Richest Group
No. 999, Jiangyue Rd, Minhang, Shanghai 201114, China
Tel: 0086 21 5017 5386
E-mail: inquiry@richest-group.com
Web: www.richest-group.com

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product	Didecyl Dimethyl Ammonium Chloride 80% (DDAC 80%)	**Revision date**	2026-11-16
Version	1.0	**Brand**	Richest

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

Product name	Didecyl Dimethyl Ammonium Chloride 80% (DDAC 80%)
Synonyms	7173-51-5; Didecyl dimethyl ammonium chloride; DDAC; Astop; Quaternium 12; Arquad 10
CAS No.	7173-51-5
EC No.	230-525-2
Molecular formula	C22H48ClN
Molecular weight	362.1 g/mol
Relevant identified uses	Biocide/disinfectant and cationic surfactant; end-use copy must match the actual registered and sold uses.
Uses advised against	No specific uses advised against were identified in the reviewed sources.
Company	Richest Group
Address	No. 999, Jiangyue Rd, Minhang, Shanghai 201114, China
Telephone	0086 21 5017 5386
E-mail	inquiry@richest-group.com
Website	www.richest-group.com
Emergency telephone number	0086 21 5017 5386

SECTION 2: Hazards identification

GHS Classification	Acute oral toxicity (H301); dermal toxicity (H312); Skin corrosion (H314); Serious eye damage (H318); Aquatic acute hazard (H400)
Pictogram(s)	GHS05□GHS06□GHS07□GHS09
Signal word	Danger
Hazard statement(s)	H301 Toxic if swallowed; H312 Harmful in contact with skin; H314 Causes severe skin burns and eye damage; H318 Causes serious eye damage; H400 Very toxic to aquatic life
Precautionary statement(s)	P260; P264; P270; P273; P280; P301+P310; P301+P330+P331; P304+P340; P303+P361+P353; P305+P351+P338; P405; P501
Other hazards	A skin irritant that can cause eye injury; Harmful by ingestion; [Merck Index] Causes burns; Not marketed as a pure substance; Available in alcoholic/aqueous solutions; [EFSA: DAR - Vol. 1] Increased liver weights (with corresponding histopathology) and increased ALT activity in repeated-dose oral studies of animals; [EPA ChAMP: Hazard Characterizations] Causes contact urticaria; [Kanerva, p. 219]

SECTION 3: Composition/information on ingredients

Component	Didecyl Dimethyl Ammonium Chloride 80% (DDAC 80%)
CAS No.	7173-51-5

SECTION 3: Composition/information on ingredients	
EC No.	230-525-2
Classification	Acute oral toxicity (H301); dermal toxicity (H312); Skin corrosion (H314); Serious eye damage (H318); Aquatic acute hazard (H400)
Concentration	Active assay ≥80%

SECTION 4: First-aid measures	
If inhaled	Move the person to fresh air and keep comfortable for breathing. Get medical advice if symptoms occur.
In case of skin contact	Wash with plenty of water. Remove contaminated clothing. Get medical advice if irritation occurs.
In case of eye contact	Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Get medical advice if irritation persists.
If swallowed	Rinse mouth. Do not induce vomiting unless directed by medical personnel. Get medical advice if symptoms occur.
Most important symptoms and effects	For DDAC 80%: mists and vapours can irritate the throat and respiratory tract; high vapour concentrations may cause headache, dizziness, drowsiness and central-nervous-system effects. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Skin contact causes corrosive burns and brief exposure may cause irritation and defatting. Eye contact causes burns and may cause permanent injury including blindness (Aadhunik SDS).
Indication of immediate medical attention	Treat symptomatically. Show this safety data sheet to medical personnel.

SECTION 5: Fire-fighting measures	
Suitable extinguishing media	Use extinguishing media appropriate for the surrounding fire.
Unsuitable extinguishing media	Solid water streams may spread burning liquid; water may not be effective for DDAC 80% (Aadhunik SDS).
Special hazards arising from the chemical	Toxic fumes, nitrogen oxides and carbon monoxide may form. Explosive mixtures can form with air, combustion products are toxic, and solvent vapours may travel to an ignition source and flash back (Aadhunik 80% SDS). For the active ingredient, nitrogen oxides, ammonia and hydrogen chloride may also be emitted on decomposition (HSDB via PubChem).
Advice for firefighters	Wear self-contained breathing apparatus and protective clothing appropriate for the surrounding fire.

SECTION 6: Accidental release measures	
Personal precautions and emergency procedures	Avoid contact with the material. Ensure adequate ventilation. Wear appropriate personal protective equipment.
Environmental precautions	Prevent uncontrolled release to drains, soil and watercourses.
Methods for containment and cleaning up	Collect mechanically or with a suitable absorbent and place in a suitable closed container for disposal.

SECTION 7: Handling and storage	
Precautions for safe handling	Avoid contact with skin and eyes. Avoid formation or inhalation of dust, mist or vapour as applicable. Wash thoroughly after handling.

SECTION 7: Handling and storage

Conditions for safe storage, including incompatibilities	Store cool, tightly closed in a dry, well-ventilated place; reseal opened containers and keep upright

SECTION 8: Exposure controls/personal protection

Occupational exposure limit values	For the ethanol component of DDAC 80%, the Aadhunik SDS lists ACGIH TWA 1000 ppm and NIOSH TWA 1000 ppm. These values apply to ethanol, not DDAC.
Biological limit values	No biological limit values were identified in the reviewed sources.
Appropriate engineering controls	Provide adequate ventilation. Eyewash facilities should be available where contact is possible.
Eye/face protection	For End Use Products Intended for Commercial, Institutional, Industrial, Agricultural, and Residential Uses: PPE requirements are dependent on the Acute Toxicity Daft submitted to EPA to support the end use product registration /and the specific product label should be consulted/
Skin and body protection	For End Use Products Intended for Commercial, Institutional, Industrial, Agricultural, and Residential Uses: PPE requirements are dependent on the Acute Toxicity Daft submitted to EPA to support the end use product registration /and the specific product label should be consulted/
Respiratory protection	Use suitable respiratory protection if exposure limits may be exceeded or dust, mist or vapour is generated.
Thermal hazards	Avoid heat, flames, sparks and other ignition sources; the 80% formulation has a closed-cup flash point of 43 °C (Aadhunik SDS).

SECTION 9: Physical and chemical properties

Physical state	Colorless to light yellow transparent liquid
Colour	Solid powder of slight yellowish color at 20 °C
Odour	Mushroom-like odor
Melting point / freezing point	94-100 °C /OECD Guideline 102/
Boiling point / boiling range	>180 °C; decomposes before boiling at 1 atm /OECD Guideline 103/
Flammability	Combustible liquid, H227, for the 80% formulation; explosive mixtures can form with air and solvent vapours can travel to an ignition source and flash back (Aadhunik SDS).
Explosion / flammability limits	Explosive mixtures can form with air for the 80% ethanol-containing formulation (Aadhunik SDS).
Flash point	107 °C
Auto-ignition temperature	No data available
Decomposition temperature	For the active ingredient: decomposes above 180 °C and before boiling at 1 atm (OECD 103, HSDB via PubChem).
pH	pH = 6.8 to 6.9 at 25 °C in a 29.5% water solution
Viscosity	Viscous liquid, qualitative only, for DDAC 80% (Aadhunik SDS).
Solubility	In water, 0.65 g/L at 20 °C /OECD Guideline 115/; In water, 0.39 g/L at 25 °C /critical micelle concentration/
Partition coefficient n-octanol/water	log Kow = 2.59 at 20 °C, pH 7
Vapour pressure	<4.3X10-5 mm Hg at 25 °C, <1.1X10-5 mm Hg at 20 °C /OECD Guideline 104/
Density and/or relative density	0.87 at 20 °C /OECD Guideline 109/

SECTION 9: Physical and chemical properties	
Relative vapour density	No data available
Particle characteristics	Not applicable (liquid).
Ignition temperature	403 °C

SECTION 10: Stability and reactivity	
Reactivity	Stable under ordinary conditions of use and storage for DDAC 80% (Aadhunik SDS). The active ingredient is photolytically and hydrolytically stable according to the regulatory text reproduced by Ataman.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Hazardous polymerization is not reported for DDAC 80%; explosive mixtures can form with air (Aadhunik SDS).
Conditions to avoid	Heat, flames, sparks, ignition sources, direct sunlight and incompatible materials; keep containers tightly closed in a cool, dry, ventilated area (Aadhunik SDS).
Incompatible materials	Acids and oxidizing agents (Aadhunik 80% SDS).
Hazardous decomposition products	When heated to decomposition it emits very toxic fumes of /nitrogen oxides, ammonia, and hydrogen chloride/.

SECTION 11: Toxicological information	
Skin corrosion irritation	GHS classification: Skin corrosion (H314)
Serious eye damage irritation	GHS classification: Serious eye damage (H318)
Acute toxicity	LD50 Rat oral 84 mg/kg; LD50 Rat (male) oral 331 mg/kg /65% a.i./ /from table/; LD50 Rat (female) oral 238 mg/kg /65% a.i./ /from table/; LD50 Rat oral 238 mg/kg /80% a.i./
Toxicological summary	IDENTIFICATION AND USE: Didecyl dimethylammonium chloride is a clear yellow liquid with an ethanolic odor. It is used as an algaecide, bacteriocide, fungicide, fungistat, microbiocide, microbiostat disinfectant, viricide, tuberculocide, molluscide, sanitizer, wood preservative, deodorant, and insecticide. It has been tested for treatment of impetiginized eczema patients in combination with prednicarbate. HUMAN EXPOSURE AND TOXICITY: Nausea, headache, and sore throat are the primary systemic effects that have been reported.
Health effects	A skin irritant that can cause eye injury; Harmful by ingestion; [Merck Index] Causes burns; Not marketed as a pure substance; Available in alcoholic/aqueous solutions; [EFSA: DAR - Vol. 1] Increased liver weights (with corresponding histopathology) and increased ALT activity in repeated-dose oral studies of animals; [EPA ChAMP: Hazard Characterizations] Causes contact urticaria; [Kanerva, p. 219]
Irritation corrosion	DDAC 80% causes corrosive skin burns and serious eye injury, potentially including permanent blindness; respiratory-tract irritation is also reported (Aadhunik SDS).

SECTION 12: Ecological information	
Ecotoxicity	LC50; Species: Anas platyrhynchos (Mallard duck) age 10 days; diet >5620 ppm for 8 days; LC50; Species: Anas platyrhynchos (Mallard duck) diet >3500 ppm for 8 days
Persistence degradability	AEROBIC: Didecyl dimethyl ammonium chloride biodegradation test results(1).[Table#7301]
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.

SECTION 12: Ecological information

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).
Other adverse effects	The rate constant for the vapor-phase reaction of didecyl dimethyl ammonium chloride with photochemically-produced hydroxyl radicals has been estimated as 4.6X10-11 cu cm/molecule-sec at 25 °C(SRC) using a structure estimation method(1).
Environmental fate	TERRESTRIAL FATE: Based on a classification scheme(1), measured Koc values ranging from 677 to 9.1X10+5 in a variety soils (most >1.0X10+4)(2,3), indicate that didecyl dimethyl ammonium chloride is expected to have low to no immobility in soil(SRC).
Aquatic toxicity	Reported in the Aadhunik DDAC 80% SDS: LC50 Brachydanio rerio 0.49 mg/L, 96 h and EC50 Daphnia magna 0.094 mg/L, 48 h. The product is described as very toxic to aquatic organisms.
Bioaccumulation	For the active ingredient: BCF 81 in bluegill sunfish, indicating moderate bioconcentration potential; low bioconcentration was reported in carp without numerical BCF values (HSDB via PubChem).
Mobility	For the active ingredient: reported log Koc 5.64-6.20 in four soils, corresponding to Koc 4.4 × 10^5 to 1.6 × 10^6; separate OECD 106 batch studies gave Koc 667-24,433 across five soils. Strong sorption to suspended solids and sediment indicates low to no mobility in most soils (HSDB via PubChem).

SECTION 13: Disposal considerations

Product disposal methods	SRP: The most favorable course of action is to use an alternative chemical product with less inherent propensity for occupational harm/injury/toxicity or environmental contamination. Recycle any unused portion of the material for its approved use or return it to the manufacturer or supplier.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal in accordance with local regulations.

SECTION 14: Transport information

UN Number (ADR/RID, IMDG, IATA)	2922
UN Proper Shipping Name	CORROSIVE LIQUID, TOXIC, N.O.S.
Transport hazard class(es)	8 + 6.1
Packing group	III
Environmental hazards / Marine pollutant	H400 (very toxic to aquatic life); marine pollutant status is not stated in the reviewed SDS.
Special precautions for user	Keep containers closed and secured during transport. Follow applicable dangerous goods regulations.

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product	No data available

SECTION 16: Other information

Full text of H-Statements	H301 Toxic if swallowed; H312 Harmful in contact with skin; H314 Causes severe skin burns and eye damage; H318 Causes serious eye damage; H400 Very toxic to aquatic life

SECTION 16: Other information

Revision date	2026-11-16
Version	1.0
References	Supplier technical documents, public SDS/COA/TDS and regulatory sources reviewed. Public data citations are listed below. Public data sources: PubChem Didecyldimethylammonium Chloride (CID 23558): https://pubchem.ncbi.nlm.nih.gov/compound/23558 | Aadhunik Industries Safety Data Sheet: Didecyl Dimethyl Ammonium Chloride 80%: https://aadhunikindustries.com/didecyldimethylammoniumchlorideSDS-MSDS.html | Ataman Kimya: BARDAC 2250/2280 composition and regulatory physical-property information: https://www.ataman-chemicals.com/en/products/bardac-2250-1315.html
Abbreviations	CAS: Chemical Abstracts Service; ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road; IMDG: International Maritime Dangerous Goods; IATA: International Air Transport Association; SDS: Safety Data Sheet.
Disclaimer	The information in this SDS applies to the specified product and is provided in good faith based on information available to Richest Group at the date of issue. It describes health, safety and environmental requirements and does not constitute a guarantee of product properties. Users must assess suitability and comply with applicable regulations.