Chemical Safety Data Sheet MSDS / SDS

Dichloroethane 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: Dichloroethane

CAS: 1300-21-6

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

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SECTION 2: Hazards identification

Classification of the substance or mixture

no data available

GHS label elements, including precautionary statements

Signal word: no data available

Hazard statement(s)

no data available

Precautionary statement(s)

Prevention

no data available

Response

no data available

Storage

no data available

Disposal

no data available

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Dichloroethane
Common names and synonyms:	Dichloroethane
CAS number:	1300-21-6
EC number:	215-077-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower.

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. Refer for medical attention .

Most important symptoms/effects, acute and delayed

INHALATION: Irritation of respiratory tract. Salivation, sneezing, coughing, dizziness, nausea, and vomiting. EYES: Irritation, lacrimation, and reddening of conjunctiva. SKIN: Irritation. Prolonged or repeated skin contact can produce a slight burn. INGESTION: Ingestion incidental to industrial handling is not considered to be a problem. Swallowing of substantial amounts could cause nausea, vomiting, faintness, drowsiness, cyanosis, and circulatory failure. (USCG, 1999)

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

Treatment: Treatment is largely supportive. Watch for respiratory depression and dysrhythmias. Obtain arterial blood gases. Administer oxygen if there is evidence of altered mental status or dyspnea. Treat hypotension with volume expansion and vasopression. Use lidocaine or beta-adrenergic blockers for ventricular dysrhythmias. /Dermal exposure/: Remove contaminated clothing. ... Wash affected area with soap and copious amounts or water. /Ocular exposure/: Irrigate the eye for 15 to 20 minutes. Obtain ophthalmic consultation if symptoms persist. After ingestion: Simple aspiration with a nasogastric tube may be effective because these compounds are liquid. Activated charcoal is probably ineffective. /Inhalation/: Move patient away from the contaminated area. Provide a source of oxygen and prepare for mechanical ventilation. Enhancement of Elimination: Hemodialysis or hemoperfusion is not likely to be useful because of the lipophilic properties of these solvents. Hyperbaric oxygen is experimental. ... Antidotes: Acetylcysteine may restore glutathione stores depleted by the production of free radicals; however, its role in limiting carbon tetrachloride-induced hepetotoxicity remains investigational. Supportive Care: Watch for cardiac dysrhythmias, aspiration pneumonitis, hepatotoxicity, and hypoxic encephalopathy. Monitor for dysrhythmias for at least 24 hours and for hepatorenal failure for approximately 3 days. Obtain a chest radiograph, arterial blood gas, ECG, serum creatinine, and hepatic aminotransferase. Check electrolyte imbalance daily. Treat renal failure with dialysis and hepatic failure with fresh frozen

plasma, vitamin K, a low-protein diet, neomycin, and lactulose. Watch fluid and electrolyte balance. Halogenated hydrocarbons

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: When heated to decomposition emits highly toxic fumes to phosgene. Behavior in Fire: Explosion hazard (USCG, 1999)

Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours.Avoid contacting with skin and eye. Use personal protective equipment.Wear chemical impermeable gloves. Ensure adequate ventilation.Remove all sources of ignition. Evacuate personnel to safe areas.Keep people away from and upwind of spill/leak.

Environmental precautions

Personal protection: self-contained breathing apparatus. Do NOT wash away into sewer. 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

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided; Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SECTION 7: Handling and storage

Precautions for safe handling

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. See Chemical Dangers. Cool.Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	Dichloroethane
CAS No.	1300-21-6
	Recommended Exposure Limit: 10 Hour Time-Weighted Average: 100 ppm (400 mg/cu m). NIOSH considers ethylene dichloride; hexachloroethane; 1,1,2,2-tetrachloroethane; and 1,1,2-trichloroethane; to be potential occupational carcinogens. Additionally, NIOSH recommends that ... 1,1-dichloroethane ... be treated in the workplace with caution because of ... structural similarity to the four chloroethanes shown to be carcinogenic in animals.

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 tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. 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

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	1,1-dichloroethane is a colorless liquid with an ether-like odor. Slightly soluble in water and slightly denser than water. Flash point below 70°F. Vapors denser than air. Used to make other chemicals.
Colour:	Colorless, oily liquid
Odour:	Aromatic ethereal odor
Melting point/freezing point:	-35°C
Boiling point or initial boiling point and boiling range:	81-85°C
Flammability:	Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 5.4% by volume; Upper flammable limit: 11.4% by volume
Flash point:	13°C
Auto-ignition temperature:	856° F (USCG, 1999)
Decomposition temperature:	no data available

pH:	Neutral
Kinematic viscosity:	0.464 mPa s at 25 deg C; 0.362 mPa s at 50 deg C
Solubility:	less than 1 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 1.79
Vapour pressure:	83.9mmHg at 25°C
Density and/or relative density:	1.253
Relative vapour density:	3.44 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating and on burning. This produces toxic and corrosive fumes including phosgene (see ICSC 0007) and hydrogen chloride (see ICSC 0163). Reacts violently with strong oxidants, alkali metals, alkaline earth metals and powdered metals. This generates fire and explosion hazard. Attacks aluminium, iron and polyethylene. Contact with strong caustic causes formation of flammable and toxic acetaldehyde gas.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

A very dangerous fire hazard ... when exposed to heat or flame; can react vigorously with oxidizing materials.The vapour is heavier than air and may travel along the ground; distant ignition possible.1,1-DICHLOROETHANE can react vigorously with oxidizing materials. It is incompatible with strong bases. Contact with strong caustics will cause formation of flammable and toxic gas. It will attack some forms of plastics, rubber and coatings. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Oxidizing agents

Hazardous decomposition products

When heated to decomposition, it emits toxic fumes of carbon monoxide, carbon dioxide, hydrogen chloride gas, and phosgene.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 725 mg/kg

Inhalation: LC50 Mouse inhalation 17300 ppm/2 hr

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

CLASSIFICATION: C; possible human carcinogen. BASIS FOR CLASSIFICATION: Based on no human data and limited evidence of carcinogenicity in two animal species (rats and mice) as shown by an increased incidence of mammary gland adenocarcinomas and

hemangiosarcomas in female rats and an increased incidence of hepatocellular carcinomas and benign uterine polyps in mice. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Limited.

Reproductive toxicity

No information is available on the reproductive or developmental effects of ethylidene dichloride in humans. Retarded fetal development (but no malformations) was observed in animals from inhalation exposure to ethylidene dichloride.

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Halogenated aliphatic hydrocarbons are generally considered to be resistant to biodegradation(1). Using an aerobic static-screening-flask test method with a municipal waste water sewage inoculum, 5 and 10 ppm 1,1-dichloroethane incubated for 7 days resulted in 50 and 29% degradation, and 19 and 4% evaporation, respectively(2). No degradation was detected when 1,1-dichloroethane was incubated for 8-16 weeks with uncontaminated samples of subsurface material taken from positions immediately above and below the water table at Pickett, OK and Fort Polk, LA(3). Using well monitoring data from a landfill with a contamination history, the half-life of 1,1-dichloroethane under sulfate-reducing conditions at 10 deg C was approximated to be 115 days(4). A soil microcosm study simulating gas composition in landfill soil covers found that 1,1-dichloroethane was degraded,

but at a rate much slower than 1,2-dichloroethane(5).

Bioaccumulative potential

An estimated BCF of 7 was calculated in fish for 1,1-dichloroethane(SRC), using a log Kow of 1.79(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC). All of the chloroethanes have an elimination half-life of < 2 days as measured by whole body levels in exposed bluegills(4).

Mobility in soil

The measured Koc of 1,1-dichloroethane in soil has been reported to be 30(1,2). Sorption studies using sea sediment taken from the Belgian Continental Shelf of the North Sea in October 1993 determined a Koc of 9.2(3). According to a classification scheme(4), these Koc values suggest that 1,1-dichloroethane is expected to have very high mobility in soil. 1,1-Dichloroethane was readily leached from material representative of waste at land disposal sites(5) and was found in leachate from a simulated landfill lysimeter used to study the codisposal of metal plating sludge and municipal waste(6).

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: UN1184 (For reference only, please check.)
IMDG: UN1184 (For reference only, please check.)
IATA: UN1184 (For reference only, please check.)

UN Proper Shipping Name

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

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

Packing group, if applicable

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

Not Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Not Listed.

Korea Existing Chemicals List (KECL)

Not 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/