Chemical Safety Data Sheet MSDS / SDS

1,1-dichloro-1-nitroethane 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-dichloro-1-nitroethane

CAS: 594-72-9

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

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SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Dermal

Acute toxicity - Category 3, Inhalation

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H331 Toxic if inhaled

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.

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.

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:	1,1-dichloro-1-nitroethane
Common names and synonyms:	1,1-dichloro-1-nitroethane
CAS number:	594-72-9
EC number:	209-854-0
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

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. Rinse mouth. Refer for medical attention .

Most important symptoms/effects, acute and delayed

High concentrations cause lacrimation, increased nasal secretions, coughing, pulmonary rales, and weakness in animals. No human experience is reported. (USCG, 1999)

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

Minimum/Potential Fatal Human Dose

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

Absorption, Distribution and Excretion

Gc/ms analyses of profiles of volatile constituents obtained from cord blood & maternal blood samples reflect transplacentally acquired halogenated hydrocarbons & accum in fetal cord blood.

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped. Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water if flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. Keep run-off water out of sewers and water sources.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic gases and vapors, such as nitrogen oxides, hydrogen chloride, and carbon monoxide, may be released in a fire. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, foam, powder, 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: self-contained breathing apparatus. Collect leaking liquid in sealable metal containers.

Environmental precautions

Personal protection: self-contained breathing apparatus. Collect leaking liquid in sealable metal containers.

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 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 & atomized in a suitable combustion chamber equipped with an appropriate effluent gas cleaning device. 1,1-Dichloro-1-nitroethane 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 57.8°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 oxidants and food and feedstuffs.IN GENERAL, MATERIALS WHICH ARE TOXIC AS STORED OR WHICH CAN DECOMP INTO TOXIC COMPONENTS...SHOULD BE STORED IN A COOL, WELL-VENTILATED PLACE, OUT OF DIRECT RAYS OF THE SUN, AWAY FROM AREAS OF HIGH FIRE HAZARD, & SHOULD BE PERIODICALLY INSPECTED... INCOMPATIBLE MATERIALS SHOULD BE ISOLATED FROM EACH OTHER.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 2 ppm as TWA

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.

Skin protection

Protective gloves.

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:	1,1-dichloro-1-nitroethane is a colorless liquid. Strongly irritates skin and eyes. Toxic by ingestion and inhalation. Flash point 165°F. Denser than water and slightly soluble in water. Used as a solvent.
Colour:	COLORLESS LIQUID
Odour:	Unpleasant odor.
Melting point/freezing point:	no data available
Boiling point or initial boiling point and boiling range:	123.5°C at 760 mmHg
Flammability:	Class II Combustible Liquid: Fl.P. at or above 100°F and below 140°F.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	31.7°C

Auto-ignition temperature:	no data available
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	1 to 10 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water:	1.56
Vapour pressure:	16 mm Hg at 77° F (NTP, 1992)
Density and/or relative density:	1.481 g/cm3
Relative vapour density:	5 (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

On combustion, forms toxic gases including hydrogen chloride, nitrogen oxides and phosgene. Reacts violently with strong oxidants. Attacks rubber and some forms of plastic.

Chemical stability

no data available

Possibility of hazardous reactions

MODERATE WHEN EXPOSED TO HEAT OR FLAME.1,1-DICHLORO-1-NITROETHANE is incompatible with oxidizers. It will attack some forms of plastics, rubber and coatings. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Strong oxidizers (Note: Corrosive to iron in presence of moisture).

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

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

no data available

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. Inhalation of the vapour may cause lung oedema. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air will be reached quickly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

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

no data available

Bioaccumulative potential

Based upon an estimated water solubility of 2500 mg/l(2), the BCF of 1,1-dichloro-1- nitroethane can be estimated to be approximately 7.5 from a regression-derived equation(1). This estimated BCF value suggests that bioconcentration in aquatic organisms may not be an important fate process(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indexes(1), the Koc for 1,1-dichloro-1-nitroethane can be estimated to be about 36(SRC). The Koc for 1,1-dichloro-1-nitroethane can be estimated to be about 59(SRC) based on an estimated water solubility of 2500 mg/L(4) and a regression derived equation(2). According to a suggested classification scheme(3), these estimated Koc values suggest that 1,1-dichloro-1-nitroethane has high to very high soil mobility(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: UN2650 (For reference only, please check.)
IMDG: UN2650 (For reference only, please check.)
IATA: UN2650 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: 1,1-DICHLORO-1- NITROETHANE (For reference only, please check.)
IMDG: 1,1-DICHLORO-1- NITROETHANE (For reference only, please check.)
IATA: 1,1-DICHLORO-1- NITROETHANE (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: 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

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Not Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Not 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 symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation is therefore essential.