

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: Sodium Molybdate Dihydrate - English Name: Sodium Molybdate Dihydrate - CAS Number: 7631-95-0 - Formula: $\text{Na}_2\text{MoO}_4 \cdot 2\text{H}_2\text{O}$ - Molecular Weight: 241.95 g/mol - Product Characteristics: High-purity molybdenum salt with excellent corrosion and scale inhibition performance for industrial water systems; acts as a micronutrient supplement for plants (promotes nitrogen fixation); good water solubility, stable chemical properties, and wide pH adaptation range (5.0-9.5); compatible with most water treatment agents and fertilizers; non-combustible, low volatility; suitable for multiple industrial and agricultural applications.

2. Technical Specifications (Complies with GB/T 1601-2018)

Item	Specification
Appearance	White crystalline powder/crystals, no mechanical impurities
Purity (by Titration)	$\geq 99.0\%$
Mo Content (Calculated)	$\geq 39.0\%$
Loss on Drying (110°C)	13.0-15.0%
pH Value (25°C, 5% Aqueous)	6.0-8.0
Heavy Metals (Pb)	$\leq 0.0005\%$
Chloride (Cl^-)	$\leq 0.01\%$
Sulfate (SO_4^{2-})	$\leq 0.05\%$
Insoluble Matter in Water	$\leq 0.01\%$
Solubility (25°C, in water)	≥ 500 g/L
Operating Temperature Range	0-150°C
Operating pH Range	5.0-9.5

3. Product Advantages

1. Excellent Corrosion & Scale Inhibition: Effectively inhibits corrosion of carbon steel, copper, and aluminum in cooling water systems; forms a protective film on metal surfaces, prevents pitting corrosion and scaling; corrosion inhibition rate $\geq 90\%$ in industrial water systems. 2. High Plant Nutrient Value: Acts as an essential micronutrient (molybdenum) for plants; promotes nitrogen fixation and protein synthesis; improves crop yield and quality (suitable for legumes, cereals, and vegetables). 3. High Water Solubility & Stability: Easily soluble in water (≥ 500 g/L at 25°C), fast dissolution rate; stable under normal temperature and pH 5.0-9.5; no decomposition or loss of performance in common industrial and agricultural environments. 4. Good Compatibility: Compatible with other water treatment agents (polycarboxylate scale inhibitors, organic phosphonate corrosion inhibitors, biocides) and agricultural fertilizers (nitrogen, phosphorus, potassium fertilizers); no adverse reactions, can be used in combination to enhance overall effect. 5. Low Dosage & Cost-Saving: Effective dosage is 2-10 mg/L in water treatment systems, 0.01-0.1% in agricultural fertilizers; low usage cost, high cost-performance ratio. 6. Safe & Environmentally Friendly: Non-combustible, low toxicity to humans and animals ($\text{LD}_{50} > 3000$ mg/kg); meets international environmental standards for industrial and agricultural use (excluding direct food contact).

4. Application Fields



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- Industrial Water Treatment: Corrosion and scale inhibitor for cooling water systems (power plants, chemical plants, oil refineries), boiler water, and circulating water; prevents metal corrosion and scale formation. - Agricultural Industry: Micronutrient fertilizer (molybdenum supplement) for crops; applied as seed dressing, foliar spray, or base fertilizer; suitable for legumes (soybeans, peas), cereals (wheat, corn), and vegetables (tomatoes, cucumbers). - Chemical Industry: Catalyst for organic synthesis reactions (e.g., oxidation, hydrogenation); raw material for molybdenum-based chemicals (molybdenum trioxide, molybdenum sulfide); pigment and dye manufacturing. - Metal Surface Treatment: Additive for metal cleaning and pickling solutions; improves metal surface finish and corrosion resistance; used in electroplating industry as a brightener.

5. Usage Methods

- Dosage (as pure product): - Industrial Water Treatment: 2-10 mg/L (based on water quality and metal content); add continuously or intermittently. - Agricultural Fertilizer: Seed dressing: 0.5-2.0 g/kg seed; Foliar spray: 0.05-0.1% aqueous solution (spray at seedling stage); Base fertilizer: 0.1-0.5 kg/acre. - Chemical Catalyst: 0.5-5.0% (based on reaction substrate weight); add to reaction system before reaction. - Metal Surface Treatment: 1-5 g/L in cleaning/pickling solution; soak metal parts for 5-15 minutes. - Usage: For water-soluble systems (water treatment, foliar spray): Dissolve the product in room temperature water (dissolution ratio 1:20), stir evenly, then dilute to the required concentration; for oil-soluble systems (lubricating oil additives): Dissolve in ethanol or methanol first, then mix with oil components.

6. Packaging & Storage

- Packaging Specifications: 25 kg paper-plastic composite bags (with inner PE liner); 200 kg iron drums (lined with PE bag); custom packaging available upon request. - Storage Conditions: Store in cool, dry, well-ventilated warehouse (5-35°C); keep container tightly closed to prevent moisture absorption, dust contamination, and caking; avoid direct sunlight, high temperature (>50°C), and humidity (>80%); store separately from strong reducing agents, strong acids, food-grade materials, and combustible materials; stack bags/drums stably (no more than 3 layers for bags, 2 layers for drums) to prevent tipping and damage. - Shelf Life: 24 months (unopened, specified conditions); if caking occurs due to moisture absorption, crush gently and dry at 50-60°C before use (does not affect product performance); use promptly after opening, seal tightly after each use; do not use if discoloration (turning yellow) or severe caking occurs. - Transportation: UN 3077 (Class 9 Miscellaneous Dangerous Substances); transport in covered vehicles; avoid collision, vibration, and impact; keep away from strong reducing agents and strong acids during transport; prevent rain, moisture, and direct sunlight during transit;

7. Safety & Protection

- The product is a toxic solid, mildly irritating to skin and eyes, highly toxic to aquatic organisms; non-combustible, no explosive hazards under normal conditions. - Operators must wear full personal protective equipment: dust mask (N95 or equivalent), chemical-resistant gloves (nitrile or rubber), safety goggles, face shield, and dust-proof protective clothing; avoid skin and eye contact, and inhalation of dust. - Operate in well-ventilated area; install emergency eyewash stations and safety showers nearby; in case of leakage, follow accidental release measures to avoid environmental contamination (especially aquatic ecosystems).

8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system standards; strictly controls raw materials (molybdenum trioxide, sodium hydroxide), production processes (neutralization, crystallization, purification), and finished product testing. - Each batch of product is strictly tested with a Certificate of Analysis (COA) to meet GB/T 1601-2018 and international quality standards, ensuring product purity, performance, and safety. - Provide professional technical support: customize dosage and application schemes based on user system parameters (water quality, crop type, reaction conditions); provide on-site guidance for product use, dosage adjustment, and problem-solving; solve industrial and agricultural application problems in a timely manner.