Chemical Safety Data Sheet MSDS / SDS

2-chloroethanol SDS

Revision Date:2024-04-25 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name: 2-chloroethanol

CAS: 107-07-3

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: For R&D use only. Not for medicinal, household or other use.

Uses advised against: none

Company Identification

Company: Chemicalbook.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

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

Acute toxicity - Category 2, Inhalation

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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	2-chloroethanol
Common names and synonyms:	2-chloroethanol
CAS number:	107-07-3
EC number:	203-459-7
Concentration:	100%

SECTION 4: First aid measures

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 .

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)

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: Firefighting measures

Suitable extinguishing media

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

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)

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

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.

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.

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

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.

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

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

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.

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

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.

Chemical stability

It evaporates readily at room temperature

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.).

Conditions to avoid

no data available

Incompatible materials

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

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

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.

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.

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.

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).

Other adverse effects

no data available

SECTION 13: Disposal considerations

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

UN Number

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

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.)

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.)

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.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

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.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

Listed.

SECTION 16: Other information

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.