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SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Product	Dimethyl Disulfide (DMDS)	**Revision date**	2026-11-16
Version	1.0	**Brand**	Richest

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

Product name	Dimethyl Disulfide (DMDS)
Synonyms	Dimethyl disulphide; (methyldisulfanyl)methane
CAS No.	624-92-0
EC No.	210-871-0
Molecular formula	C2H6S2
Molecular weight	94.20 g/mol
Relevant identified uses	Intermediate and sulfiding agent in oil refineries; Food/flavor applications listed by supplier TDS: onion, garlic, cheese, meats, soups, savory and fruit flavors; Preparation of 4-(methylthio)phenol; jet fuel additive; corrosion inhibitor; soil fumigant in agriculture
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	EU CLP: Flam. Liq. 2; Acute Tox. oral 3; Skin Sens.; Eye Irrit.; Acute Tox. inhalation 3; STOT SE 3 (narcotic effects); STOT SE 1; aquatic acute/chronic hazards
Pictogram(s)	Pending final pictogram artwork verification against CLP entry
Signal word	Danger
Hazard statement(s)	H225 Highly flammable liquid and vapour; H301 Toxic if swallowed; H317 May cause an allergic skin reaction; H319 Causes serious eye irritation; H331 Toxic if inhaled; H336 May cause drowsiness or dizziness; H370 Causes damage to organs; H400 Very toxic to aquatic life; H410 Very toxic to aquatic life with long lasting effects
Precautionary statement(s)	No data available
Other hazards	A mild skin irritant, dimethyl disulfide is toxic by inhalation, skin absorption, and ingestion. Workers are warned by the nauseating odor, but those exposed to high concentrations may experience fatigue, dyspnea, and upper respiratory tract irritation. At lethal concentrations, animals suffer severe lung injury and paralysis of respiratory muscles.

SECTION 3: Composition/information on ingredients

Component	Dimethyl Disulfide (DMDS)
CAS No.	624-92-0

SECTION 3: Composition/information on ingredients	
EC No.	210-871-0
Classification	EU CLP: Flam. Liq. 2; Acute Tox. oral 3; Skin Sens.; Eye Irrit.; Acute Tox. inhalation 3; STOT SE 3 (narcotic effects); STOT SE 1; aquatic acute/chronic hazards
Concentration	Purity ≥99.5%

SECTION 4: First-aid measures	
If inhaled	IMMEDIATELY leave the contaminated area; take deep breaths of fresh air. If symptoms (such as wheezing, coughing, shortness of breath, or burning in the mouth, throat, or chest) develop, call a physician and be prepared to transport the victim to a hospital. Provide proper respiratory protection to rescuers entering an unknown atmosphere.
In case of skin contact	IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. If symptoms such as redness or irritation develop, IMMEDIATELY call a physician and be prepared to transport the victim to a hospital for treatment.
In case of eye contact	First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.
If swallowed	DO NOT INDUCE VOMITING. If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. Be prepared to transport the victim to a hospital if advised by a physician. If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open and lay the victim on his/her side with the head lower than the body. DO NOT INDUCE VOMITING.
Most important symptoms and effects	No data available
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	No data available
Special hazards arising from the chemical	Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire. Above 10 °C explosive vapour/air mixtures may be formed.
Advice for firefighters	Excerpt from ERG Guide 131 [Flammable Liquids - Toxic]:

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	Evacuate danger area! Consult an expert! Remove all ignition sources. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Do NOT wash away into sewer. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in sealable containers as far as possible.

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.
Conditions for safe storage, including incompatibilities	Store in a dry, cool, dark and well-ventilated place; keep container tightly closed and locked up; keep away from moisture, heat and incompatible oxidizing agents; TDS also says store separately from poisonous substances.

SECTION 8: Exposure controls/personal protection

Occupational exposure limit values	No data available
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	Excerpt from ERG Guide 131 [Flammable Liquids - Toxic]:
Skin and body protection	Excerpt from ERG Guide 131 [Flammable Liquids - Toxic]:
Respiratory protection	Use suitable respiratory protection if exposure limits may be exceeded or dust, mist or vapour is generated.
Thermal hazards	No specific thermal hazards were identified in the reviewed sources; see Sections 5 and 10.

SECTION 9: Physical and chemical properties

Physical state	Liquid
Colour	clear
Odour	colorless to pale yellow
Melting point / freezing point	−85°C
Boiling point / boiling range	110°C
Flammability	Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire. Above 10 °C explosive vapour/air mixtures may be formed.
Explosion / flammability limits	No data available
Flash point	7°C (SDS); COA specification/result 16°C
Auto-ignition temperature	300°C
Decomposition temperature	No data available
pH	≤120
Viscosity	0.62 mPa.sec at 20 °C
Solubility	4.2 g/L at 20°C (SDS); TDS states <0.1 g/100 mL at 20°C
Partition coefficient n-octanol/water	log Kow = 1.77
Vapour pressure	3.8 kPa at 25°C
Density and/or relative density	1.06 (SDS); TDS 1.0625 g/cm³
Relative vapour density	3.24 (NTP, 1992) - Heavier than air; will sink (Relative to Air)
Particle characteristics	Not applicable (liquid).
Refractive index	Index of refraction: 1.5289 at 20 °C/D

SECTION 10: Stability and reactivity

Reactivity	Highly flammable. Slightly soluble in water.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	DIMETHYL DISULFIDE is a reducing agent. A dangerous fire hazard when exposed to oxidizing materials. Emits toxic fumes of oxides of sulfur when heated to decomposition or on contact with acids [Sax, 9th ed., 1996, p. 1320].
Conditions to avoid	NO open flames, NO sparks and NO smoking. Above 10 °C use a closed system, ventilation and explosion-proof electrical equipment.
Incompatible materials	... Can react vigorously with oxidizing materials.
Hazardous decomposition products	No data available

SECTION 11: Toxicological information

Acute toxicity	LC50 Mice inhalation 12300 ug/cu m/2 hr; LC50 Rat inhal 15850 ug/cu m/2 hr; LD50 Rabbit dermal more than 2000 mg/kg; LD50 Rat oral more than 290 mg/kg
Toxicological summary	/GENOTOXICITY/ In a cytogenetic assay, human lymphocytes were exposed to dimethyl disulfide (99.98% pure) at 3.7, 11.1, 33.3, 100 or 300 ug/mL with and without metabolic activation. The cytotoxic concentration was observed to be > or = 300 ug/mL. Positive and negative (dimethyl sulfoxide) controls were included. An appropriate response was observed in the positive control. A statistically significant induction of chromosome aberrations was observed only at the toxic concentration of 300 ug/mL.
Health effects	Excerpt from ERG Guide 131 [Flammable Liquids - Toxic]:
Serious eye damage irritation	GHS classification: EU CLP: Flam. Liq. 2; Acute Tox. oral 3; Skin Sens.; Eye Irrit.; Acute Tox. inhalation 3; STOT SE 3 (narcotic effects); STOT SE 1; aquatic acute/chronic hazards; H225 H301 H317 H319 H331 H336 H370 H400 H410
Sensitization	GHS classification: EU CLP: Flam. Liq. 2; Acute Tox. oral 3; Skin Sens.; Eye Irrit.; Acute Tox. inhalation 3; STOT SE 3 (narcotic effects); STOT SE 1; aquatic acute/chronic hazards; H225 H301 H317 H319 H331 H336 H370 H400 H410

SECTION 12: Ecological information

Ecotoxicity	EC50; Species: Anabaena flosaquae (Blue-Green Algae); Conditions: freshwater, static; Concentration: 320 ug/L for 96 hr (95% confidence limit: 110-900 ug/L); Effect: population abundance /99.6% purity/; EC50; Species: Navicula pelliculosa (Diatom); Conditions: freshwater, static; Concentration: 22000 ug/L for 96 hr (95% confidence limit: 20000-23000 ug/L); Effect: population abundance /99.6% purity/
Persistence degradability	AEROBIC: Dimethyl disulfide, present at 100 mg/L, reached 0% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test(1).
Bioaccumulative potential	An estimated BCF of 0.3 was calculated in fish for dimethyl disulfide(SRC), using a log Kow of 1.77(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 a structure estimation method based on molecular connectivity indices(1), the Koc of dimethyl disulfide can be estimated to be 40(SRC). According to a classification scheme(2), this estimated Koc value suggests that dimethyl disulfide is expected to have very high mobility in soil.
Other adverse effects	The rate constant for the vapor-phase reaction of dimethyl disulfide with photochemically-produced hydroxyl radicals has been reported as 2.39X10-10 cu cm/molecule-sec at 25 °C(1). This corresponds to an atmospheric half-life of about 1.6 hours at an atmospheric concentration of 5X10+5 hydroxyl radicals per cu cm(1).

SECTION 12: Ecological information

Environmental fate	TERRESTRIAL FATE: Based on a classification scheme(1), an estimated Koc value of 40(SRC), determined from a structure estimation method(2), indicates that dimethyl disulfide is expected to have very high mobility in soil(SRC). Volatilization of dimethyl disulfide from moist soil surfaces is expected to be an important fate process(SRC) given a Henry's Law constant of 1.21X10-3 atm-cu m/mole(3).

SECTION 13: Disposal considerations

Product disposal methods	SRP: At the time of review, criteria for land treatment or burial (sanitary landfill) disposal practices are subject to significant revision. Prior to implementing land disposal of waste residue (including waste sludge), consult with environmental regulatory agencies for guidance on acceptable disposal practices.
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)	2381
UN Proper Shipping Name	DIMETHYL DISULFIDE
Transport hazard class(es)	3 (6.1)
Packing group	II
Environmental hazards / Marine pollutant	Yes
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	Emergency Response Planning Guidlines (ERPGs) for dimethyl disulfide:[Table#5960]

SECTION 16: Other information

Full text of H-Statements	H225 Highly flammable liquid and vapour; H301 Toxic if swallowed; H317 May cause an allergic skin reaction; H319 Causes serious eye irritation; H331 Toxic if inhaled; H336 May cause drowsiness or dizziness; H370 Causes damage to organs; H400 Very toxic to aquatic life; H410 Very toxic to aquatic life with long lasting effects
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 Dimethyl Disulfide (CID 12232): https://pubchem.ncbi.nlm.nih.gov/compound/12232
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.