

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name 2-Chloroethanol (Ethylene Chlorohydrin) Solution Reference Material in Water (Set)

1.2 Other means of identification

Product number CPRM5158
Other names CH₂ClCH₂OH; Ethanol, 2-chloro-; 2-CHLORETHANOL

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.
Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.
Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou
Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175
Service hours 'Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 2, Oral
Acute toxicity - Category 1, Dermal
Acute toxicity - Category 2, Inhalation

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed
H310 Fatal in contact with skin
H330 Fatal if inhaled

Precautionary statement(s)

Prevention
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P262 Do not get in eyes, on skin, or on clothing.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
Response
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P316 Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P320 Specific treatment is urgent (see ... on this label).

Storage	P405 Store locked up.
	P403+P233 Store in a well-ventilated place. Keep container tightly closed.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-Chloroethanol (Ethylene Chlorohydrin) Solution Reference Material in Water (Set)	2-chloroethanol	107-07-3	203-459-7	100%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

4.2 Most important symptoms/effects, acute and delayed

Very toxic; probable oral lethal dose in humans is 50-500 mg/kg or between 1 teaspoon and 1 ounce for a 70 kg (150 lb.) person. Poisoning causes liver and kidney degeneration and irritates mucous membranes; it may be cumulative. Several fatal cases with brain edema and lung edema have been reported from industrial exposure by inhalation and skin contact. It is more toxic by skin contact than orally. (EPA, 1998)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Minimum/Potential Fatal Human Dose

4= very toxic; probable oral lethal dose (human) 50-500 mg/kg, between 1 teaspoon & 1 ounce for 70 kg person (150 lb).

Absorption, Distribution and Excretion

May be absorbed through the skin.

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Water, alcohol foam, dry chemical, or carbon dioxide.

5.2 Specific hazards arising from the chemical

Its decomposition products will react with water or steam to produce toxic and corrosive fumes of phosgene and hydrogen chloride. Vapors are heavier than air and may flash back to a source of ignition. (EPA, 1998)

5.3 Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

1. Remove all ignition sources. 2. Ventilate area of spill or leak. 3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as a fume hood). Allow sufficient time for evaporating vapors to completely clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. Large quantities can be collected and atomized in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device. Ethylene chlorohydrin should not be allowed to enter a confined space, such as a sewer, because of the possibility of an explosion.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

NO open flames, NO sparks and NO smoking. Above 60°C use a closed system, ventilation and explosion-proof electrical equipment. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong bases, oxidants and food and feedstuffs. Dry. Well closed.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

TLV: 1 ppm as STEL; (skin); A4 (not classifiable as a human carcinogen). MAK: 6.7 mg/m³, 2 ppm; peak limitation category: II(1); skin absorption (H); pregnancy risk group: C

Biological limit values

no data available

8.2 Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles, face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid. Glycerin-like.
Colour	Colourless.
Odour	FAINT ETHEREAL ODOR
Melting point/freezing point	-67.5 °C.
Boiling point or initial boiling point and boiling range	128 - 130 °C. Atm. press.: 1 013 hPa.
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit	Lower flammable limit: 4.9% by volume; Upper flammable limit: 15.9% by volume
Flash point	40.56 °C.
Auto-ignition temperature	425 °C. Remarks: Value from peer reviewed Database. No data available for atm. pressure.
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.0343 POISE @ 20 DEG C
Solubility	greater than or equal to 100 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = -0.06. Remarks: Value from generally accepted authoritative secondary source. No data available for temperature and pH value.
Vapour pressure	6.53 hPa. Temperature: 20 °C.
Density and/or relative density	1.197. Temperature: 20 °C.
Relative vapour density	2.78 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on burning. This produces toxic and corrosive gases of hydrogen chloride and phosgene. Reacts violently with oxidants. This generates fire and explosion hazard. Reacts with water and steam. This produces toxic and corrosive fumes. Reacts with strong bases. This produces ethylene oxide. This generates fire and toxic hazard.

10.2 Chemical stability

It evaporates readily at room temperature

10.3 Possibility of hazardous reactions

MODERATE, WHEN EXPOSED TO HEAT, FLAME OR OXIDIZERS. Mixing ethylene chlorohydrin in equal molar portions with any of the following substances in a closed container caused the temperature and pressure to increase: chlorosulfonic acid, ethylene diamine, and sodium hydroxide, [NFPA 1991]. Ethylenediamine reacts violently with ethylene chlorohydrin. (Lewis, R.J., Sr. 1992. Sax's Dangerous Properties of Industrial Materials, 8th Edition. New York: Van Nostrand Reinhold. pp. 1554.).

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Will react with water or steam to produce toxic & corrosive fumes .

10.6 Hazardous decomposition products

When heated to decomposition, it emits highly toxic fumes of phosgene .

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - rat (male/female) - 77 mg/kg bw.
- Inhalation: concentration resulting in lethal effects in 2-4 out of 6 treated rats - rat (male/female) - 32 ppm.
- Dermal: LD50 - guinea pig - 260 mg/kg bw.

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

A4; Not classifiable as a human carcinogen.

Reproductive toxicity

no data available

STOT-single exposure

The substance is severely irritating to the eyes and respiratory tract. The substance may cause effects on the central nervous system, cardiovascular system, kidneys and liver. This may result in cardiac disorders, low blood pressure, kidney impairment, liver impairment and respiratory failure. Exposure could cause death.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Gambusia affinis - 15.2 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 212 mg/L - 48 h.
- Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 5.6 mg/L - 72 h.
- Toxicity to microorganisms: EC 20 - activated sludge, industrial - > 2 000 mg/L - 30 min. Remarks: Respiration rate.

12.2 Persistence and degradability

2-Chloroethanol is readily biodegradable in screening tests and biological treatment simulations using sewage and activated sludge inocula(1-6). Various investigators have obtained the following results in percent of theoretical BOD in screening tests using sewage

inocula: 57% in 20 days(1); 50% in 10 days(2); and 87% in 10 days(3). The results of these screening tests indicate that acclimation is important in the biodegradation process.

12.3 Bioaccumulative potential

Using the log octanol/water partition coefficient for 2-chloroethanol, 0.03(1), one can estimate a BCF of 0.62 using a recommended regression equation(2, SRC). Therefore, 2-chloroethanol would not be expected to bioconcentrate in aquatic organisms.

12.4 Mobility in soil

The Koc for 2-chloroethanol estimated from molecular structure is 1.33(1). According to a suggested classification scheme, a Koc of this magnitude indicates that 2-chloroethanol will exhibit very high mobility in soil(2).

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1 UN Number

ADR/RID: UN1135 (For reference only, please check.) IMDG: UN1135 (For reference only, please check.) IATA: UN1135 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: ETHYLENE CHLOROHYDRIN (For reference only, please check.) IMDG: ETHYLENE CHLOROHYDRIN (For reference only, please check.) IATA: ETHYLENE CHLOROHYDRIN (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.) IMDG: 6.1 (For reference only, please check.) IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.) IMDG: I (For reference only, please check.) IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No IMDG: No IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
2-chloroethanol	2-chloroethanol	107-07-3	203-459-7
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.

Korea Existing Chemicals List (KECL)	Listed.
--------------------------------------	---------

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date August 08, 2025

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

The occupational exposure limit value should not be exceeded during any part of the working exposure. Do NOT use in the vicinity of a fire or a hot surface, or during welding.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.