Chemical Safety Data Sheet MSDS / SDS

1,4-dichlorobut-2-ene 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: 1,4-dichlorobut-2-ene

CAS: 764-41-0

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

Skin corrosion, Sub-category 1B
Acute toxicity - Category 2, Inhalation
Carcinogenicity, Category 1B
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H314 Causes severe skin burns and eye damage
H330 Fatal if inhaled
H350 May cause cancer
H410 Very toxic to aquatic life with long lasting effects

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/...
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.
P203 Obtain, read and follow all safety instructions before use.
P273 Avoid release to the environment.

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.
P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P320 Specific treatment is urgent (see ... on this label).
P318 IF exposed or concerned, get medical advice.
P391 Collect spillage.

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:	1,4-dichlorobut-2-ene
Common names and synonyms:	1,4-dichlorobut-2-ene
CAS number:	764-41-0
EC number:	212-121-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms/effects, acute and delayed

Inhalation of vapor irritates nose and throat. Contact with eyes causes intense irritation and tears. Contact of liquid with skin causes severe blistering and dermatitis. Ingestion causes severe irritation of mouth and stomach. (USCG, 1999)

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

Stabilization: Treatment is largely supportive. Watch for respiratory depression & arrhythmias. Obtain arterial blood gases. Administer oxygen if there is evidence of altered mental status or dyspnea. Treat hypotension with volume expansion & vasopression. Use lidocaine or beta-blockers for ventricular arrhythmias. Skin: Remove contaminated clothing. Wash affected area with soap & copious amounts or water. Eye: Irrigate the eye for 15-20 min. Obtain a consultation if symptoms persist. Oral: Most of the halogenated solvents ingested in quantities of 1-2 swallows may be partially removed by ipecac-induced emesis if admin within a few hr to a patient who has not lost the gag reflex, is not seizing, is not markedly lethargic, or is not in coma. Observe the patient in the upright position to lessen the possibility of aspiration. Activated charcoal is probably ineffective. Inhalation: Move from the contaminated area. Provide a source of oxygen & prepare for mechanical ventilation. If the patient is unconscious & the pulse is absent, initiate CPR measures. Enhancement of Elimination: Maintain good ventilation. Hemodialysis or hemoperfusion are not likely to be useful because of the high lipophilic properties of these solvents. Antidote: N-acetylcysteine may restore depleted glutathione stores, but no adequate clinical studies are available to validate this possible treatment. Supportive Care: Watch for cardiac dysrhythmias, aspiration pneumonitis, hepatotoxicity, & hypoxic encephalopathy. Monitor for arrhythmia for at least 24 hr & for hepatorenal failure for about 3 days. Obtain a chest x-ray, arterial blood gas, EKG, serum creatinine, & hepatic aminotransferase. Check electrolyte imbalance daily. Treat renal failure with dialysis & hepatic failure with fresh frozen plasma, vitamin K, a low-protein diet, neomycin, & lactulose. Watch fluid & electrolyte balance. Halogenated hydrocarbons

SECTION 5: Firefighting measures

Suitable extinguishing media

If material on fire or involved in fire: Use water in flooding quantities as fog. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Solid streams of water may be ineffective. Use foam, dry chemical, or carbon dioxide. Use water spray to knock-down vapors. Dichlorobutene

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Decomposition vapors contain phosgene and hydrogen chloride gases; both are toxic and irritating. (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

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and 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

Storage temperature: Ambient with open venting and equipped with a flame arrester. Dichlorobutene

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

Component	1,4-dichlorobut-2-ene			
CAS No.	764-41-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m3	ppm	mg/m3
Austria	0,01	0,05	0,04	0,2
Belgium	0,005	0,025	?	?
Canada - Ontario	0,005	?	?	?
Canada - Québec	0,005	0,025	?	?
Denmark	0,005	0,025	0,01	0,05
Ireland	0,05	0,025	?	?
Japan - JSOH	0,002	?	?	?
Singapore	0,005	0,025	?	?
Spain	0,005	0,025	?	?
Switzerland	0,01	0,05	?	?
	Remarks			
Austria	TRK value (based on technical feasibility)			
Spain	skin			

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:	1,4-dichloro-2-butene is a clear colorless liquid. Burns, though may be difficult to ignite. Corrosive to tissue. Denser than water and insoluble in water. Vapors heavier than air. Used to make other chemicals.
Colour:	COLORLESS LIQUID
Odour:	DISTINCT ODOR
Melting point/freezing point:	240°C(lit.)
Boiling point or initial boiling point and boiling range:	159°C(lit.)
Flammability:	no data available
Lower and upper explosion limit/flammability limit:	1.5-4% /Dichlorobutene/
Flash point:	54°C(lit.)

Auto-ignition temperature:	55 deg C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	1.293X10-3 Pa-sec @ melting point
Solubility:	Sol in alcohol, ether, acetone, benzene
Partition coefficient n-octanol/water:	no data available
Vapour pressure:	10 mm Hg (20 °C)
Density and/or relative density:	1.126 g/cm3
Relative vapour density:	no data available
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Highly flammable. Reacts slowly with water to form hydrochloric acid. Insoluble in water.

Chemical stability

Reacts slowly with water to form hydrochloric acid. Dichlorobutene

Possibility of hazardous reactions

Flammable /Dichlorobutene/Halogenated unsaturated aliphatic compounds, such as 1,4-DICHLORO-2-BUTENE, are moderately or very reactive. Halogenated organics generally become less reactive as more of their hydrogen atoms are replaced with halogen atoms. Low molecular weight haloalkanes are highly flammable and can react with some metals to form dangerous products. Materials in this group are incompatible with strong oxidizing and reducing agents. Also, they are incompatible with many amines,

nitrides, azo/diazo compounds, alkali metals, and epoxides.

Conditions to avoid

no data available

Incompatible materials

Reacts slowly with water to form hydrochloric acid. Dichlorobutene

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 89 mg/kg

Inhalation: LC50 Rat inhalation 86 ppm/4 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

A2: Suspected human carcinogen. 1,4-Dichloro-2-butene

Reproductive toxicity

no data available

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

Soil degradation studies conducted with 1,4-dichloro-2-butene (cis-isomer) over a one week incubation period in a sandy loam and silt loam soils found degradation half-lives of 1.8 to 2.5 days in both sterile and non-sterile soils(1); degradation rates in non-sterile soils were not significantly faster than in sterile soils indicating that abiotic or evaporative processes were more important than biological processes for 1,4-dichloro-2-butene(1,2); similar results for the trans-isomer are expected because of the similar structure(SRC).

Bioaccumulative potential

An estimated BCF of 14 was calculated for 1,4-dichloro-trans-2-butene(SRC), using a water solubility of 850 mg/l(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).

Mobility in soil

Using sandy loam and silt loam soils, the Koc of 1,4-dichloro-2-butene (cis-isomer) was experimental determined to be 215(1). According to a suggested classification scheme(2), this Koc value suggests that 1,4-dichloro-trans-2-butene will have moderate mobility in soil because of the similar structure(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: UN2927 (For reference only, please check.)
IMDG: UN2927 (For reference only, please check.)
IATA: UN2927 (For reference only, please check.)

UN Proper Shipping Name

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

IMDG: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (For reference only, please check.)
IATA: TOXIC LIQUID, CORROSIVE, 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: Yes
IMDG: Yes
IATA: Yes

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)

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/