

Technical Data Sheet (TDS)

1. Product Overview

- Product Name: 柠檬酸 - English Name: Citric Acid - CAS Number: 77-92-9 - Formula: $C_6H_8O_7$ - Molecular Weight: 192.13 g/mol - Product Characteristics: High-purity polycarboxylic acid, white crystalline powder, odorless, sour taste, highly soluble in water; excellent sour agent, chelating agent and pH adjuster; food-grade product meets GB 1987-2007, FCC-VI and USP-NF standards, non-toxic and safe for human consumption; stable chemical properties under normal conditions, widely used in food, beverage, cosmetic, pharmaceutical and water treatment fields; industrial-grade product has reliable performance, suitable for cleaning and metal surface treatment.

2. Technical Specifications (Complies with GB 1987-2007 & FCC-VI)

Item	Specification
Appearance	White crystalline powder, odorless, sour
Purity (HPLC)	≥ 99.5%
Melting Point (°C)	153-159 (decomposition)
Moisture Content	≤ 0.5%
Ash Content	≤ 0.1%
Heavy Metals (Pb) Content	≤ 0.0001%
Chloride (Cl ⁻) Content	≤ 0.005%
pH (1% Aqueous Solution, 25°C)	2.0-2.5
Transmittance (10% Aqueous Solution,	≥ 98.0%

3. Product Advantages

1. Excellent Sour Taste & Flavor Enhancement: Pure sour taste, no off-flavor, can enhance the flavor of food and beverages; adjust the sour-sweet balance, improve product palatability; stable sour taste under high temperature processing (e.g., sterilization), no volatilization or decomposition. 2. High Purity & Food-Grade Safety: Purity ≥99.5%, low impurity content (heavy metals ≤0.0001%, chloride ≤0.005%); meets international food safety standards (FCC-VI, USP-NF), non-toxic and safe for human consumption; no side effects at recommended dosage. 3. Strong Chelating Performance: Can effectively chelate with Ca, Mg, Fe, Cu and other heavy metal ions; prevent scale formation in water treatment systems and food processing equipment; improve the stability of food and cosmetic formulations (prevent discoloration and deterioration caused by heavy metal ions). 4. Wide Application Range: Effective at 0-120°C and pH 1.0-7.0; suitable for food, beverage, cosmetic, pharmaceutical and industrial fields; compatible with other additives (sweeteners, preservatives, emulsifiers) without mutual interference; can be used as sour agent, chelating agent, pH adjuster and cleaning agent. 5. Easy to Use: Solid crystalline powder, convenient for storage and transportation; highly soluble in water, can be prepared into aqueous solution for dosing; simple operation, suitable for continuous and intermittent production processes; adjustable dosage according to actual application needs. 6. Cost-Effective: High sour intensity, low recommended dosage (food/beverage: 0.1-2.0%); lower production cost than similar imported products; reduces enterprise operation costs while ensuring product quality and safety.

4. Application Fields

- Food Industry: Sour agent and flavor enhancer for beverages (fruit juice, carbonated drinks, tea drinks), candies (hard candy, soft candy, sour candy), jams, preserves and pickles; preservative for meat products (ham, sausage) and dairy products (yogurt, cheese); chelating agent to prevent browning of fruits and vegetables (apple, potato, banana). - Beverage Industry: Core sour agent for carbonated drinks, fruit juices, functional drinks and wine; adjusts pH value to improve beverage stability and shelf life; enhances fruit flavor and sour-sweet

balance, improves consumer taste experience. - Cosmetic & Daily Chemical Industry: pH adjuster for skin care products (lotion, cream, serum) and hair care products (shampoo, conditioner); chelating agent in detergent and soap formulations (improves cleaning effect and prevents scale formation); exfoliating agent in facial cleansers (mildly removes old cutin). - Pharmaceutical Industry: Excipient for pharmaceuticals (antacids, effervescent tablets, oral solutions); pH adjuster in drug formulations to improve drug stability and solubility; chelating agent in injection preparations (removes heavy metal impurities).

5. Usage Methods

- Dosage (Recommended): - Food & Beverage: 0.1-2.0% (based on product weight); beverages: 0.1-0.5%, candies: 0.5-2.0%, jams: 0.3-1.0%; - Cosmetics: 0.1-1.0% (in skin care products, based on total weight); - Pharmaceuticals: 0.5-5.0% (in drug formulations, based on total weight); - Water Treatment (Scale Remover): 50-200 mg/L (adjust according to water hardness and scale thickness). - Usage: 1. For food & beverage: Dissolve the product in a small amount of warm water (40-60°C) to prepare 10-20% aqueous solution, then add to the product system evenly; 2. For cosmetic & pharmaceutical: Mix with other ingredients evenly during formulation, or dissolve in water/ethanol first; 3. For water treatment: Prepare 5-10% aqueous solution, add to water system continuously, and circulate for 2-4 hours. - Optimal Conditions: Use at temperature 0-120°C and pH 1.0-7.0; higher temperature accelerates dissolution and chelation reactions; avoid using in strong alkaline environment (pH >10.0) to prevent neutralization and loss of efficacy.

6. Packaging & Storage

- Packaging Specifications: Food-grade: 25 kg kraft paper bags with food-grade PE inner liner (sealed, moisture-proof, dust-proof); Industrial-grade: 25 kg paper bags with PE inner liner or 200 L plastic drums; custom packaging available upon request. - Storage Conditions: Store in a cool, dry, well-ventilated warehouse (temperature 5-30°C, relative humidity ≤65%); keep container tightly closed and upright; avoid direct sunlight, heat sources (e.g., heaters, stoves) and moisture; store separately from strong bases, strong oxidants and toxic substances; stack bags/drums stably (no more than 4 layers for bags, no more than 2 layers for drums) to prevent tipping and leakage. - 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 mild skin irritation and severe eye irritation; inhalation of dust may cause slight respiratory tract discomfort; food-grade product is safe for human consumption at recommended dosage, but excessive ingestion may cause gastrointestinal discomfort (nausea, diarrhea). - Operators must wear personal protective equipment: dust mask (N95 or above), chemical safety goggles, nitrile gloves and dust-proof protective clothing. - Operate in a well-ventilated workshop; avoid generating dust during handling and dosing; no smoking, eating or drinking in the workplace; prepare emergency eyewash stations and safety showers nearby (within 10 meters).

8. Quality Assurance

- Manufactured in accordance with ISO 9001 quality management system and ISO 22000 food safety management system standards; strictly controls raw materials (corn starch, molasses), production processes (fermentation, extraction, purification, crystallization, drying) and finished product testing; complies with national standards (GB 1987-2007) and international standards (FCC-VI, USP-NF). - Each batch of product is strictly tested with a Certificate of Analysis (COA), covering purity, appearance, melting point, moisture, ash content, heavy metals, chloride, pH value and transmittance; ensures product quality is stable and meets customer requirements. - Provide professional technical support: customize usage schemes based on application scenarios (food, beverage, cosmetic, water treatment); 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 (24-hour technical hotline).