Technical Data Sheet (TDS)

1. Product Overview

- Product Name: 肼水合物 - English Name: Hydrazine Hydrate - CAS Number: 10217-52-4 - Formula: $N_2H_4 \cdot H_2O$ - Molecular Weight: 50.06 g/mol - Product Characteristics: High-purity inorganic amine with excellent reduction, oxygen scavenging and chelating performance; miscible with water and most polar organic solvents; flammable liquid with pungent ammonia-like odor; strong alkaline aqueous solution (pH 10.5-11.5); highly reactive with oxidants and acids; suitable for boiler water treatment, pharmaceutical synthesis, pesticide production, electroplating and other industrial fields; 80% concentration grade, balanced performance and safety.

2. Technical Specifications (Complies with GB/T 17874-2010)

Item	Specification
Appearance	Colorless to pale yellow transparent liquid, no
Purity (as N_2H_4, by Titration)	≥ 80.0%
Boiling Point Range (760	118-122℃
Density (25℃)	1.020-1.030 g/cm³
Chloride (Cl^-) Content	≤ 0.0005%
Iron (Fe) Content	≤ 0.0001%
Heavy Metals (Pb) Content	≤ 0.0001%
pH Value (25℃, undiluted)	10.5-11.5
Flash Point (Closed Cup)	≥ 72℃
Operating pH Range	8.0-13.0

3. Product Advantages

1. Excellent Oxygen Scavenging Performance: Rapidly reacts with dissolved oxygen in boiler water (reaction rate constant ≥ 10^8 L/(mol·s)); oxygen removal rate ≥ 99.5% at standard dosage; prevents boiler corrosion and scaling, prolongs equipment service life. 2. Strong Reducing Capacity: Effectively reduces oxidizing substances (nitrates, nitrites, heavy metal ions) in chemical synthesis and electroplating processes; high reaction selectivity, no adverse by-products. 3. Good Solubility: Miscible with water, ethanol, methanol and other polar solvents; no precipitation or residue, convenient for on-site dosing and solution preparation; suitable for various water-based and solvent-based systems. 4. Wide pH Adaptation Range: Effective in alkaline and neutral environments (pH 8.0-13.0); stable performance in high-temperature boiler water (up to 300℃); no need for additional pH adjustment in most industrial scenarios. 5. High Purity & Stable Quality: Purity ≥80.0% (as N_2H_4), low impurity content (Fe ≤0.0001%, Pb ≤0.0001%); stable performance batch-to-batch, meets strict industrial quality requirements. 6. Versatile Application: Suitable for boiler water treatment, pharmaceutical/pesticide synthesis, electroplating, rocket fuel and other fields; cost-effective, high performance-to-price ratio.

4. Application Fields

- Boiler Water Treatment Industry: High-efficiency oxygen scavenger for industrial boilers, thermal power plant boilers and steam generators; removes dissolved oxygen to prevent corrosion and scaling of boiler tubes and heat exchangers; suitable for high-temperature and high-pressure boiler systems. - Pharmaceutical Industry: Intermediate for antitumor drugs (e.g., hydrazine derivatives), antibiotics and antiviral drugs; reducing agent in drug synthesis reactions; high purity grade available for pharmaceutical use (after further purification). - Pesticide Industry: Raw material for herbicides (e.g., atrazine), insecticides and fungicides; improves pesticide efficacy and stability; used in the synthesis of pesticide active ingredients. -

Electroplating Industry: Brightener and reducing agent for nickel, copper, silver plating; improves plating layer brightness, adhesion and corrosion resistance; reduces pinholes and defects in plating layers. - Other Fields: Rocket fuel additive (increases combustion efficiency); reducing agent in chemical synthesis (e.g., synthesis of hydrazones, azines); analytical reagent for the determination of aldehydes, ketones and heavy metal ions; textile industry (dying auxiliary, anti-yellowing agent).

5. Usage Methods

- Dosage (as 80% product): - Boiler Water Treatment (Oxygen Scavenger): 2-5 mg/L (based on dissolved oxygen content, 1 mg/L O_2 requires 1.5-2.0 mg/L product); add to boiler feed water system continuously. - Pharmaceutical/Pesticide Synthesis: 0.5-2.0 mol/mol (based on reaction substrates); adjust dosage according to reaction conditions. - Electroplating Industry: 5-20 g/L plating solution; add to plating bath in batches, stir evenly. - Chemical Synthesis (Reducing Agent): 1.0-3.0 equivalents (based on oxidizing substrates); react at 20-80℃. - Usage: For liquid dosing, use corrosion-resistant pumps (stainless steel or plastic); for solution preparation, dilute with deionized water (dilution ratio 1:10 to 1:100) under stirring, add product slowly to water (do not reverse); stir evenly after dosing to ensure full reaction. - Optimal Conditions: Use at temperature 20-100℃ and pH 8.0-13.0; avoid use in strong acidic environment (prevents toxic gas release); reaction time ≥ 5 minutes for oxygen scavenging; use in well-ventilated area.

6. Packaging & Storage

- Packaging Specifications: 20 L HDPE plastic drums (sealed, corrosion-resistant); 200 L HDPE plastic drums (with inner liner, explosion-proof cap); 1000 L IBC tanks (corrosion-resistant, sealed); custom packaging available upon request. - Storage Conditions: Store in a cool, dry, well-ventilated warehouse (temperature 0-30℃, relative humidity ≤70%); keep container tightly closed and upright; avoid direct sunlight, heat sources (e.g., heaters, stoves) and sparks; store separately from strong oxidants, concentrated acids, heavy metal salts and food-grade materials; stack drums stably (no more than 2 layers) to prevent tipping and leakage; install fire-fighting equipment and gas detection alarms in the storage area. - Shelf Life: 12 months (unopened, specified conditions); use promptly after opening, seal tightly after each use; do not use if discoloration (deep yellow/brown), precipitation or odor change occurs.

7. Safety & Protection

- The product is a highly toxic, flammable and corrosive liquid; fatal if swallowed, in contact with skin or inhaled; causes severe skin burns and eye damage; toxic to aquatic organisms; reacts violently with oxidants and acids to release toxic fumes. - Operators must wear full personal protective equipment: positive pressure self-contained breathing apparatus, nitrile gloves (thickness ≥0.8 mm), chemical safety goggles, face shield and acid-resistant protective clothing/boots; avoid skin, eye contact and inhalation of vapor. - Operate in a well-ventilated (local exhaust ventilation) and fire-proof workshop; use explosion-proof electrical equipment; no smoking, eating or drinking in the workplace; prepare emergency eyewash stations and safety showers nearby.

8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system standards; strictly controls raw materials (sodium hypochlorite, urea), production processes (hydrolysis, distillation, purification) and finished product testing; complies with GB/T 17874-2010 and international quality standards. - Each batch of product is strictly tested with a Certificate of Analysis (COA), covering purity, density, boiling point, impurity content and other key indicators; ensures product quality is stable and meets customer requirements. - Provide professional technical support: customize dosage and application schemes based on user scenarios (boiler parameters, reaction conditions, electroplating process); provide on-site guidance for dosing, storage and emergency handling; solve user application problems in a timely manner; provide after-sales service and technical consultation.