Shut off valves, contain spill, keep out of water sources and sewers,

Large Spills> Evacuate the hazard area of unprotected personnel. Wear appropriate respirator and protective clothing. Shut off source of leak only if safe to do so. Dike and contain. If vapor cloud forms, water fog or chemical foam may be used to suppress, contain run off. Remove with vacuum trucks or pump to storage/salvage vessels.

Small Spills> Take up with sand or other chemically neutral material and place in non-leaking containers; seal tightly for proper disposal.

If spill occurs indoors, turn off air conditioning and/or heat systems to prevent vapors from contaminating entire building.

Methods for disposal:

Soak up residue with an absorbent such as sand or other chemically inert material; do not use clay; place in non-leaking container for proper disposal. Flush area with water to remove trace residue; dispose of flush solution as above.

**REPORTABLE QUANTITY (RQ): 100 POUNDS**

The Superfund Amendments and Reauthorization Act (SARA) Section 304 requires that a release equal to or greater than the reportable quantity for this substance be immediately reported to the local emergency planning committee and the state emergency response commission (40 CFR 355.40). If the release of this substance is reportable under CERCLA Section 103, the national response center must be notified immediately at (800) 424-8882 or (202) 426-2675 in the metropolitan Washington, D. C. area (40 CFR 302.6).

**6.4 REFERENCE TO OTHER SECTIONS:** See Sections 8 and 13.

**7. HANDLING AND STORAGE**

**7.1 PRECAUTIONS FOR SAFE HANDLING:** Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not take internally. Danger! Corrosive to the eyes and skin. Epichlorohydrin is a reactive material and a skin sensitizer. It may be a respiratory sensitizer. Wash with soap and water before eating, drinking, smoking, personal grooming, or using toilet facilities. Launder contaminated clothing before reuse. Attacks some kinds of plastic, rubber and coatings. Penetrates leather easily. Contaminated leather articles, including shoes, cannot be decontaminated and should be destroyed to prevent reuse.

**Warning!** Flammable liquid. Keep liquid and vapor away from heat, sparks and flame. Surfaces that are sufficiently hot may ignite liquid product in the absence of sparks or flame.

**STATIC HAZARD:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 “Flammable and Combustible Liquids” and National Fire Protection Association (NFPA 77) “Recommended Practice on Static Electricity”.

**7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Follow maximum allowed pile heights specified in the BOCA codes or the NFPA manual. Local fire authorities should be notified for storage of this material in any quantity. Local permits are required for storage in warehouse quantities. Recommended storage temperature: 15 - 25°C. Store large quantities only in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Keep containers closed when not in use. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapors are gone. Vapors may accumulate and travel to ignition sources distant from the handling site; flash fire can result.

**Warning!** Epichlorohydrin and water form corrosive 2-phase systems which should be avoided in storage; such situations are corrosive to metal and could lead to uncontrollable polymerization. Storage vessels should be maintained so as to exclude air such as by use of an inert gas blanket to prevent formation of flammable or explosive mixtures. The oxygen content should be maintained below 9%. Storage class (TRGS 510): 3: Flammable liquids

**CONTAINER WARNINGS:** Keep containers closed when not in use. Use only with adequate ventilation. Containers, even those that have been emptied, can contain explosive vapors. Containers, even those that have been emptied, can contain hazardous product residues.

Do not cut, drill, grind, weld or perform similar operations on or near containers. Do not pressurize drum containers to empty them. Static electricity may accumulate and create a fire hazard. Ground fixed equipment. Bond and ground transfer containers and equipment. Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner.

**7.3 SPECIFIC END USES:** Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

**8. EXPOSURE CONTROL (PERSONAL PROTECTION)**

**8.1 CONTROL PARAMETERS:**

Ingredient	CAS No.	% by WT. Range	Exposure Limits
Epichlorohydrin	106-89-8 EC-No.203-439-8 Index-No.603-026-00-6 Reg.-No.01-2119457436-33-XXXX	99-100	2.0ppm PEL (OSHA) 0.5ppm TWA (ACGIH)
Cis-1, 3- Dichloropropene	10061-01-5	.04	1.0ppm TWA (ACGIH)
Trans-1, 3- Dichloropropene	10061-02-6	.03	1.0ppm TWA (ACGIH)
1, 2, 3-Trichloropropene	96-18-4 EC-No. 202-486-1 Reg.-No. 01-2119475787-18-XXXX	>.01	N/A

Key: (PEL) = Permissible Exposure Limit OSHA  
 (TLV) = Threshold Limit Value OSHA & ACGIH  
 (STEL) = Short Term Exposure Limit ACGIH  
 (WEEL) = USA. Workplace Environmental Exposure Levels  
 (TWA) = Time Weighted Average  
 CAS = Chemical Abstracts Registry Number  
 IDLH = Immediate Danger to Life and Health  
 N.E. =None Established

**8.2 EXPOSURE CONTROLS**

**EXPOSURE GUIDELINES:** Consider the potential hazards of this material (Section 3), applicable exposure limits, job activities, and other substances in the work



place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

**ENGINEERING CONTROLS:** Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

**RESPIRATORY PROTECTION:** The specific respirator selected must be based on contamination levels found in the work place, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA):

Avoid breathing vapor. If exposure may or does exceed occupational ACGIH TWA limits use a NIOSH/MSHA approved respirator to prevent overexposure. In accordance with 29CFR 1910.134 use either a full face-piece, atmosphere-supplying respirator or air purifying respirator for organic vapors.

**BODY CLOTHING:** Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged contact with this substance. Use chemical resistant apron or other impervious clothing. Flame retardant antistatic protective clothing. Remove, wash and dry contaminated clothing before reuse.

**SKIN PROTECTION:** Employee must wear appropriate protective gloves to prevent contact with this substance.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

**HYGIENE:** Use good personal hygiene practices, wash hands before eating, drinking, smoking or using toilet facilities.

**EYE/FACE PROTECTION:** Use chemical safety goggles plus full face shield. Emergency shower and eyewash should be in close proximity.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES:**

Epichlorohydrin 106-89-8

APPEARANCE:

Mobile liquid

COLOR:

Colorless

ODOR:	Irritating chloroform like odor
ODOR THRESHOLD:	No data available
pH:	No data available
MOLECULAR WEIGHT:	92.52 amu
MELTING POINT:	-57 °C (-71 °F)
BOILING POINT:	115 - 117 °C (239 - 243 °F)
SPECIFIC GRAVITY:	1.18@25°C
DENSITY (25°C):	1.183@25°C
VAPOR PRESSURE:	13.8 mm Hg @ 21.1°C (70.0°F)
VAPOR DENSITY:	3.19
WATER SOLUBILITY:	6.69%@68°F
PARTITION COEFFICIENT N-OCTANOL/WATER	No data available
FLASH POINT:	32°C (90°F) CC
EVAPORATION RATE (BUTYL ACETATE=1):	1.35
UPPER FLAMMABILITY LIMIT:	21% (V)
LOWER FLAMMABILITY LIMIT:	3.8% (V)
AUTO IGNITION TEMPERATURE:	415°C (779°F)
DECOMPOSITION TEMPERATURE:	No data available
VISCOSITY:	No data available
EXPLOSIVE PROPERTIES:	No data available
OXIDIZING PROPERTIES:	No data available
9.2 OTHER INFORMATION:	No data available

## 10. STABILITY AND REACTIVITY INFORMATION

10.1 REACTIVITY: No data available.

10.2 CHEMICAL STABILITY: Unstable ( ) Stable (X)

10.3 POSSIBILITY OF HAZARDOUS REACTIONS: Vapor may form flammable mixture in atmosphere that contains a high percentage of oxygen.

HAZARDOUS POLYMERIZATION: May occur (X) Will not occur ( )

10.4 CONDITIONS TO AVOID: Heat, Sparks, Flame and temperatures above 600°F. Avoid storage with water wherein a slow exothermic reaction may be initiated. An exotherm begins at 617°F.

10.5 INCOMPATIBLE MATERIALS: Reacts violently with acids, bases, ammonia, amines and oxidizing agents. Avoid Lewis and Bronsted Acid and Bases such as boron fluoride and transition metals such as Halides, which may produce uncontrollable polymerization. Metals to be avoided include aluminum, copper, magnesium, zinc, lead and

their alloys.

**10.6 HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon Monoxide, hydrogen chloride (corrosive and poisonous), and unidentified organic compounds may be formed during combustion. Exposure to these gases can cause severe lung damage. Hydrogen chloride can also be produced by thermal decomposition.

## **11. TOXICOLOGICAL INFORMATION**

### **11.1 INFORMATION ON TOXICOLOGICAL EFFECTS:**

Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x

#### **ACUTE HEALTH EFFECTS:**

Effects of overexposure:

**Eye>** Based on testing, this product is corrosive to the eyes and may cause severe damage including blindness. Both liquid and vapors are irritating to the eye.

**Skin>** Based on testing this product is corrosive to the skin. Vapors are also irritating to the skin. May cause skin sensitization. This product is toxic and is harmful if absorbed through the skin. May cause kidney and liver damage.

**Inhalation>** Based on testing this product may cause severe irritation to the nose, throat, and respiratory tract. May cause lung sensitization and respiratory depression. This product is toxic and harmful if inhaled; may produce liver, kidney and lung damage and CNS depression.

**Ingestion>** This product is toxic and harmful if swallowed; may produce liver and kidney damage and CNS depression.

**Signs and Symptoms:** Irritation as noted above. Kidney damage may be evidenced by changes in urine output, urine appearance or edema (swelling from fluid retention). Liver damage may be evidenced by loss of appetite, jaundice and sometimes pain in the upper abdomen on the right side. Lung damage may be evidenced by shortness of breath, especially on exertion, and may be accompanied by chronic cough. Lung sensitization may be evidenced by wheezing, shortness of breath and cough. Early to moderate CNS depression may be evidenced by giddiness, headache, dizziness and nausea; in extreme cases unconsciousness and death may occur.

**Medical Conditions Aggravated by Exposure**> Pre-existing eye, skin, respiratory disorders may be aggravated by exposure to this product. Impaired liver, kidney and lung functions may be aggravated by exposure to this product. Skin and lung allergies may increase the chance of developing allergy symptoms from exposure to this product.

**ACUTE TOXICITY:**

The effects of overexposure shown in Section II are based on acute toxicity profiles. Typical values are:

Ingredient	Oral LD50 (Rat)	Skin LD50 (Rabbit)	Inhalation LC50
Epichlorohydrin	90mg/kg	754mg/kg	250ppm/8hr

**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

**MUTAGENIC EFFECTS:** Although the significance is unknown, chromosomal changes have been observed in human lymphocytes. Epichlorohydrin has also been found to be mutagenic in in-vitro assays with bacteria and cultured human cells. Germ cell mutagenicity: May alter genetic material.

**CARCINOGEN STATUS:**

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.

Epichlorohydrin has been shown to be carcinogenic in animal inhalation, intubation and drinking water exposure studies.

**REPRODUCTIVE TOXICITY:** ECH has been reported to produce infertility in male rats, but no reproductive effects were observed in females.

**Specific target organ toxicity (STOT-SE) - single exposure (Globally Harmonized System):** no data available

Specific target organ toxicity (STOT-RE) - repeated exposure (Globally Harmonized System): no data available

ASPIRATION HAZARD: No information available.

11.2 ADDITIONAL DATA: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.

## 12. ECOLOGICAL INFORMATION

### DANGEROUS TO AQUATIC LIFE IN HIGH CONCENTRATIONS:

May be dangerous if it enters water intakes.  
Notify local health and pollution control officials.  
Notify operators of nearby water intakes.

#### 12.1 AQUATIC TOXICITY (Acute):

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

12.2 PERSISTENCE AND DEGRADABILITY: Expected to be inherently biodegradable. Rapidly hydrolyzes in water and soil.

12.3 BIOACCUMULATIVE POTENTIAL: Not expected to bio-accumulate significantly.

Biological Oxygen Demand (BOD): No data available

12.4 MOBILITY IN SOIL: No data available

#### 12.5 RESULTS OF PBT AND vPvB:

PBT assessment results: This substance is not classified as PBT or vPvB.

12.6 OTHER ADVERSE EFFECTS: Harmful to aquatic life.

## 13. DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS: Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment, and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. Incinerate under controlled conditions in a permitted facility.

**CONTAMINATED PACKAGING:** Dispose of as unused product.

**RCRA:** The unused product is a RCRA hazardous waste if discarded. The RCRA ID number is: U041

If the waste is a spent solvent, the appropriate spent solvent code should be used.

**DISPOSAL MUST BE IN ACCORDANCE WITH STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE, 48 CFR 262**

## **14. TRANSPORT INFORMATION**

### **Land Transport (DOT)**

- 14.1 USDOT ID Number-----> UN2023
- 14.2 USDOT Shipping Name-----> Epichlorohydrin UN2023, Guide 30
- 14.3 USDOT Hazard Classification-----> 6.1 (poison)  
USDOT Label Codes-----> 6.1, 3 ( Poison, Flammable Liquid)
- 14.4 USDOT Package Code-----> II
- 14.5 Marine Pollutant-----> Yes
- 14.6 Special precautions for user-----> Yes  
Emergency Response Guide-----> 131P  
Reportable quantity-----> 100lbs.

### **Sea Transport (IMDG)**

- 14.1 ID Number-----> UN2023
- 14.2 Proper shipping name-----> EPICHLOROHYDRIN
- 14.3 Hazard Classification-----> 6.1, 3 ( Poison, Flammable Liquid)  
Label Codes-----> 6.1, 3
- 14.4 Package Code-----> II
- 14.5 Marine Pollutant-----> Yes
- 14.6 Special precautions for user-----> Yes  
EMS-Number-----> F-E, S-D

### **Air Transport (IATA)**

- 14.1 ID Number-----> UN2023
- 14.2 Proper shipping name-----> Epichlorohydrin
- 14.3 Hazard Classification-----> 6.1, 3 (Poison, Flammable Liquid)  
Label Codes-----> 6.1, 3
- 14.4 Package Code-----> II
- 14.5 Environmental hazard-----> None
- 14.6 Special precautions for user-----> Yes

## **15. REGULATORY INFORMATION**

### **15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCE OR MIXTURE:**

#### **SARA TITLE III (Superfund Amendment and Reauthorization Act)**

**SECTION 302 AND 304: Extremely Hazardous Substance List (40 CFR 355) - Listed**

**1-chloro-2-epoxy propane CAS 106-89-8 - TPQ - 1000lbs.**

**SECTION 313: Toxic Chemicals Listing (40 CFR 372.65) - Listed**

**1-chloro-2-epoxy propane CAS 106-89-8**

**SECTION 311/312: Hazard Categorization (40 CFR 370) - Acute Health Hazard, Chronic Health Hazard, Fire Hazard and Reactive Hazard.**

#### **CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)**

**SECTION 102(A) Hazardous Substances (40 CFR 302.4) - Listed**

**1-chloro-2-epoxy propane CAS 106-89-8**

**Reportable Quantity – 100lbs.**

**SECTION 101(14) Reportable Quantity: 100lbs.**

**Massachusetts Right to Know Components**

**Epichlorhydrin CAS-No.106-89-8**

**Pennsylvania Right to Know Components**

**Epichlorhydrin CAS-No.106-89-8**

**New Jersey Right to Know Components**

**Epichlorhydrin CAS-No.106-89-8**

**California Prop. 65 Components**

**WARNING! This product contains a chemical known to the State of California to cause cancer. Epichlorhydrin CAS-No.106-89-8**

**WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Epichlorhydrin CAS-No.106-89-8**

#### **TSCA (Toxic Substance Control Act)**

**Epichlorhydrin CAS 106-89-8 is listed on the TSCA Inventory.**

#### **International Inventories:**

<b><u>Country or Region</u></b>	<b><u>Inventory Name</u></b>	<b><u>On inventory yes/no</u></b>
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<u>Australia</u>	Australian Inventory of Chemical Substances (AICS)	Yes
<u>Canada</u>	Domestic Substances List (DSL)	Yes
<u>Canada</u>	Non-Domestic Substances List (NDSL)	No
<u>China</u>	Inventory of Existing Chemical Substances in China (IECSC)	Yes
<u>Europe</u>	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
<u>Europe</u>	European List of Notified Chemical Substances (ELINCS)	No
<u>Japan</u>	Inventory of Existing and New Chemical Substances (ENCS)	Yes
<u>Japan</u>	Industrial Safety & Health Law Inventory (ISHL)	Yes
<u>Korea</u>	Existing Chemicals List (ECL)	Yes
<u>Mexico</u>	National Inventory of Chemical Substances (INSQ)	Yes
<u>New Zealand</u>	New Zealand Inventory	Yes
<u>Philippines</u>	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
<u>Switzerland</u>	Inventory of Notified New Substances (CHINV)	Yes
<u>Taiwan</u>	National Existing Chemical Inventory (NECI)	Yes
<u>United States &amp; Puerto Rico</u>	Toxic Substances Control Act Inventory	Yes

**15.2 CHEMICAL SAFETY ASSESSMENT: A chemical safety assessment has been carried out for this substance.**

## **16. OTHER INFORMATION:**

**HMIS** (Hazardous Materials Identification System)

**Hazard Rating:**

**4-Extreme**

**3-High**

**2-Moderate**

**1-Slight**

**0-Insignificant**

**NFPA RATINGS (SCALE 0-4):**    **Health=3**    **Fire=3**    **Reactivity=2**  
**HMIS (SCALE 0-4):**            **Health=3**    **Fire=3**    **Reactivity=2**    **PPE=H**

**Hazard statement(s) from Section 2 and 3:**

**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 Serious eye damage**

**H350 May cause cancer.**

**H402 Harmful to aquatic life.**

**Date of preparation-----> February 24, 2005**

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**Revision Content-----> General update all sections**

**Revision Date-----> January 23, 2019**

**Prepared by-----> T.G. Fenstermaker Jr.**

Acronyms:

ACGIH - American Conference of Governmental Industrial Hygienists

AIHA - American Industrial Hygiene Association

ANSI - American National Standards Institute



API	-	American Petroleum Institute
CERCLA	-	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	-	U.S. Department of Transportation
EPA	-	U.S. Environmental Protection Agency
HMIS	-	Hazardous Materials Information System
IARC	-	International Agency For Research On Cancer
MSHA	-	Mine Safety and Health Administration
NFPA	-	National Fire Protection Association
NIOSH	-	National Institute of Occupational Safety and Health
NOIC	-	Notice of Intended Change (Proposed change to ACGIH TLV)
NTP	-	National Toxicology Program
OPA	-	Oil Pollution Act of 1990
OSHA	-	U.S. Occupational Safety & Health Administration
PEL	-	Permissible Exposure Limit (OSHA)
RCRA	-	Resource Conservation and Recovery Act
REL	-	Recommended Exposure Limit (NIOSH)
SARA	-	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	-	Self-Contained Breathing Apparatus
STEL	-	Short-Term Exposure Limit (generally 15 minutes)
TLV	-	Threshold Limit Value
TSCA	-	Toxic Substances Control Act
TWA	-	Time Weighted Average (8hr.)
WHMIS	-	Canadian Workplace Hazardous Materials Information System

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