Chemical Safety Data Sheet MSDS / SDS

1,1,2-trichloroethane 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: 1,1,2-trichloroethane

CAS: 79-00-5

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

Acute toxicity - Category 4, Oral
Acute toxicity - Category 4, Dermal

Acute toxicity - Category 4, Inhalation
Carcinogenicity, Category 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s)

H302 Harmful if swallowed
H312 Harmful in contact with skin
H332 Harmful if inhaled
H351 Suspected of causing cancer

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P203 Obtain, read and follow all safety instructions before use.

Response

P301+P317 IF SWALLOWED: Get medical help.
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P317 Get medical help.
P321 Specific treatment (see ... on this label).
P362+P364 Take off contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P318 IF exposed or concerned, get medical advice.

Storage

P405 Store locked up.

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:	1,1,2-trichloroethane
Common names and synonyms:	1,1,2-trichloroethane
CAS number:	79-00-5
EC number:	201-166-9
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 and then wash skin with water and soap. Refer for medical attention .

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible). Refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention . Do NOT induce vomiting.

Most important symptoms/effects, acute and delayed

Inhalation causes irritation of the nose, throat, and lungs. High concentrations may cause death by respiratory failure. Highly toxic by ingestion; may cause liver or kidney damage or myocardial irritability. Causes severe irritation of the gastrointestinal tract. Vapor may produce superficial skin burns or defatting type dermatitis and may irritate the eyes. (USCG, 1999)

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

Trichloroethane is less toxic than trichloroethylene at a given concentration, but treatment is similar with initial attention directed toward support of ventilation, correction of hypotension, and cardiac monitoring as indicated. Recovery after termination of exposure usually is rapid, with recovery from light anesthesia occuring within 5 minutes. Trichloroethane

SECTION 5: Firefighting measures

Suitable extinguishing media

Wear special protective clothing and positive pressure self-contained breathing apparatus.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic gases including hydrogen chloride and very small amounts of phosgene and chlorine are produced. Behavior in Fire: Forms a flammable vapor-air mixture at 109°F and higher. (USCG, 1999)

Special protective actions for fire-fighters

Use powder, water spray, 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: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Do NOT let this chemical enter the environment. Collect leaking liquid in sealable containers. 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) collect for reclamation or absorb in vermiculite, dry sand, or similar material.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. NO contact with hot surfaces. 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

Separated from strong oxidants, strong bases and metals. Well closed. Ventilation along the floor. Provision to contain effluent from fire extinguishing. Store in an area without drain or sewer access.Store in a cool, dry, well-ventilated location. Separate from oxidizing materials, aluminum, ammonia.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 10 ppm as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans).MAK: 55 mg/m3, 10 ppm; peak limitation category: II(2); skin absorption (H); carcinogen category: 3B

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 spectacles or face shield.

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. Liquid.
Colour:	Colourless.
Odour:	Pleasant odor
Melting point/freezing point:	-36 °C. Atm. press.:Ca. 1 atm.
Boiling point or initial boiling point and boiling range:	114 °C. Atm. press.:1 013 hPa.
Flammability:	Combustible Liquid, forms dense soot.
Lower and upper explosion limit/flammability limit:	Lower limit: 6%; upper limit: 15.5%
Flash point:	> 75 °C.
Auto-ignition temperature:	460 °C. Atm. press.:Ca. 1 013 hPa.

Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	dynamic viscosity (in mPa s) = 1.2. Temperature:20°C.
Solubility:	1 to 5 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = > 2.05 - < 2.49. Temperature:20 °C.
Vapour pressure:	100 hPa. Temperature:50 °C.
Density and/or relative density:	1.44. Temperature:20 °C.
Relative vapour density:	4.63 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

100 ppm; NIOSH considers 1,1,2-trichloroethane to be a potential occupational carcinogen.
Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive gases including hydrogen chloride (see ICSC 0163) and phosgene (see ICSC 0007). Reacts with strong bases, strong oxidants and metals. This generates fire and explosion hazard.

Chemical stability

Stable in air at ordinary temp; in absence of air or water it is stable to approx 110 deg c

Possibility of hazardous reactions

Nonflammable /liquid/The vapour is heavier than air.1,1,2-TRICHLOROETHANE is sensitive to light and heat. Incompatible with strong oxidizing agents and strong bases. Reacts violently with sodium, potassium, magnesium, and aluminum. Attacks some plastics, rubber and coatings. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Although apparently stable on contact, mixtures of potassium (or its alloys) with wide range of halocarbons are shock-sensitive and may explode with great violence on light impact. ... Trichloroethane ... /was/ among those investigated.

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 837 mg/kg

Inhalation: LC50 - rat (male) - 9 000 mg/m3 air.

Dermal: LD50 - rabbit (male) - ca. 5 380 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

Evaluation: No epidemiological data relevant to the carcinogenicity of 1,1,2-trichloroethane were available. There is limited evidence in experimental animals for the carcinogenicity of 1,1,2-trichloroethane. Overall evaluation: 1,1,2-Trichloroethane is not classifiable as to its carcinogenicity in humans (Group 3).

Reproductive toxicity

No information is available regarding developmental or reproductive effects of 1,1,2-trichloroethane in humans from inhalation or oral exposure. Animal studies have not reported developmental or reproductive effects from oral exposure to 1,1,2-trichloroethane.

STOT-single exposure

The substance is irritating to the eyes and respiratory tract. The substance is mildly irritating to the skin. The substance may cause effects on the central nervous system. This may result in lowering of consciousness. The substance may cause effects on the kidneys and liver. This may result in impaired functions. If swallowed the substance may cause vomiting and could result in aspiration pneumonitis.

STOT-repeated exposure

The substance defats the skin, which may cause dryness or cracking. Repeated or prolonged contact with skin may cause dryness and cracking.

Aspiration hazard

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

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Pleuronectes platessa - 34 mg/L - 48 h.

Toxicity to daphnia and other aquatic invertebrates: LC50 - Daphnia magna - 18 mg/L - 48 h.

Toxicity to algae: EC50 - Chlamydomonas reinhardtii - 57 mg/L - 72 h.

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: 1,1,2-Trichloroethane showed no biodegradation in both a 24-day modified shake flask test and a river die-away test(2).

Similar results were obtained in another screening biodegradability test(4). When a solution containing 1,1,2-trichloroethane was applied to a column filled with sandy soil, no loss could be attributed to biodegradation(3). One investigation reported very slow biodegradation with long acclimation times for 1,1,2-trichloroethane (1). Vinyl chloride was observed to be a biodegradation product of 1,1,2-trichloroethane when microbes from an anaerobic digester at a municipal wastewater treatment facility were used as inocula(5). No significant degradation occurred over a 16 week incubation period in either sterilized or non-sterile subsurface (5 m deep) soil samples(6). 1,1,2-Trichloroethane has been shown to undergo biotransformation under methanogenic conditions(7). 1,1,2-Trichloroethane at 100 mg/L achieved 5% of its theoretical BOD using an activated sludge inoculum at 30 mg/L over a 4 week incubation period in the Japanese MITI test(8). The anaerobic biodegradation rate constant for 1,1,2-trichloroethane was reported to range from 0.00048 to 0.00096 days-1(9), corresponding to half-lives of 722-1444 days(SRC). The aerobic biodegradation half-life for 1,1,2-trichloroethane was reported to range from 6 months to 1 year(9). The half-life of 1,1,2-trichloroethane in an unpolluted anaerobic aquifer was reported as 6 days (1% organic carbon content), 26 days (0.1% organic carbon content), 335 days (0.01% organic carbon content) and 16 years (0.001% organic carbon content)(10).

Bioaccumulative potential

BCF values of 0.7 to 2.6 were measured in carp exposed to 0.3 mg/L of 1,1,2-trichloroethane during a 6 week incubation period and BCF values of 2.7 to 6.7 were measured in carp exposed to 0.03 mg/L of 1,1,2-trichloroethane during a 6 week incubation period(1). According to a classification scheme(2), these BCF values suggest that bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The mean Koc of 1,1,2-trichloroethane in a silty clay soil and sandy loam soil ranged from 83-111 and 174-209, respectively(1). According to a classification scheme(2), this range of Koc values suggests that 1,1,2-trichloroethane is expected to have high to moderate mobility in soil(SRC).

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: UN2810 (For reference only, please check.)
IMDG: UN2810 (For reference only, please check.)
IATA: UN2810 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)
IMDG: TOXIC LIQUID, ORGANIC, N.O.S. (For reference only, please check.)
IATA: TOXIC LIQUID, ORGANIC, N.O.S. (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

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions.Use of alcoholic beverages enhances the harmful effect.The relation between odour and the occupational exposure limit cannot be indicated.Do NOT use in

the vicinity of a fire or a hot surface, or during welding.

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