Chemical Safety Data Sheet MSDS / SDS

1,2-dibromo-3-chloropropane 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: 1,2-dibromo-3-chloropropane

CAS: 96-12-8

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
Germ cell mutagenicity, Category 1B

Carcinogenicity, Category 1B
Specific target organ toxicity – repeated exposure, Category 2
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3
Reproductive toxicity, Category 1A

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H340 May cause genetic defects
H350 May cause cancer
H373 May cause damage to organs through prolonged or repeated exposure
H412 Harmful 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.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
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.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.

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:	1,2-dibromo-3-chloropropane
Common names and synonyms:	1,2-dibromo-3-chloropropane
CAS number:	96-12-8
EC number:	202-479-3
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

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

Following ingestion

Rinse mouth. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 159 [Substances (Irritating)]: Inhalation of vapors or dust is extremely irritating. May cause burning of eyes and flow of tears. May cause coughing, difficult breathing and nausea. Brief exposure effects last only a few minutes. Exposure in an enclosed area may be very harmful. Fire will produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may cause pollution. (ERG, 2016)

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

Absorption, Distribution and Excretion

Can be absorbed percutaneously in toxic amt.

SECTION 5: Firefighting measures

Suitable extinguishing media

Excerpt from ERG Guide 159 [Substances (Irritating)]: SMALL FIRE: Dry chemical, CO2, water spray or regular foam. LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

Specific hazards arising from the chemical

Excerpt from ERG Guide 159 [Substances (Irritating)]: Some of these materials may burn, but none ignite readily. Containers may explode when heated. (ERG, 2016)

Special protective actions for fire-fighters

Use water spray, powder, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. 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

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Do NOT let this chemical enter the environment. 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

PRECAUTIONS FOR "CARCINOGENS": A high-efficiency particulate arrestor (HEPA) or charcoal filters can be used to minimize amt of carcinogen in exhausted air ventilated safety cabinets, lab hoods, glove boxes or animal rooms ... Filter housing that is designed so that used filters can be transferred into plastic bag without contaminating maintenance staff is avail commercially. Filters should be placed in plastic bags immediately after removal ... The plastic bag should be sealed immediately ... The sealed bag should be labelled properly ... Waste liquids ... should be placed or collected in proper containers for disposal. The lid should be secured & the bottles properly labelled. Once filled, bottles should be placed in plastic bag, so that outer surface ... is not contaminated ... The plastic bag should also be sealed & labelled. ... Broken glassware ... should be decontaminated by solvent extraction, by chemical destruction, or in specially designed incinerators. Chemical Carcinogens

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Above 77°C use a closed system and ventilation. 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 food and feedstuffs and metals such as aluminium or magnesium.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: skin absorption (H); carcinogen category: 2.MAK: germ cell mutagen group: 2

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 or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	1,2-dibromo-3-chloropropane is a colorless liquid. Denser than water. Flash point 170°F. Boiling point 195°F. Toxic by ingestion and inhalation. Used as a pesticide and fumigant.
Colour:	Colorless liquid when pure
Odour:	PUNGENT ODOR
Melting point/freezing point:	5°C(lit.)
Boiling point or initial boiling point and boiling range:	200°C(lit.)

Flammability:	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	77°C(lit.)
Auto-ignition temperature:	no data available
Decomposition temperature:	196°C
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	less than 0.1 mg/mL at 64° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow= 2.96
Vapour pressure:	0.8 mm Hg at 70° F (NTP, 1992)
Density and/or relative density:	2.05
Relative vapour density:	2.09 at 14 deg C
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH considers 1,2-dibromo-3-chloropropane to be a potential occupational carcinogen.
Decomposes on heating above the boiling point. Decomposes on burning. This produces toxic fumes including hydrogen bromide and hydrogen chloride. Reacts in the presence of water with aluminium, magnesium, tin and their alloys. Attacks some forms of rubber and coatings.

Chemical stability

no data available

Possibility of hazardous reactions

1,2-Dibromo-3-chloropropane (DBCP) itself is classified in the USA as a combustible liq in class IIIA; formulations of DBCP incl kerosene or other flammable solvents fall into the flammable range (class IB for formulations made with kerosene). The vapour is heavier than air and may travel along the ground; distant ignition possible. 1,2-DIBROMO-3-CHLOROPROPANE reacts with chemically active metals such as aluminum, magnesium, tin and their alloys. It will attack some rubber materials and coatings. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

Chemically-active metals such as aluminum, magnesium & tin alloys [Note: Corrosive to metals].

Hazardous decomposition products

195.5 deg C at 760 mm Hg, with decomp

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rabbit (male) oral 100 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

NTP: Reasonably anticipated to be a human carcinogen

Reproductive toxicity

Chronic exposure to DBCP causes male reproductive effects. Decreased sperm counts have been observed in men occupationally exposed to DBCP; birth defects, prematurity, mortality, or spontaneous abortions were not associated with paternal exposure to DBCP. Testicular effects and decreased sperm count were observed in animals chronically exposed to DBCP by inhalation. Birth defects were not observed in rats exposed to DBCP by gavage (experimentally placing the chemical in their stomachs).

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system and kidneys. This may result in impaired functions. Exposure could cause lowering of consciousness.

STOT-repeated exposure

The substance may have effects on the liver, lungs, kidneys and testes. This may result in impaired functions and tissue lesions. May cause heritable genetic damage to human germ cells. This substance is probably carcinogenic to humans. Causes toxicity to human reproduction or development.

Aspiration hazard

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

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

A mixed culture of soil microorganisms containing primarily Pseudomonas and Flavobacteria dehalogenated 1,2-dibromo-3-chloropropane to n-propanol(1). The most rapid rate of dehalogenation (20% in 1 week) was obtained with pH 8 soil suspensions; the maximum observed dehalogenation was 63% after 4 weeks under unspecified conditions(2). Biodegradation of 1,2-dibromo-3-chloropropane was measured in soil columns; half-lives of 6.6, 13.0, and 1130 days were obtained for natural, nutrient-enriched, and sterile conditions, respectively(3). Two soil samples, four subsoil materials and groundwater samples, and a sewage sample were incubated in the presence of 0.05 to 500 mg 1,2-dibromo-3-chloropropane/kg soil, soil suspension, or water. No transformation was noted, by formation of inorganic halide or organic products or by the production of CO2, over 60 days(4). Soil samples, maintained under anaerobic conditions, transformed 1,2-dibromo-3-chloropropane, at 10 and 100 mg/kg suspension, with 5.6 and 11.6% conversion, respectively, in 28 days(4). Groundwater and aquifer samples incubated under similar, anaerobic conditions were unable to convert 1,2-dibromo-3-chloropropane over a 4 month period(4). Alkyl reductive dehalogenation was reported as a transformation mechanism for the biodegradation of 1,2-dibromo-3-chloropropane in anaerobic soil(5).

Bioaccumulative potential

A bioconcentration factor for 1,2-dibromo-3-chloropropane of 11 was estimated from a measured water solubility of 1,230 ppm(1).

Mobility in soil

The Kd for the adsorption of 1,2-dibromo-3-chloropropane onto Panoche clay loam is 0.20 cu cm/g for a 1,2-dibromo-3-chloropropane concentration range of 0.5-95 ug/ml(1). A Kd value of 0.286 L/kg was measured in Hanford sandy loam soil columns(2). Values of 40 (Koc value)(3) and 128 (Kom value)(4) were measured for 1,2-dibromo-3-chloropropane in unspecified soils. Koc values of 129 and 149 were measured in a silt loam and in a fine sand soil, respectively(5). Koc values of 305 and 355 were measured for aquifer solids from the Fresno aquifer (pH 7.3-7.7, mass fraction of organic carbon=0.0002); a calculated Rf value from these results indicates that only about 10% of the 1,2-dibromo-3-chloropropane is sorbed to the aquifer material(6). Koc values for 3 soils ranged from 70 to 126 (pH 7.6-8.1, mass fraction of organic carbon=0.0052-0.0544)(6). According to a recommended classification scheme(7), these measured Koc values suggest that 1,2-dibromo-3-chloropropane has moderate to very high 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: UN2872 (For reference only, please check.)
IMDG: UN2872 (For reference only, please check.)
IATA: UN2872 (For reference only, please check.)

UN Proper Shipping Name

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

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)

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

Depending on the degree of exposure, periodic medical examination is suggested.An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert.Carrier solvents used in commercial formulations may change physical and toxicological properties.Do NOT take working clothes home.