

# SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

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## 1. Identification

### 1.1 GHS Product identifier

Product name            2-chloroethanol

### 1.2 Other means of identification

Product number        -

Other names            CH<sub>2</sub>ClCH<sub>2</sub>OH

### 1.3 Recommended use of the chemical and restrictions on use

Identified uses        For industry use only. Intermediates

Uses advised against   no data available

Company                XiXisys.com

Address                 XiXisys.com

Telephone              XiXisys.com

Fax                        XiXisys.com

Emergency phone  
number                  -

Service hours           Monday to Friday, 9am-5pm (Standard time zone:  
UTC/GMT +8 hours).

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## 2. Hazard identification

### 2.1 Classification of the substance or mixture

Acute toxicity - Oral, Category 2

Acute toxicity - Dermal, Category 1

Acute toxicity - Inhalation, Category 2

## 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.

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

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P310 Immediately call a POISON CENTER/doctor/...

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 ...

### 2.3 Other hazards which do not result in classification

none

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## 3. Composition/information on ingredients

### 3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2-chloroethanol	2-chloroethanol	107-07-3	none	100%

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## 4. First-aid measures

### 4.1 Description of necessary first-aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

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

#### In case of skin contact

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

In case of eye contact

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

If swallowed

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.

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### 5. Fire-fighting measures

#### 5.1 Extinguishing media

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

Wear self-contained breathing apparatus for firefighting if necessary.

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## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

### 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.

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## 7. Handling and storage

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

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

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## 8. Exposure controls/personal protection

### 8.1 Control parameters

## Occupational Exposure limit values

Recommended Exposure Limit: Ceiling value: 1 ppm (3 mg/cu m), skin.

## Biological limit values

no data available

## 8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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

### Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

### Respiratory protection

Wear dust mask when handling large quantities.

### Thermal hazards

no data available

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## 9. Physical and chemical properties

Physical state	clear, colorless liquid.
Colour	COLORLESS GLYCERINE-LIKE LIQ
Odour	FAINT ETHEREAL ODOR
Melting point/ freezing	-63°C

point	
Boiling point or initial boiling point and boiling range	129°C
Flammability	Class IIIA Combustible Liquid: Fl.P. at or above 60°C and below 93.33°C. Flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	Lower flammable limit: 4.9% by volume; Upper flammable limit: 15.9% by volume
Flash point	55°C
Auto-ignition temperature	425°C (USCG, 1999)
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.0343 POISE @ 20 DEG C
Solubility	In water: MISCIBLE
Partition coefficient n-octanol/water (log value)	log Kow = -0.06
Vapour pressure	5 mm Hg ( 20 °C)
Density and/or relative density	1.201
Relative vapour density	2.78 (vs air)
Particle characteristics	no data available

## 10. Stability and reactivity

### 10.1 Reactivity

no data available

### 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 ... .

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### 11. Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 58 mg/kg
- Inhalation: no data available
- Dermal: no data available

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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

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## 12. Ecological information

### 12.1 Toxicity

- Toxicity to fish: LC50 *Pimephales promelas* (fathead minnow) 83.7 mg/l/96 hr (95% confidence limit 75.0-93.4 mg/l), flow-through bioassay with measured concentrations, 24.0°C, dissolved oxygen 7.1 mg/l, hardness 52.3 mg/l calcium carbonate, alkalinity 44.2 mg/l calcium carbonate, and pH 7.22.
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

### 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

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## 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.

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## 14. Transport information

### 14.1 UN Number

ADR/RID: UN1135

IMDG: UN1135

IATA: UN1135

### 14.2 UN Proper Shipping Name

ADR/RID: ETHYLENE CHLOROHYDRIN

IMDG: ETHYLENE CHLOROHYDRIN

IATA: ETHYLENE CHLOROHYDRIN

### 14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

### 14.4 Packing group, if applicable

ADR/RID: I

IMDG: I

IATA: I

## 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 Annex II of MARPOL 73/78 and the IBC Code

no data available

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## 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	none
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.

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## 16. Other information

Information on revision

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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](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/>

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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.