Chemical Safety Data Sheet MSDS / SDS

1,2-dichloro-4-nitrobenzene 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-dichloro-4-nitrobenzene

CAS: 99-54-7

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 4, Dermal

Skin sensitization, Category 1
Acute toxicity - Category 3, Inhalation
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
H312 Harmful in contact with skin
H317 May cause an allergic skin reaction
H331 Toxic if inhaled
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/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P272 Contaminated work clothing should not be allowed out of the workplace.
P271 Use only outdoors or in a well-ventilated area.
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/...
P317 Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P333+P317 If skin irritation or rash occurs: Get medical help.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P316 Get emergency medical help immediately.

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:	1,2-dichloro-4-nitrobenzene
Common names and synonyms:	1,2-dichloro-4-nitrobenzene
CAS number:	99-54-7
EC number:	202-764-2
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Rinse and then wash skin with water and soap.

Following eye contact

Rinse with plenty of water (remove contact lenses if easily possible).

Following ingestion

Rinse mouth.

Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound include eye, skin, and mucous membrane irritation; headache; drowsiness; and unsteadiness. Chronic symptoms include liver damage. ACUTE/CHRONIC HAZARDS: This compound emits highly toxic fumes when heated to decomposition. (NTP, 1992)

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

Basic treatment: Establish a patent airway (oropharyngeal or nasopharyngeal airway, if needed). Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for pulmonary edema and treat if necessary . Monitor for shock and treat if necessary . Anticipate seizures and treat if necessary . For eye contamination, flush eyes immediately with water. Irrigate each eye continuously with 0.9% saline (NS) during transport . Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a strong gag reflex, and does not drool. Administer activated charcoal . Aromatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Fires involving this compound can be controlled using a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

Specific hazards arising from the chemical

This chemical is combustible. (NTP, 1992)

Special protective actions for fire-fighters

Use powder, water spray, foam, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Do NOT let this chemical enter the environment.

Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. If appropriate, moisten first to prevent dusting. Do NOT let this chemical enter the environment.

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

NO open flames. Prevent deposition of dust. Closed system, dust explosion-proof electrical equipment and lighting. 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 food and feedstuffs. Provision to contain effluent from fire extinguishing.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: 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.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation (not if powder).

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Solid. Solified melt.
Colour:	Yellow.
Odour:	no data available
Melting point/freezing point:	43 °C.
Boiling point or initial boiling point and boiling range:	255.5 °C. Atm. press.:1 013 hPa.
Flammability:	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	124 °C. Atm. press.:1 013 hPa.

Auto-ignition temperature:	420 °C. Atm. press.:1 013 hPa.
Decomposition temperature:	no data available
pH:	5.8. Remarks:Saturated solution.
Kinematic viscosity:	dynamic viscosity (in mPa s) = 2.87. Temperature:60.0°C.;dynamic viscosity (in mPa s) = 2.37. Temperature:70.0°C.;dynamic viscosity (in mPa s) = 1.52. Temperature:100.0°C.
Solubility:	less than 0.1 mg/mL at 74.3° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Pow = 3.04.
Vapour pressure:	0.02 hPa. Temperature:25 °C. Remarks:Calculated on the basis of an experimentally determined equation.
Density and/or relative density:	1.46. Temperature:75 °C.
Relative vapour density:	6.63 (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 fumes of nitrogen oxides and hydrogen chloride (see ICSC 0163). Reacts violently with oxidants and strong bases.

Chemical stability

no data available

Possibility of hazardous reactions

Fire risk by spontaneous reaction.Can react vigorously with oxidizing materials. (NTP, 1992)

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

no data available

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat (male) - 625 mg/kg bw.

Inhalation: no data available

Dermal: LD50 - rat (female) - > 2 000 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

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Leuciscus idus melanotus - 5.2 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC0 - Daphnia magna - 2 mg/L - 24 h.

Toxicity to algae: EC10 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - 0.36 mg/L - 48 h.

Toxicity to microorganisms: IC50 - Tetrahymena pyriformis - 13.3 mg/L - 40 h.

Persistence and degradability

AEROBIC: Under conditions of industrial waste treatment plants, microbial sludge populations are capable of reducing influent 3,4-dichloronitrobenzene to 3,4-dichloroaniline(1). No aerobic biodegradation was observed for initial concns of 0.5X10-6 to 50X10-6 g/L of 3,4-dichloronitrobenzene innoculated in an aquifer slurry over an unspecified time frame(2).

Bioaccumulative potential

Experimental BCF values of 104-130 (mean BCF of 120) following exposure of 5 to 36 days to 720 ng/L test compound(2) were obtained from freshwater rainbow trout, Salmo gairdneri(1,2). According to a classification scheme(3), these BCF values suggest that bioconcentration in aquatic organisms is high(SRC).

Mobility in soil

An experimentally determined mean Koc value of 393 for 3,4-dichloronitrobenzene was reported using 4 silt loam soils(1). A log Koc value of 2.62 was reported following adsorption studies using sediment from the Yangste River in China(2), corresponding to a Koc of 390(SRC). According to a classification scheme(3), these Koc values suggest that 3,4-dichloronitrobenzene is expected to have moderate mobility in soil. Using a modified organo montmorillonite clay from Jiangning Jinagsu Province, China, a log Koc of 3.76 was determined(3), corresponding to a Koc of 5,754(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: UN2811 (For reference only, please check.)
IMDG: UN2811 (For reference only, please check.)
IATA: UN2811 (For reference only, please check.)

UN Proper Shipping Name

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

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

Health effects of exposure to the substance have not been investigated adequately.