



# NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.  
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## Safety Data Sheet (MSDS)

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

### Sulfuric Acid (Purity $\geq$ 98.0%, Industrial Grade)

#### SECTION 1: Identification

1.1 Product Identifiers - Product Name: Sulfuric Acid - Product Number: SA-20280203 - Brand: SIGALD - CAS-No.: 7664-93-9 - Synonyms: Oil of vitriol; Sulphuric acid - Chemical Family: Inorganic strong acid - Concentration:  $\geq$  98.0% (w/w)  $H_2SO_4$ ,  $\leq$  2.0% free  $SO_3$ , trace impurities  
1.2 Supplier Details - Company: NEWAY SINOPHC TECH. LIMITED - Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE. - Telephone: +86-021-50350029; Fax: +86-021-50350029 - Email: service@newaysinophc.com  
1.3 Emergency Phone: +86-021-50350029 (CHEMTREC); +86-120 (Medical Emergency)  
1.4 Uses & Restrictions - Identified Uses: Chemical synthesis (fertilizers, dyes, detergents); metal pickling and surface treatment; pharmaceutical intermediate; battery electrolyte (diluted); water treatment pH adjuster and scale remover; laboratory reagent. - Uses Advised Against: Direct contact with food, cosmetics or pharmaceuticals; use in unventilated areas without PPE; mixing with water in reverse order (water into acid); mixing with strong还原剂, metals or alkalis without protection.

#### SECTION 2: Hazards Identification

2.1 GHS Classification: Skin corrosion/irritation (Category 1A); Eye damage/irritation (Category 1); Specific target organ toxicity (single exposure, respiratory tract, Category 3); Aquatic hazard (Category 1)  
2.2 GHS Label Elements - Hazard Pictogram: (Toxic/Corrosive) + (Aquatic hazard) - Signal Word: DANGER - Hazard Statements: H314 (Causes severe skin burns and eye damage); H335 (May cause respiratory irritation); H400 (Very toxic to aquatic life) - Precautionary Statements: P201, P202, P260, P261, P264, P270, P271, P273, P280, P301+P330+P331, P303+P361+P353, P304+P340+P310, P305+P351+P338+P310, P310 (Immediately call a poison center or doctor/physician), P321, P363, P405, P501  
2.3 Physical/Chemical Hazards: Colorless to pale yellow viscous liquid; corrosive odor; high density (1.84 g/cm<sup>3</sup>); boiling point 338°C, freezing point 10.36°C; highly soluble in water (exothermic reaction, releases large amounts of heat); strong oxidizing and corrosive; reacts violently with strong还原剂 (e.g., zinc powder, sodium sulfide), metals (Fe, Zn, Cu) and strong alkalis (NaOH) to generate heat, flammable gases ( $H_2$ ) or explosive mixtures; contact with organic matter (wood, paper) may cause carbonization and ignition.  
2.4 Health Hazards: Skin contact causes severe burns, blistering, tissue necrosis and scarring (irreversible damage); eye contact causes severe burns, corneal damage and possible blindness (irreversible); inhalation of mist/fumes (especially when heated or diluted) causes severe respiratory tract irritation, coughing, chest pain, difficulty breathing, and may damage nasal cavity and throat mucosa; oral ingestion causes severe burns to mouth, esophagus and stomach, vomiting (may contain blood), abdominal pain, shock and even death; long-term exposure may damage teeth (erosion) and respiratory system.  
2.5 Environmental Hazards: Very toxic to aquatic organisms (fish, algae, invertebrates); highly persistent in water bodies; low bioaccumulation potential (BCF <100); causes severe water acidification if spilled, destroying aquatic ecosystems; may contaminate soil and groundwater, inhibiting plant growth.

#### SECTION 3: Composition/Information on Ingredients

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

Component	Content (w/w)	CAS-No.	Hazard Classification
Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	$\geq 98.0\%$	7664-93-9	Skin Corr. 1A; Eye Dam. 1; STOT-SE 3; Aquatic Tox. 1
Free Sulfur Trioxide (SO <sub>3</sub> )	$\leq 2.0\%$	7446-11-9	Skin Corr. 1A; Eye Dam. 1
Impurities (Fe, Pb, Cl <sup>-</sup> )	$\leq 0.01\%$	Mixture	Non-hazardous (trace)

## SECTION 4: First Aid Measures

- Inhaled: Remove to fresh air immediately; keep the affected person in a semi-recumbent position, maintain airway patency; if breathing is difficult or stops, give artificial respiration (by trained personnel) and oxygen; seek emergency medical help immediately. - Skin Contact: Remove contaminated clothing and shoes immediately; rinse the affected area thoroughly with plenty of cold running water for at least 15 minutes (do not use hot water); do not rub or apply any ointment; seek emergency medical help immediately (even if no obvious burns are visible). - Eye Contact: Hold eyelids open; rinse eyes continuously with plenty of cold running water (or normal saline) for at least 20 minutes (flush from inner to outer corner); do not rub eyes or use eye drops; seek emergency medical help immediately (irreversible damage may occur quickly). - Swallowed: Do not induce vomiting (may cause secondary burns to esophagus); rinse mouth with water (do not swallow); give 200-300 mL of water or milk (only if the person is conscious and able to swallow); seek emergency medical help immediately, bring this MSDS.

## SECTION 5: Firefighting Measures

- Suitable Extinguishing Media: Water spray (cooling only), dry powder, foam, CO<sub>2</sub>; do not use direct water jet on concentrated sulfuric acid. - Unsuitable Media: Direct water jet (may cause splashing of corrosive liquid); strong还原剂 or organic solvents. - Special Hazards: Does not burn, but reacts violently with metals to generate flammable hydrogen gas (may ignite or explode); decomposes when heated above 340°C, releasing toxic sulfur dioxide (SO<sub>2</sub>) and sulfur trioxide (SO<sub>3</sub>) fumes; contact with organic matter (wood, paper, oil) may cause carbonization and ignition. - Firefighter Advice: Wear full protective equipment (acid-resistant fire suit, self-contained breathing apparatus, face shield, acid-resistant gloves and boots); keep a safe distance; cool containers with water spray until the fire is completely extinguished; avoid inhalation of fumes and contact with corrosive liquids; isolate the fire scene and evacuate non-essential personnel.

## SECTION 6: Accidental Release Measures

- Personal Precautions: Evacuate non-essential personnel immediately; set up warning signs (corrosive hazard); wear full PPE (acid-resistant respirator, chemical safety goggles, face shield, acid-resistant gloves and suit); ensure good ventilation (local exhaust ventilation). - Environmental Precautions: Prevent the liquid from entering sewers, rivers, lakes or groundwater; build dikes around the leakage area to contain the liquid; do not flush with water directly;

notify local environmental authorities for large-scale leakage (> 10 L). - Cleanup: Small spill - absorb with acid-resistant absorbent materials (vermiculite, activated carbon, diatomaceous earth), collect into sealed acid-resistant drums for disposal; large spill - transfer the liquid to sealed acid-resistant containers with acid-resistant pumps, then neutralize the residual liquid with lime (CaO) or sodium bicarbonate (NaHCO<sub>3</sub>) (slowly add alkali to acid, avoid exothermic splashing); clean the area with plenty of water (collect rinse water for neutralization treatment), do not discharge directly.

## SECTION 7: Handling and Storage

- Handling: Operate in a well-ventilated workshop (local exhaust ventilation, air change rate  $\geq 12$  times/hour); use acid-resistant tools and equipment (glass, PTFE, PP); strictly follow the "acid into water" principle when diluting (slowly add sulfuric acid to water while stirring, do not reverse); avoid splashing, inhalation of mist and contact with skin/eyes; do not mix with strong 还原剂, metals, alkalis or organic matter; wash hands and face thoroughly with water after operation (do not use soap immediately); avoid eating, drinking or smoking in the workplace. - Storage: Store in a cool, dry, well-ventilated dedicated warehouse (temperature 5-30°C, relative humidity  $\leq 75\%$ ); keep container tightly closed, store upright; use acid-resistant shelves and pallets (PP, rubber or concrete); store separately from strong 还原剂 (Zn powder, Na<sub>2</sub>S), metals, alkalis (NaOH, KOH), organic matter and food-grade materials (separation distance  $\geq 10$  meters); no smoking in the storage area; install emergency eyewash stations, safety showers (within 10 meters) and acid-neutralizing equipment (lime, NaHCO<sub>3</sub>). - Shelf Life: 24 months (unopened, specified conditions); use promptly after opening, seal tightly after each use; do not use if discoloration (dark brown), turbidity or precipitation occurs. - Compatibility: Incompatible with strong 还原剂, metals, alkalis, organic matter, peroxides and cyanides.

## SECTION 8: Exposure Controls/Personal Protection

- Engineering Controls: Install local exhaust ventilation system (mist collection efficiency  $\geq 95\%$ ); set up emergency eyewash stations and safety showers (hot and cold water available); use acid-resistant pipelines and storage tanks; install acid mist concentration detection alarms (alarm threshold: 1 mg/m<sup>3</sup>); maintain negative pressure in the workshop. - PPE: Respiratory protection: Acid mist respirator (type P100/N95) when handling, self-contained breathing apparatus for emergency situations; Hand protection: Acid-resistant nitrile gloves (thickness  $\geq 1.5$  mm, replace every 1-2 hours or when damaged); Eye/Face protection: Chemical safety goggles and full-face shield (acid-resistant); Body protection: Acid-resistant protective clothing (PP or PTFE material) and acid-resistant boots. - Hygiene Measures: Do not touch eyes, face or mouth with contaminated hands; change contaminated clothing immediately (wash separately with alkaline water); provide acid-neutralizing soap and skin care products (moisturizer) near the workplace; conduct regular health checks for operators (annual physical examination focusing on respiratory system, skin and eyes).

## SECTION 9: Physical and Chemical Properties

Physical State: Viscous liquid; Color: Colorless to pale yellow; Odor: Corrosive, pungent odor pH (25°C, 0.1% Aqueous Solution): <1.0; Boiling Point: 338°C (at 101.3 kPa); Freezing Point: 10.36°C Flash Point: Not applicable (non-flammable); Autoignition Temperature: Not applicable; Flammability: Non-flammable Density (20°C, g/cm<sup>3</sup>): 1.84; Solubility: Highly soluble in water (exothermic), soluble in ethanol, insoluble in benzene and toluene Vapor Pressure (25°C, kPa): <0.001; Partition Coefficient (log P): -2.8 (estimated); Viscosity (20°C, mPa·s): 23.4

## 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 >340°C to release SO<sub>2</sub> and SO<sub>3</sub>; stable in dry environment, absorbs moisture from air (hygroscopic). - Incompatibilities: Strong还原剂 (violent reaction, generates H<sub>2</sub> gas); metals (Fe, Zn, Cu, etc., generates flammable H<sub>2</sub> gas); strong alkalis (exothermic neutralization reaction, may splash); organic matter (wood, paper, oil, etc., causes carbonization and ignition); peroxides (accelerates decomposition); cyanides (generates toxic HCN gas). - Hazardous Decomposition Products: Sulfur dioxide (SO<sub>2</sub>), sulfur trioxide (SO<sub>3</sub>) when heated; toxic hydrogen gas (H<sub>2</sub>) when reacting with metals; noxious acid mist when exposed to moisture.

## SECTION 11: Toxicological Information

- Acute Toxicity: Oral (Rat, LD<sub>50</sub>): 2140 mg/kg; Dermal (Rabbit, LD<sub>50</sub>): 510 mg/kg; Inhalation (Rat, LC<sub>50</sub>): 510 mg/m<sup>3</sup> (4-hour exposure, mist). - Skin/Eye Irritation: Skin corrosion (Category 1A), causes severe burns and tissue necrosis; eye damage (Category 1), causes irreversible corneal damage and blindness. - Organ Toxicity: Single exposure causes respiratory tract, skin and eye damage; long-term inhalation of mist causes chronic bronchitis, tooth erosion and lung damage; no liver or kidney toxicity reported at normal exposure levels. - Other Toxicity: No mutagenic, carcinogenic or teratogenic effects reported; no skin sensitization reported.

## SECTION 12: Ecological Information

- Fish (Zebrafish, LC<sub>50</sub>): <1 mg/L (96-hour exposure) - Daphnia (EC<sub>50</sub>): <0.5 mg/L (48-hour exposure) - Algae (Growth Inhibition, EC<sub>50</sub>): <1 mg/L (72-hour exposure) - Biodegradability: Not biodegradable (inorganic acid); persists in water until neutralized by natural buffering substances. - Environmental Fate: Highly soluble in water; causes severe acidification of water bodies (lowers pH); no bioaccumulation (BCF <100); leaches into groundwater if spilled on soil, inhibiting plant growth and damaging soil microorganisms.

## SECTION 13: Disposal Considerations

- Product Waste: Collect waste in sealed acid-resistant drums (PP or PTFE material); neutralize with lime (CaO) or sodium bicarbonate (NaHCO<sub>3</sub>) (slowly add alkali to acid, stir continuously, cool to room temperature); after neutralization (pH 6-9), dispose of via licensed hazardous waste treatment institutions; do not landfill or discharge into water bodies or sewers. - Packaging Waste: Rinse containers thoroughly with water (collect rinse water for neutralization treatment); neutralize the residual acid, then dispose of as hazardous waste; do not reuse or recycle contaminated packaging. - Special Disposal Notes: Comply with local environmental protection regulations for hazardous waste disposal; do not mix with other wastes during disposal; neutralization process must be carried out in a well-ventilated area with PPE.

## SECTION 14: Transport Information

- UN Number: ADR/RID: 1830; IMDG: 1830; IATA-DGR: 1830 - UN Proper Shipping Name: SULFURIC ACID - Transport Class: 8 (Corrosive substances); Packaging Group: II; Environmental Hazards: Yes (Marine Pollutant, Category 1) - Special Precautions: Transport in acid-resistant packaging (glass bottles, PP drums or steel drums with acid-resistant lining); transport by specialized hazardous chemical vehicles (acid-resistant); avoid collision, vibration and impact; keep away from strong还原剂, metals, alkalis and food during transport; prevent rain, sunlight and high temperature (transport temperature ≤35°C); drivers and handlers must be trained and



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hold relevant certificates; carry this MSDS and emergency neutralization equipment (lime,  $\text{NaHCO}_3$ ).

### SECTION 15: Regulatory Information

- National Regulations (China): Complies with GB/T 534-2023 (Industrial Sulfuric Acid); Hazardous Chemical Safety Management Regulation (Hazard Class 8); compliant with chemical synthesis, metal processing and water treatment industry standards; prohibited for food, cosmetic and pharmaceutical use without purification. - International Regulations: GHS Rev.9 (Skin Corr. 1A, Eye Dam. 1, STOT-SE 3, Aquatic Tox. 1); REACH (EU, registered); TSCA (US, listed); ASTM D1193 compliant.

### SECTION 16: Other Information

- Revision Date: 03 FEB 2025 - Disclaimer: Based on current scientific knowledge and product testing data; this product is highly corrosive and 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.

A large, faded watermark of the Neway Sinophc Tech logo is centered on the page. It consists of the stylized 'N' symbol above the Chinese characters '纳维盈医化科技' and the English text 'NEWAY SINOPHC TECH' below it.

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