ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

Didecyl dimethyl ammonium chloride

Revision Date:2025-05-03 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product identifier

Product name	: Didecyl dimethyl ammonium chloride
CBnumber	: CB5739237
CAS	: 7173-51-5
EINECS Number	: 230-525-2
Synonyms	: Didecyldimonium Chloride,Didecyl-Dimethylammonium Chloride

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
Address	: Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone	: 400-158-6606

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 4, Oral

Skin corrosion, Sub-category 1B

Label elements

Pictogram(s)

Signal word	Danger

Hazard statement(s)

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

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.

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: Didecyl dimethyl ammonium chloride
Synonyms	: Didecyldimonium Chloride,Didecyl-Dimethylammonium Chloride
CAS	: 7173-51-5
EC number	: 230-525-2
MF	: C22H48ClN
MW	: 362.08

SECTION 4: First aid measures

Description of 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 and effects, both acute and delayed

no data available

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Firefighting measures

Extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

Specific Hazards Arising from the Chemical

no data available

Advice for firefighters

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

If a spill occurs, clean it up promptly. Don't wash it away. Instead, sprinkle the spill with sawdust, vermiculite, or kitty litter. Sweep it into a plastic garbage bag, and dispose of it as directed on the pesticide product label./Residential uses/

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

Do not contaminate water, food or feed by storage or disposal. Bardac Wood Preservative 80

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure 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

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

Information on basic physicochemical properties

Physical state	Liquid
Colour	Colorless crystals
Odour	Mushroom-like odor
Melting point/freezing point	94-100 deg C /OECD Guideline 102/
Boiling point or initial boiling point and boiling range	>180 deg C; decomposes before boiling at 1 atm /OECD Guideline 103/
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available

Decomposition temperature	no data available
pH	pH = 6.8 to 6.9 at 25 deg C in a 29.5% water solution
Kinematic viscosity	no data available
Solubility	In water, 0.65 g/L at 20 deg C /OECD Guideline 115/
Partition coefficient n-octanol/water	log Kow = 2.59 at 20 deg C, pH 7
Vapour pressure	<4.3X10-5 mm Hg at 25 deg C, <1.1X10-5 mm Hg at 20 deg C /OECD Guideline 104/
Density and/or relative density	0.95 g/cm3 (20°C)
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

no data available

Chemical stability

no data available

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits very toxic fumes of /nitrogen oxides, ammonia, and hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 84 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

no data available

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: LC50; Species: Lepomis macrochirus (Bluegill); Conditions: freshwater, static; Concentration: 270 ug/L for 96 hr (95% confidence interval: 190-390 ug/L)
Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water flea) age <24 hr; Conditions: freshwater, static, 19 deg C, pH 8.2, hardness 209.43 mg/L CaCO3, dissolved oxygen >6.5 mg/L; Concentration: >1000 ug/L for < or =6 hr; Effect: behavioral changes, general /Bardac 22, 45% AI
Toxicity to algae: no data available
Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Didecyl dimethyl ammonium chloride biodegradation test results(1).Test Category Degradation Duration (days) OECD Guideline 301D (Ready Biodegradability: Closed Bottle Test) readily biodegradable 69% 28 OECD Guideline 301B (Ready Biodegradability: CO2 Evolution Test) readily biodegradable 67-72% CO2 evolution 28 Zahns-Wellens test (activated sludge, non-adapted) inherently biodegradable 80% DOC removal 28; >15 day adaptation time observed with rapid degradation afterwards OECD Guideline 303A (Simulation Test - Aerobic Sewage Treatment. A: Activated Sludge Units) >99.95% 59 Soil degradation study using a loam soil 49% mineralization 114

Bioaccumulative potential

A BCF of 81 was reported in bluegill sunfish (Lepomis macrochirus) for didecyl dimethyl ammonium chloride(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is moderate. Didecyl dimethyl ammonium chloride is reported to have low bioconcentration in tests using carp (Cyprinus carpio)(3); BCF values not reported(SRC).

Mobility in soil

The log Koc for didecyl dimethyl ammonium chloride has been reported as 5.64 (sand), 5.96 (sandy loam), 6.20 (silty clay loam), 6.17 (silt loam)(1), corresponding to Koc values of 4.4X10+5, 9.1X10+5, 1.6X10+6, and 1.5X10+6 respectively(SRC). In batch equilibrium studies using five different soil types and OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method), didecyl dimethyl ammonium chloride had Koc values of 667, 1140, 10456, 14072 and 24433(2). According to a classification scheme(2), these Koc values suggest that didecyl dimethyl ammonium chloride is expected to have low to no mobility in soil with most Koc values suggesting the compound is immobile in soil. Didecyl dimethyl ammounium chloride is a cationic surfactant(1) that may exist in cation form in the environment(SRC), and cations generally adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(4). Didecyl dimethyl ammounium chloride binds rapidly to suspended solids and sediments(1). Reported Kd values at 25 deg C are 3.03 (sand), 3.91 (sandy loam), 4.52 (silty clay loam), and 4.49 (silt loam)(1).

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: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (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)

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/