

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: 硫酸 - English Name: Sulfuric Acid - CAS Number: 7664-93-9 - Formula: H₂SO₄ - Molecular Weight: 98.08 g/mol - Product Characteristics: High-purity inorganic strong acid, colorless to pale yellow viscous liquid, corrosive pungent odor, highly soluble in water (exothermic); excellent acidifying, oxidizing and corrosive properties; industrial-grade product meets GB/T 534-2023 and ASTM D1193 standards, high purity (≥98.0%), low impurity content; stable chemical properties under normal storage conditions, widely used in chemical synthesis, metal processing, pharmaceutical and water treatment fields; strong corrosivity requires strict safety protection during use.

2. Technical Specifications (Complies with GB/T 534-2023 & ASTM D1193)

Item	Specification
Appearance	Colorless to pale yellow viscous liquid, no
Purity (H ₂ SO ₄ Content)	≥ 98.0%
Density (20°C, g/cm ³)	1.83-1.85
Ash Content	≤ 0.02%
Iron (Fe) Content	≤ 0.005%
Heavy Metals (Pb) Content	≤ 0.0005%
Chloride (Cl ⁻) Content	≤ 0.0005%
Free Sulfur Trioxide (SO ₃)	≤ 2.0%
Boiling Point (°C, 101.3 kPa)	338
Freezing Point (°C)	10.36

3. Product Advantages

1. Strong Acidic & Oxidizing Properties: High H₂SO₄ content (≥98.0%), excellent acidifying and catalytic effects; strong oxidizing property, can react with most metals and organic/inorganic substances; suitable for various chemical synthesis and metal processing scenarios requiring strong acid conditions. 2. High Purity & Stable Quality: Low impurity content (Fe ≤0.005%, Pb ≤0.0005%, Cl⁻ ≤0.0005%); no mechanical impurities, ensuring stable performance in high-precision applications (e.g., pharmaceutical intermediate, battery electrolyte); stable quality batch-to-batch, meets strict industrial standards. 3. Wide Application Range: Effective at -10-300°C and pH 0-7.0; suitable for chemical synthesis (fertilizers, dyes, detergents), metal pickling, pharmaceutical production, battery manufacturing and water treatment; compatible with most inorganic reagents (excluding strong还原剂, metals and alkalis) without mutual interference. 4. Excellent Corrosion & Descaling Effect: Strong corrosivity to metal oxides and scales; can quickly remove rust and scale from metal surfaces (e.g., steel, iron) and industrial equipment (boilers, pipelines); descaling rate ≥95% at recommended dosage and temperature. 5. Cost-Effective: High acid concentration, low recommended dosage (chemical synthesis: 5-20%, water treatment: 100-500 mg/L); lower production cost than similar imported products; easy to transport and store (concentrated form, small volume), reducing enterprise operation costs. 6. Stable Chemical Properties: Stable under normal storage and handling conditions; no decomposition or deterioration; long shelf life (24 months unopened); hygroscopic but does not affect product performance if sealed properly.

4. Application Fields

- Chemical Industry: Core raw material for chemical synthesis; production of fertilizers (ammonium sulfate, superphosphate), dyes, detergents (sodium lauryl sulfate), explosives and petrochemical products; catalyst for esterification, sulfonation and dehydration reactions. - Metal Processing



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

Industry: Metal pickling agent (removes rust and oxide layers from steel, iron, aluminum surfaces) to improve surface finish and adhesion of coatings; electrolyte for electroplating and electrolysis processes; metal cleaning agent (removes oil and scale from metal parts). - Pharmaceutical Industry: Intermediate for pharmaceutical synthesis (antibiotics, vitamins, analgesics); acidifying agent for drug formulations to improve drug solubility and stability; laboratory reagent for pharmaceutical testing. - Battery Industry: Electrolyte for lead-acid batteries (diluted sulfuric acid, concentration 1.24-1.28 g/cm³); provides ion conductivity, ensuring battery charge and discharge performance.

5. Usage Methods

- Dosage (Recommended): - Chemical Synthesis: 5-20% (based on reaction system weight), adjust according to reaction requirements; - Metal Pickling: 10-20% aqueous solution (diluted sulfuric acid), soak metal parts for 10-30 minutes; - Water Treatment (pH Adjustment): 100-500 mg/L (concentrated acid), adjust according to wastewater pH (target pH 6-9); - Battery Electrolyte: Dilute to 1.24-1.28 g/cm³ (25°C) with deionized water. - Usage: 1. Dilution: Strictly follow "acid into water" principle (slowly add concentrated sulfuric acid to deionized water while stirring continuously, cool with cold water if necessary to prevent overheating and splashing); 2. Chemical Synthesis: Add diluted sulfuric acid to the reaction system slowly, control reaction temperature ($\leq 100^{\circ}\text{C}$) to avoid violent reaction; 3. Metal Pickling: Immerse metal parts in diluted acid solution, stir occasionally, rinse with water thoroughly after pickling; 4. Water Treatment: Add concentrated acid to wastewater system through dosing pump continuously, monitor pH in real time. - Optimal Conditions: Use at temperature -10-150°C and pH 0-7.0; higher temperature accelerates reaction rate (e.g., pickling, synthesis); avoid using in strong alkaline environment (pH >9.0) to prevent neutralization and loss of efficacy.

6. Packaging & Storage

- Packaging Specifications: Industrial-grade: 500 mL glass bottles (laboratory use), 25 L PP drums (acid-resistant), 200 L steel drums with acid-resistant lining (large-scale use); custom packaging available upon request. - Storage Conditions: Store in a cool, dry, well-ventilated dedicated warehouse (temperature 5-30°C, relative humidity $\leq 75\%$); keep container tightly closed, store upright on acid-resistant shelves; avoid direct sunlight, heat sources (heaters, stoves) and moisture; store separately from strong还原剂, metals, alkalis and food-grade materials (separation distance ≥ 10 meters); stack drums stably (no more than 2 layers) to prevent tipping and leakage; install emergency eyewash stations, safety showers and acid-neutralizing equipment. - 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.

7. Safety & Protection

- The product is a highly corrosive strong acid, causes severe skin burns, eye damage and respiratory tract irritation; very toxic to aquatic organisms; oral ingestion may be fatal. - Operators must wear full personal protective equipment: acid mist respirator (P100/N95), chemical safety goggles, full-face shield, acid-resistant nitrile gloves (thickness ≥ 1.5 mm) and acid-resistant protective clothing/boots. - Operate in a well-ventilated workshop with local exhaust ventilation; avoid generating mist during handling and dilution; no smoking, eating or drinking in the workplace; prepare emergency eyewash stations and safety showers nearby (within 10 meters) and acid-neutralizing equipment (lime, NaHCO₃). - In case of skin contact: Rinse with plenty of cold running water for at least 15 minutes immediately, seek emergency medical help.

8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system standards; strictly controls raw materials (sulfur dioxide, oxygen, water), production processes (sulfur burning, SO₂ oxidation, SO₃ absorption, purification) and finished product testing; complies with national standards (GB/T 534-2023) and international standards (ASTM D1193). - Each batch of product is strictly tested with a Certificate of Analysis (COA), covering purity, appearance, density, ash content, iron content, heavy metals, chloride and free SO₃ content; ensures product quality is stable and meets customer requirements.