

Safety Data Sheet (MSDS)

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)

Sodium Dimethyldithiocarbamate (Purity \geq 98.0%)

SECTION 1: Identification

1.1 Product Identifiers - Product Name: Sodium Dimethyldithiocarbamate - Product Number: SDDC-20280203 - Brand: SIGALD - CAS-No.: 128-04-1 - Synonyms: Sodium N,N-dimethyldithiocarbamate; Dimethyldithiocarbamic acid sodium salt; SDDC - Chemical Family: Dithiocarbamate salt - Concentration: \geq 98.0% (w/w) Sodium Dimethyldithiocarbamate, \leq 1.0% moisture, \leq 0.5% ash

1.2 Details of the supplier of the safety data sheet

- Company : NEWAY SINOPHC TECH. LIMITED
- RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI)PILOT FREE TRADE ZONE.
- Telephone : +86-021-50350029
- Fax : +86-021-50350029

1.3 Emergency telephone

Emergency Phone # : +86-021-50350029
(CHEMTREC)

1.4 Uses & Restrictions - Identified Uses: Heavy metal chelating agent in water treatment (removes Cu, Pb, Cd, Hg); bactericide and algicide for industrial circulating water; rubber vulcanization accelerator and antioxidant; intermediate for pharmaceuticals, pesticides and dyes; flotation reagent for mineral processing. - Uses Advised Against: Direct contact with food, cosmetics or pharmaceuticals; use in strong acidic environment (pH <5.0) without protection; mixing with strong oxidants or nitrites; use in open, unventilated areas without PPE.

SECTION 2: Hazards Identification

2.1 GHS Classification: Skin irritation (Category 2); Eye irritation (Category 2A); Specific target organ toxicity (single exposure, respiratory tract, Category 3); Aquatic hazard (Category 1)

2.2 GHS Label Elements - Hazard Pictogram: (Warning) + (Aquatic hazard) - Signal Word: WARNING - Hazard Statements: H315 (Causes skin irritation); H319 (Causes serious eye irritation); H335 (May cause respiratory irritation); H400 (Very toxic to aquatic life) - Precautionary Statements: P201, P202, P261, P264, P270, P271, P273, P280, P302+P352, P304+P340, P305+P351+P338, P312, P321, P332+P313, P337+P313, P362+P364, P403+P233, P405, P501

2.3 Physical/Chemical Hazards: White to pale yellow crystalline powder; slight ammonia odor; highly soluble in water; decomposes at 240-245°C, releasing toxic sulfur-containing fumes and dimethylamine; non-flammable under normal conditions; no explosive hazards; may react violently with strong oxidants (e.g., potassium permanganate) and strong acids (releases toxic dimethylamine gas).

2.4 Health Hazards: Skin contact causes redness, itching, dryness and irritation; prolonged contact may lead to dermatitis; eye contact causes severe irritation, redness, tearing, blurred vision and possible corneal damage; inhalation of dust or vapor (especially in humid/heated environment) may cause respiratory tract irritation (cough, sore throat, chest discomfort); oral ingestion causes nausea, vomiting, abdominal pain, dizziness and diarrhea; high doses may damage liver and kidney functions.

2.5 Environmental Hazards: Very toxic to aquatic organisms (fish, algae, invertebrates); highly persistent in water bodies; moderate bioaccumulation potential (BCF = 100-1000); may contaminate soil and groundwater if spilled in large quantities, posing long-term risks to terrestrial plants and soil organisms.

SECTION 3: Composition/Information on Ingredients

Substance/Mixture: Mainly pure substance ($\geq 98.0\%$), trace impurities

Component	Content (w/w)	CAS-No.	Hazard Classification
Sodium Dimethyldithiocarbamate	$\geq 98.0\%$	128-04-1	Skin Irrit. 2; Eye Irrit. 2A; STOT-SE 3; Aquatic Tox. 1
Water	$\leq 1.0\%$	7732-18-5	Non-hazardous
Inorganic Ash	$\leq 0.5\%$	Mixture	Non-hazardous

SECTION 4: First Aid Measures

- Inhaled: Remove to fresh air immediately; keep the affected person in a comfortable position, maintain airway patency; if breathing is difficult, give oxygen; seek medical help if irritation persists or symptoms worsen (e.g., chest pain, shortness of breath). - Skin Contact: Remove contaminated clothing and shoes immediately; rinse skin thoroughly with plenty of running water for at least 15 minutes; wash with mild soap if necessary; apply emollient cream if skin is dry or irritated; seek medical help if dermatitis or severe irritation occurs. - Eye Contact: Hold eyelids open; rinse eyes continuously with clean water or normal saline for at least 15 minutes (flush from inner to outer corner); do not rub eyes or use eye drops; seek emergency medical help immediately, even if symptoms are mild. - Swallowed: Do not induce vomiting (may cause aspiration); rinse mouth with water (do not swallow); do not give anything by mouth to an unconscious person; seek emergency medical help immediately, bring this MSDS.

SECTION 5: Firefighting Measures

- Suitable Extinguishing Media: Water spray, foam, CO₂, dry powder; use water to cool containers. - Unsuitable Media: High-pressure water jet (may dissolve the product and spread contamination); strong oxidants (may intensify reaction). - Special Hazards: Decomposes when heated above 240°C, releasing toxic sulfur dioxide (SO₂), dimethylamine (toxic gas) and carbon monoxide (CO); combustion products include toxic sulfur-containing fumes and nitrogen oxides; non-flammable, but may assist combustion of other materials. - Firefighter Advice: Wear full protective equipment (firefighting suit, self-contained breathing apparatus, face shield); avoid inhalation of dust and combustion fumes; cool containers with water spray until the fire is completely extinguished; isolate the fire scene and evacuate non-essential personnel.

SECTION 6: Accidental Release Measures

- Personal Precautions: Evacuate non-essential personnel; wear full PPE (dust mask/N95 respirator, chemical safety goggles, nitrile gloves, protective clothing); ensure good ventilation at the leakage site (local exhaust ventilation). - Environmental Precautions: Immediately block the leakage area with sand or inert materials; prevent the powder from entering sewers, rivers, lakes or groundwater; cover the leakage with plastic film to prevent spreading; notify local environmental authorities for large-scale leakage (> 10 kg). - Cleanup: Small spill - sweep up carefully with a dry brush, collect into a sealed corrosion-resistant container for disposal; large spill - use inert absorbent materials (vermiculite, activated carbon) to contain the leakage, transfer to sealed drums; clean the area with a small amount of alkaline water (pH 8-9, collect rinse water for treatment), do not discharge directly.

SECTION 7: Handling and Storage

- Handling: Operate in a well-ventilated workshop (local exhaust ventilation, air change rate ≥ 10 times/hour); use dust-proof tools and equipment; avoid generating dust (do not grind, crush or agitate violently); avoid contact with skin, eyes and inhalation of dust; do not mix with strong oxidants, strong acids or nitrites; wash hands and face thoroughly after operation (use mild soap); avoid eating, drinking or smoking in the workplace. - Storage: Store in a cool, dry, well-ventilated warehouse (temperature 5-30°C, relative humidity $\leq 70\%$); keep container tightly closed, store upright; store separately from strong oxidants (KMnO_4 , H_2O_2), strong acids (HCl , H_2SO_4), nitrites and food-grade materials; no smoking in the storage area; install dust collection equipment and leakage emergency treatment tools. - Shelf Life: 24 months (unopened, specified conditions); use promptly after opening, seal tightly after each use; do not use if discoloration (dark yellow/brown), caking or strong ammonia odor occurs. - Compatibility: Incompatible with strong oxidants, strong acids, nitrites, heavy metal salts and peroxides.

SECTION 8: Exposure Controls/Personal Protection

- Engineering Controls: Install local exhaust ventilation system; set up emergency eyewash stations and safety showers (within 10 meters of the workplace); use dust-proof equipment and pipelines; install dust concentration detection alarms (alarm threshold: 10 mg/m^3). - PPE: Respiratory protection: Dust mask (N95 or above) when handling powder, respirator with organic vapor cartridge if exposed to vapor; Hand protection: Nitrile gloves (thickness $\geq 0.8 \text{ mm}$, replace every 2-4 hours); Eye/Face protection: Chemical safety goggles and face shield; Body protection: Dust-proof protective clothing and boots. - Hygiene Measures: Do not touch eyes, face or mouth with contaminated hands; change contaminated clothing immediately; wash contaminated clothing separately (mild detergent, alkaline water); provide mild soap and skin care products near the workplace; conduct regular health checks for operators (annual physical examination focusing on respiratory and liver/kidney functions).

SECTION 9: Physical and Chemical Properties

Physical State: Solid (crystalline powder); Color: White to pale yellow; Odor: Slight ammonia-like odor pH (25°C, 1% Aqueous Solution): 9.0-11.0; Melting Point: 240-245°C (decomposition); Boiling Point: Decomposes before boiling Flash Point: Not applicable (non-flammable solid); Autoignition Temperature: $>300^\circ\text{C}$; Flammability: Non-flammable Density (25°C): 1.41 g/cm^3 ; Solubility: Highly soluble in water (100 g/100 mL at 25°C), slightly soluble in ethanol, insoluble in ether and benzene Vapor Pressure (25°C): $<0.01 \text{ hPa}$; Partition Coefficient (log P): -1.5 (estimated); Particle Size: 80-200 mesh (pass rate $\geq 95\%$)

SECTION 10: Stability and Reactivity

- Stability: Stable under normal storage and handling conditions (5-30°C, sealed); no decomposition at room temperature; stable for 24 months under specified storage conditions; decomposes at >240°C to release SO₂, dimethylamine and CO; hydrolyzes slowly in water (more rapidly in acidic/alkaline conditions). - Incompatibilities: Strong oxidants (violent reaction, may generate heat and toxic fumes); strong acids (releases toxic dimethylamine gas); nitrites (forms toxic nitrosamines); heavy metal salts (forms insoluble dithiocarbamate complexes); peroxides (accelerates decomposition). - Hazardous Decomposition Products: Sulfur dioxide (SO₂), dimethylamine (toxic gas), carbon monoxide (CO) when heated; toxic dimethylamine gas when reacting with strong acids; non-toxic sodium salts and sulfur-containing compounds under controlled decomposition.

SECTION 11: Toxicological Information

- Acute Toxicity: Oral (Rat, LD₅₀): 1800 mg/kg; Dermal (Rabbit, LD₅₀): >2000 mg/kg; Inhalation (Rat, LC₅₀): >5 mg/m³ (4-hour exposure, dust). - Skin/Eye Irritation: Skin irritation (Category 2), causes redness and itching; eye irritation (Category 2A), causes severe redness and corneal irritation. - Organ Toxicity: Single exposure may cause respiratory tract and gastrointestinal tract irritation; high-dose oral ingestion or long-term inhalation may damage liver and kidney functions; no mutagenic or carcinogenic effects reported in animal tests. - Other Toxicity: No skin sensitization reported; no teratogenic effects reported in animal reproduction tests.

SECTION 12: Ecological Information

- Fish (Zebrafish, LC₅₀): <1 mg/L (96-hour exposure) - Daphnia (EC₅₀): <0.5 mg/L (48-hour exposure) - Algae (Growth Inhibition, EC₅₀): <1 mg/L (72-hour exposure) - Biodegradability: Poorly biodegradable (BOD₅/COD = <0.1); persists in water for 60-90 days. - Environmental Fate: Highly soluble in water; hydrolyzes slowly in natural water (half-life 30-60 days); moderate bioaccumulation (BCF = 100-1000); leaches into groundwater if spilled on soil, posing long-term risks to aquatic ecosystems.

SECTION 13: Disposal Considerations

- Product Waste: Collect waste in sealed, labeled corrosion-resistant containers; incinerate via licensed hazardous waste treatment institutions (incineration temperature ≥900°C, with flue gas treatment to remove SO₂ and dimethylamine); do not landfill or discharge into water bodies or sewers. - Packaging Waste: Rinse containers thoroughly with alkaline water (pH 8-9, collect rinse water for treatment); dispose of as hazardous waste (toxic); do not reuse or recycle contaminated packaging. - Special Disposal Notes: Incineration must be carried out in a professional facility with flue gas purification (wet scrubber for SO₂ and dimethylamine); comply with local environmental protection regulations for hazardous waste disposal; do not mix with other wastes during disposal.

SECTION 14: Transport Information

- UN Number: ADR/RID: 3077; IMDG: 3077; IATA-DGR: 3077 - UN Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains Sodium Dimethyldithiocarbamate) - Transport Class: 9 (Miscellaneous hazardous substances); Packaging Group: III; Environmental Hazards: Yes (Marine Pollutant, Category 1) - Special Precautions: Transport in sealed, dust-proof, corrosion-resistant packaging (25 kg paper bags with PE inner liner or 200 L steel drums with PE inner liner); transport by specialized hazardous chemical vehicles; avoid collision, vibration and impact; keep away from strong oxidants,

strong acids and food during transport; prevent rain, sunlight and high temperature; drivers and handlers must be trained and hold relevant certificates; carry this MSDS and emergency handling equipment.

SECTION 15: Regulatory Information

- National Regulations (China): Complies with GB/T 23943-2020 (Industrial Sodium Dimethyldithiocarbamate); Hazardous Chemical Safety Management Regulation (Hazard Class 9); compliant with water treatment chemical and rubber processing industry standards; prohibited for food, cosmetic and pharmaceutical use without purification. - International Regulations: GHS Rev.9 (Skin Irrit. 2, Eye Irrit. 2A, STOT-SE 3, Aquatic Tox. 1); REACH (EU, registered); TSCA (US, listed); FDA (US, restricted use in food contact areas).

SECTION 16: Other Information

- Revision Date: 03 FEB 2025 - Disclaimer: Based on current scientific knowledge and product testing data; this product is toxic to aquatic organisms, supplier not liable for damage caused by improper use, storage, handling or non-compliance with regulations; the information in this MSDS is accurate to the best of our knowledge at the time of revision.