

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: 碳水化合物肼 (碳酰肼) - English Name: Carbohydrazide - CAS Number: 497-18-7 - Formula: $\text{CH}_6\text{N}_4\text{O}$ - Molecular Weight: 90.08 g/mol - Product Characteristics: High-purity hydrazine derivative, white crystalline powder, odorless, slightly soluble in cold water and soluble in hot water/ethanol; excellent oxygen scavenging performance for water treatment systems, can quickly react with dissolved oxygen to form nitrogen and water; good metal passivation and corrosion inhibition effects, effectively preventing metal equipment from rusting; low toxicity (compared to other hydrazine derivatives), stable chemical properties under normal conditions; widely used as intermediate in pharmaceuticals, pesticides and dyes, and reducing agent in chemical synthesis.

2. Technical Specifications (Complies with Industry Standard)

Item	Specification
Appearance	White crystalline powder, no mechanical
Purity (HPLC)	$\geq 98.0\%$
Melting Point ($^{\circ}\text{C}$)	150-154 (decomposition)
Moisture Content	$\leq 0.5\%$
Ash Content	$\leq 0.1\%$
Heavy Metals (Pb) Content	$\leq 0.0005\%$
Chloride (Cl^-) Content	$\leq 0.01\%$
Iron (Fe) Content	$\leq 0.0005\%$
Oxygen Scavenging Rate (25°C ,	$\geq 99.0\%$

3. Product Advantages

1. Efficient Oxygen Scavenging: Rapidly reacts with dissolved oxygen in water (reaction rate $\geq 99\%$ within 30 minutes at 25°C), forming non-toxic nitrogen and water, no harmful by-products; effectively reduces dissolved oxygen content in boiler feed water and cooling water to ≤ 0.01 mg/L, preventing metal corrosion. 2. Excellent Metal Passivation: Forms a dense protective film on metal surfaces (steel, copper, aluminum), inhibiting metal oxidation and rusting; extends service life of metal equipment by 30-50% compared to ordinary oxygen scavengers. 3. High Purity & Stable Quality: Purity $\geq 98.0\%$, low impurity content (heavy metals $\leq 0.0005\%$, chloride $\leq 0.01\%$); no harmful substances to water systems and equipment; stable performance batch-to-batch, meets strict industrial quality requirements. 4. Wide Application Range: Effective at $10-80^{\circ}\text{C}$ and pH 7.0-10.0; suitable for various water quality (soft water, hard water, industrial wastewater); compatible with other water treatment agents (corrosion inhibitors, scale inhibitors) without mutual interference. 5. Low Toxicity & Environmental Friendliness: Lower toxicity than hydrazine and hydrazine hydrate; biodegradable under natural conditions (poorly biodegradable but non-persistent in controlled environments); no secondary pollution to water bodies when used in recommended dosage.

4. Application Fields

- Power Plant Water Treatment: Oxygen scavenger for boiler feed water and circulating water systems; removes dissolved oxygen to prevent boiler tube corrosion and scaling; passivates metal surfaces of boilers, condensers and pipelines, extending equipment service life. - Chemical Industry: Intermediate for synthesis of pharmaceuticals (antitumor drugs, antibiotics), pesticides (insecticides, fungicides) and dyes (azo dyes, reactive dyes); reducing agent in chemical synthesis reactions (reduction of nitro compounds, carbonyl compounds). - Metal Processing & Corrosion Inhibition: Metal passivator for steel, copper and aluminum products;

prevents metal rusting during storage and transportation; corrosion inhibitor for industrial pipelines and containers.

5. Usage Methods

- Dosage (Recommended): - Boiler Feed Water: 0.5-2.0 mg/L (based on dissolved oxygen content, dissolved oxygen ≤ 0.01 mg/L after treatment); - Cooling Water: 0.2-0.5 mg/L (maintain dissolved oxygen ≤ 0.1 mg/L); - Metal Passivation: Prepare 5-10% aqueous solution (dissolve in hot water at 60-80°C), soak metal parts for 2-4 hours, then rinse with water and dry; - Chemical Synthesis: Dosage varies according to reaction requirements, generally 1.0-2.0 equivalents relative to reactants. - Usage: 1. For water treatment: Dissolve the product in hot water (60-80°C) to prepare 5-10% aqueous solution, then add to water system continuously or intermittently; 2. For metal passivation: Prepare the solution as required, immerse or spray metal surfaces, control temperature at 25-60°C; 3. For chemical synthesis: Add the product to the reaction system in batches under stirring, control reaction temperature and pH according to process requirements. - Optimal Conditions: Use at temperature 10-80°C and pH 7.0-10.0; higher temperature accelerates oxygen scavenging reaction; avoid using in strong acidic environment (pH <5.0) to prevent decomposition.

6. Packaging & Storage

- Packaging Specifications: 25 kg paper bags with PE inner liner (sealed, dust-proof); 200 L steel drums with PE inner liner (corrosion-resistant, sealed); custom packaging available upon request. - Storage Conditions: Store in a cool, dry, well-ventilated warehouse (temperature 5-30°C, relative humidity $\leq 70\%$); keep container tightly closed and upright; avoid direct sunlight, heat sources (e.g., heaters, stoves) and moisture; store separately from strong oxidants, strong acids and food-grade materials; stack bags/drums stably (no more than 3 layers for bags, no more than 2 layers for drums) to prevent tipping and leakage; 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 (yellowing), caking, moisture absorption or odor change occurs.

7. Safety & Protection

- The product is a white crystalline powder, causes skin and eye irritation; may cause respiratory tract irritation if inhaled as dust; very toxic to aquatic organisms; decomposes when heated above 150°C, releasing toxic nitrogen oxides. - Operators must wear full personal protective equipment: dust mask (N95 or above), chemical safety goggles, face shield, nitrile gloves (thickness ≥ 0.8 mm) and dust-proof protective clothing/boots. - Operate in a well-ventilated (local exhaust ventilation) workshop; avoid generating dust during handling and dosing; no smoking, eating or drinking in the workplace; prepare emergency eyewash stations and safety showers nearby. - In case of skin contact: Rinse with plenty of running water for at least 15 minutes immediately, wash with mild soap; seek medical help if irritation persists. - In case of eye contact: Rinse with clean water/normal saline for at least 15 minutes immediately, do not rub eyes; seek medical help if irritation persists.

8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system standards; strictly controls raw materials (high-purity hydrazine and urea), production processes (synthesis, crystallization, purification, drying) and finished product testing; complies with water treatment chemical industry standards and hydrazine derivative technical requirements. - Each batch of product is strictly tested with a Certificate of Analysis (COA), covering purity, appearance, melting point, moisture, ash content, heavy metals, oxygen scavenging rate and other key indicators; ensures product quality is stable and meets customer requirements. - Provide professional technical support: customize usage schemes based on application scenarios (water treatment, metal passivation, chemical synthesis); provide on-site guidance for dosing, operation and safety protection; solve user application problems in a timely manner; provide after-sales service and technical consultation.