

# Material Safety Data Sheet

## (R)-(-)-Epichlorohydrin, 99%

ACC# 02755

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** (R)-(-)-Epichlorohydrin, 99%

**Catalog Numbers:** AC349010000, AC349010010

**Synonyms:** (R)-(-)-1-Chloro-2,3-epoxypropane.

#### Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

**For information in North America, call:** 800-ACROS-01

**For emergencies in the US, call CHEMTREC:** 800-424-9300

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
51594-55-9	(R)-(-)-Epichlorohydrin	99	424-280-2

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

**Appearance:** clear, colorless. **Flash Point:** 28 deg C.

**Danger!** Corrosive. Causes severe eye irritation. **Flammable liquid and vapor.** Harmful if swallowed, inhaled, or absorbed through the skin. May cause allergic respiratory and skin reaction. Causes severe respiratory tract irritation. Cancer suspect agent. May cause cancer based on animal studies. Causes skin burns. May cause liver and kidney damage. Keep refrigerated. (Store below 4°C/39°F.) May cause reproductive and fetal effects.

**Target Organs:** Kidneys, liver, skin.

#### Potential Health Effects

**Eye:** Causes severe eye irritation.

**Skin:** Harmful if absorbed through the skin. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Skin contact causes itching, erythema (redness), and severe burns, which may appear after a latent period ranging from several minutes to days.

**Ingestion:** Harmful if swallowed. May cause systemic toxicity with acidosis. Causes gastrointestinal tract irritation.

**Inhalation:** Harmful if inhaled. May cause asthmatic attacks due to allergic sensitization of the respiratory tract. Causes severe respiratory tract irritation.

**Chronic:** Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause liver and kidney damage. May cause cancer according to animal studies. May cause reproductive and fetal effects.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure.

**Ingestion:** If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. May polymerize explosively when involved in a fire. May be ignited by heat, sparks, and flame. Containers may explode if exposed to fire.

**Extinguishing Media:** For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Use water spray to cool fire-exposed containers. Do NOT use straight streams of water. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Cool containers with flooding quantities of water until well after fire is out.

**Flash Point:** 28 deg C ( 82.40 deg F)

**Autoignition Temperature:** 411 deg C ( 771.80 deg F)

**Explosion Limits, Lower:** 3.8

**Upper:** 21.0

**NFPA Rating:** (estimated) Health: 3; Flammability: 3; Instability: 2

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Prevent spreading of vapors through sewers, ventilation systems and confined areas.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Wash hands before eating. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Do not ingest or inhale. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:** Keep away from heat, sparks, and flame. Keep away from sources of ignition. Keep refrigerated. (Store below 4°C/39°F.) Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Outside or detached storage is preferred.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
(R)-(-)-Epichlorohydrin	none listed	none listed	none listed
Epichlorohydrin	0.5 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous route	75 ppm IDLH	5 ppm TWA; 19 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** (R)-(-)-Epichlorohydrin: No OSHA Vacated PELs are listed for this chemical. Epichlorohydrin: 2 ppm TWA; 8 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear chemical splash goggles and face shield.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Appearance:** clear, colorless

**Odor:** Irritating chloroform-like odor.

**pH:** Not available.

**Vapor Pressure:** 13 mm Hg @ 20 deg C

**Vapor Density:** 3.29

**Evaporation Rate:** 0.06

**Viscosity:** 1.02 cP @ 25C

**Boiling Point:** 114 deg C

**Freezing/Melting Point:** -57 deg C

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 1.183

**Molecular Formula:** C<sub>3</sub>H<sub>5</sub>ClO

**Molecular Weight:** 92.52

## Section 10 - Stability and Reactivity

**Chemical Stability:** Stable under normal temperatures and pressures.

**Conditions to Avoid:** High temperatures, mechanical shock, ignition sources.

**Incompatibilities with Other Materials:** Acids, bases, ammonia, amines, sodium, zinc, magnesium, aluminum, and halides. Explosive reaction with aniline, trichloroethylene (through the formation of dichloroacetylene), potassium tert-butoxide (ignition), sulfuric acid, or isopropylamine.

**Hazardous Decomposition Products:** Hydrogen chloride, chlorine, phosgene, carbon monoxide, carbon dioxide.

**Hazardous Polymerization:** May occur.

## Section 11 - Toxicological Information

**RTECS#:**

**CAS#** 51594-55-9: RR0427000

**CAS#** 106-89-8: TX4900000

**LD50/LC50:**

Not available.

CAS# 106-89-8:

Draize test, rabbit, eye: 100 mg Severe;  
Draize test, rabbit, eye: 100 mg/24H Moderate;  
Inhalation, rat: LC50 = 250 ppm/8H;  
Oral, mouse: LD50 = 195 mg/kg;  
Oral, rabbit: LD50 = 345 mg/kg;  
Oral, rat: LD50 = 90 mg/kg;  
Skin, rabbit: LD50 = 515 mg/kg;

**Carcinogenicity:**

CAS# 51594-55-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 106-89-8:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 10/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

**Epidemiology:** Carcinogenic in experimental animals and is a suspected human carcinogen.

**Teratogenicity:** Teratogenic tests performed but results inconclusive.

**Reproductive Effects:** No known reproductive effects.

**Mutagenicity:** Acts as a conjugate to mutagenic activity.

**Neurotoxicity:** No information available.

**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Bluegill/Sunfish: LC50 = 35 mg/L; 96 Hr.; Unspecified  
Fish: Goldfish: LC50 = 42 mg/L; 96 Hr.; Static, 23 degrees CFish: LC50 = 36 mg/L; 48 Hr.; Unspecified  
No data available.

**Environmental:** Terrestrial: volatilizes into atmosphere, leaches into soil. Aquatic: Volatilizes into atmosphere and hydrolyzes (half life 5-8 days). Atmospheric: Eventually degrades by photochemically produced hydroxyl radicals (half life 4 days). Slight biodegradation and low bioconcentration.

**Physical:** No information found.

**Other:** Epichlorohydrin would not be expected to bioconcentrate appreciably in aquatic organisms. The log BCF has been estimated to be 0.66.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:**

CAS# 106-89-8: waste number U041.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	DOT regulated - small quantity provisions apply (see 49CFR173.4)	No information available.
<b>Hazard Class:</b>		
<b>UN Number:</b>		
<b>Packing Group:</b>		

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 51594-55-9 is not listed on the TSCA inventory. It is for research and development use only.

CAS# 106-89-8 is listed on the TSCA inventory.

#### Health & Safety Reporting List

CAS# 106-89-8: Effective 10/4/82, Sunset 10/4/92

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 106-89-8: 100 lb final RQ; 45.4 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

CAS# 106-89-8: 1000 lb TPQ

#### SARA Codes

CAS # 106-89-8: immediate, delayed, fire, reactive.

### Section 313

This material contains Epichlorohydrin (CAS# 106-89-8, -%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

### Clean Air Act:

CAS# 106-89-8 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

### Clean Water Act:

CAS# 106-89-8 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

### STATE

CAS# 51594-55-9 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 106-89-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

### California Prop 65

WARNING: This product contains Epichlorohydrin, a chemical known to the state of California to cause cancer. WARNING: This product contains Epichlorohydrin, a chemical known to the state of California to cause male reproductive toxicity.

California No Significant Risk Level: CAS# 106-89-8: 9  $\mu$ g/day NSRL

### European/International Regulations

#### European Labeling in Accordance with EC Directives

##### Hazard Symbols:

T

##### Risk Phrases:

R 10 Flammable.

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 34 Causes burns.

R 43 May cause sensitization by skin contact.

R 45 May cause cancer.

##### Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

### WGK (Water Danger/Protection)

CAS# 51594-55-9: No information available.

CAS# 106-89-8: 3

### Canada - DSL/NDSL

CAS# 106-89-8 is listed on Canada's DSL List.

### Canada - WHMIS

This product has a WHMIS classification of B2, D2A, D2B, D1B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

### Canadian Ingredient Disclosure List

CAS# 106-89-8 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Additional Information

**MSDS Creation Date:** 5/30/2000

**Revision #2 Date:** 10/03/2005

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*