

2-CHLOROETHANOL

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1. Product Identification

Synonym: Ethylene Chlorohydrin
Chemical Name: 2-Chloroethanol
Chemical Formula: C₂H₅ClO
Product Codes: CHEM-590 and others

2. Composition/Information on Ingredients

| Ingredient | CAS No | Percent | Hazardous |
|-----------------|----------|---------|-----------|
| 2-Chloroethanol | 107-07-3 | 100 | Yes |

3. Hazards Identification

Toxicological Data on Ingredients: 2-Chloroethanol: ORAL (LD50): Acute: 71 mg/kg [Rat]. 81 mg/kg [Mouse]. 110 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 67 mg/kg [Rabbit]. 18 mg/kg [Mouse]. 293 mg/kg [Rat].

SAF-T-DATA^(tm) Ratings

Health Rating: 3 - Severe (Poison)

Flammability Rating: 2 - Moderate

Reactivity Rating: 0 - None

Contact Rating: 3 - Severe

Lab Protective Equip: GOGGLES; LAB COAT; RESPIRATOR; PROPER GLOVES

Storage Color Code: Blue (Health)

Potential Acute Health Effects:

Very hazardous in case of skin contact (irritant). Hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death.

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Classified 4 (No evidence.) by NTP. A4 (Not classifiable for human or animal.) by ACGIH.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE].

The substance may be toxic to kidneys, lungs, the nervous system, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

4. First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation.

WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation

when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

5. Fire Fighting Measures

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 425°C (797°F)

Flash Points: CLOSED CUP: 57.26°C (135.1°F). OPEN CUP: 40°C (104°F).

Flammable Limits: LOWER: 4.9% UPPER: 15.9%

Products of Combustion: These products are carbon oxides (CO, CO₂), halogenated compounds. Toxic fumes of phosgene

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat.

Slightly flammable to flammable in presence of oxidizing materials.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Slightly explosive in presence of oxidizing materials.

Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:

Vapors are heavier than air and may flash back to a source of ignition.

Strong oxidizers may cause fires.

Special Remarks on Explosion Hazards: Strong oxidizers may cause explosions.

6. Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:

Flammable liquid. Poisonous liquid.

Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage

Precautions:

Keep locked up. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, alkalis.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame). Do not store above 23°C (73.4°F).

8. Exposure Controls/Personal Protection

Engineering Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 5 CEIL: 1 (ppm) from OSHA (PEL) [United States]

TWA: 16 CEIL: 3 (mg/m³) from OSHA (PEL) [United States]

CEIL: 1 from NIOSH SKIN

CEIL: 3 (mg/m³) from NIOSH SKIN

STEL: 1 (ppm) [United Kingdom (UK)]

Consult local authorities for acceptable exposure limits.

9. Physical and Chemical Properties

Physical state and appearance:

Liquid. (Glycerine-like)

Odor:

Ethereal. (Slight.)

Taste:

Sweet. Pleasant

Molecular Weight:

80.51g/mole

Color:

Clear Colorless.

pH (1% soln/water):

Not available.

Boiling Point:

129°C (264.2°F)

Melting Point:

-67.5°C (-89.5°F)

Critical Temperature:

Not available.

Specific Gravity:

1.2 (Water = 1)

Vapor Pressure:

0.7 kPa (@ 20°C)

Vapor Density:

2.78 (Air = 1)

Volatility:

Not available.

Odor Threshold:

Not available.

Water/Oil Dist. Coeff.:

The product is equally soluble in oil and water; log(oil/water) = -0.1

Ionicity (in Water):

Not available.

Dispersion Properties:

Dispersed in methanol, n-octanol.

Very slightly dispersed in diethyl ether.

See solubility in water, methanol, n-octanol, acetone.

Solubility:

Easily soluble in cold water, hot water.

Soluble in methanol, n-octanol, acetone.

Very slightly soluble in diethyl ether.

10. Stability and Reactivity

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability:

Heat, ignition sources, incompatible materials, water, steam. When heated to decomposition, it emits highly toxic fumes of phosgene

Incompatibility with various substances:

Reactive with oxidizing agents, alkalis.

Slightly reactive to reactive with moisture.

Corrosivity: Not available.

Special Remarks on Reactivity: Will react with water or steam to produce toxic and corrosive fumes.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

11. Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact.

Toxicity to Animals:

Acute oral toxicity (LD50): 71 mg/kg [Rat].

Acute dermal toxicity (LD50): 18 mg/kg [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: Classified 4 (No evidence.) by NTP. A4 (Not classifiable for human or animal.) by ACGIH.

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast.

DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE].

May cause damage to the following organs: kidneys, lungs, the nervous system, liver, upper respiratory tract.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (irritant).

Hazardous in case of skin contact (permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (fetotoxicity, developmental abnormalities) and may affect genetic material (mutagenicity) based on animal data

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin: Causes skin irritation. May be absorbed through skin. May affect behavior and respiratory system (dyspnea) if absorbed through skin.

Eyes: Causes eye irritation.

Inhalation: Harmful if inhaled. Causes respiratory tract and mucous membrane irritation. May affect behavior, (general depressed activity, dizziness, visual disturbances), respiration (dyspnea, cyanosis), blood, liver, cardiovascular system, and urinary system.

Ingestion: Harmful if swallowed. Causes gastrointestinal tract irritation (nausea, vomiting, diarrhea). May affect behavior (general depressed activity), respiration (dyspnea), liver, metabolism, urinary system, and endocrine system.

12. Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 83.7 mg/l 96 hours [Fathead Minnow].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the product itself.

Special Remarks on the Products of Biodegradation: Not available.

13. Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14. Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Ethylene Chlorohydrin, Poison Inhalation Hazard Zone B UNNA: 1135 PG: I

Special Provisions for Transport: Not available.

15. Regulatory Information

Federal and State Regulations:

New York release reporting list: 2-Chloroethanol

Rhode Island RTK hazardous substances: 2-Chloroethanol

Pennsylvania RTK: 2-Chloroethanol

Florida: 2-Chloroethanol

Minnesota: 2-Chloroethanol

Massachusetts RTK: 2-Chloroethanol

New Jersey: 2-Chloroethanol

California Director's List of Hazardous Substances: 2-Chloroethanol

TSCA 8(b) inventory: 2-Chloroethanol

SARA 302/304/311/312 extremely hazardous substances: 2-Chloroethanol

CERCLA: Hazardous substances.: 2-Chloroethanol: 1 lbs. (0.4536 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F).

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).

CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R26/27/28- Very toxic by inhalation, in contact with skin and if swallowed.

R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S7/9- Keep container tightly closed and in a well-ventilated place.

S28- After contact with skin, wash immediately with plenty of water

S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 4

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves.

Lab coat.

Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

16. Other Information

References: Not available.

Other Special Considerations: Not available.

Product Use:

Laboratory Reagent and Consumer Hobby

Revision Information:

No Changes.

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