

Technical Data Sheet (TDS)

Issue Date: 27 FEB 2026 **Product Name:** Sodium Citrate (Food Grade, Dihydrate) **CAS Number:** 68-04-2

1. Product Overview

- **English Name:** Sodium Citrate (Food Grade, Dihydrate)
- **Chinese Name:** 柠檬酸钠（二水食品级）
- **CAS No.:** 68-04-2
- **Molecular Formula:** $C_6H_5Na_3O_7 \cdot 2H_2O$
- **Molecular Weight:** 294.10 g/mol
- **Source:** Synthesized by neutralization of food-grade citric acid with high-purity sodium hydroxide, followed by crystallization, purification and drying; complies with food GMP and infant food raw material production requirements.
- **Core Characteristics:** White free-flowing crystalline powder, odorless, slightly salty taste; non-toxic, food-grade organic sodium salt; multi-functional food additive with sequestration, emulsification, pH regulation and stabilization properties; freely soluble in water, stable in food processing; fully biodegradable, meets national/international food safety standards, suitable for all types of food and beverage production.

2. Technical Specifications (Complies with GB 2760-2021 & International Food Standards)

Test Item	Food Grade Specification
Appearance	White to off-white free-flowing crystalline powder/granule
Assay (Sodium Citrate)	≥ 99.0%
pH Value (25°C, 5% aqueous solution)	7.5-9.0
Loss on Drying (150°C, 4h)	10.0-13.0%
Ash Content	≤ 0.1%
Chloride (as Cl ⁻)	≤ 0.005%
Sulfate (as SO ₄ ²⁻)	≤ 0.005%
Calcium (Ca)	≤ 0.05%
Iron (Fe)	≤ 5 ppm
Heavy Metals (Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.1 ppm
Mercury (Hg)	≤ 0.01 ppm
Total Bacterial Count	≤ 100 CFU/g
Yeast & Mold	≤ 10 CFU/g
E. coli / Salmonella	Negative
Water Solubility	Freely soluble in water (≈720 g/L at 25°C), insoluble in ethanol
Temperature Stability	Stable at 0-180°C (assay retention ≥99%)
pH Stability	Stable at pH 3.0-10.0 (assay retention ≥99%)
Hygroscopy	Moderately hygroscopic

3. Core Product Advantages

1. **High Purity & Food Safety:** Assay ≥99.0%, ultra-low heavy metal/impurity content, meets infant food raw material limits; compliant with GB 2760-2021, FDA GRAS and EU EC 1333/2008 standards; no harmful residues.
2. **Multi-Functional All-Rounder:** Integrates **sequestrant, emulsifier, pH regulator, stabilizer and anticaking agent**; one product meets multiple food processing needs, reduces the use of other additives, and lowers production costs.



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- 3. **Excellent Sequestration Property:** Forms stable soluble complexes with metal ions (Ca^{2+} , Mg^{2+} , Fe^{3+} , Cu^{2+}); prevents food discoloration, precipitation and oxidation; improves food stability and shelf life; maintains the activity of vitamins/functional ingredients.
- 4. **Superior Processability:** Freely soluble in water, rapid dissolution without precipitation; uniform dispersion in liquid/solid food; compatible with all common food additives (citric acid, malic acid, emulsifiers, preservatives); no effect on food original flavor.
- 5. **Extreme Stability:** No decomposition in high-temperature sterilization ($121^{\circ}C$), baking ($\leq 180^{\circ}C$) and low-temperature freezing; stable in a wide pH range (3.0-10.0); suitable for all food processing technologies.

4. Wide Application Fields

Sodium Citrate is a universal multi-functional food additive, suitable for beverage, dairy, meat, bakery, confectionery, seasoning, canned food and infant food production:

- **Beverage Industry:** Fruit juice, carbonated drink, sports drink, milk beverage, fruit wine; sequestrant/pH regulator, prevents beverage turbidity/discoloration, stabilizes flavor, adjusts pH to extend shelf life.
- **Dairy Industry:** Yogurt, cheese, ice cream, milk powder; emulsifier/stabilizer, prevents milk protein precipitation, improves product texture and mouthfeel, stabilizes emulsion system.
- **Meat & Aquatic Products:** Sausage, ham, bacon, frozen fish, canned meat; sequestrant/antioxidant, chelates metal ions, prevents meat discoloration/oxidation, maintains tenderness, extends shelf life.

5. Usage Methods & Recommended Dosage

Food Type	Recommended Addition Dosage
Fruit Juice/Carbonated Drink/Sports Drink	0.05-0.5%
Yogurt/Ice Cream/Cheese/Dairy Drink	0.1-0.8%
Meat/Aquatic Products/Canned Meat	0.03-0.4%
Bread/Cake/Biscuit/Pastry	0.02-0.3%
Candy/Chocolate/Jam/Jelly	0.05-0.6%
Soy Sauce/Sauce/Salad Dressing	0.1-0.7%
Infant Food/Special Nutritional Food	0.02-0.2%
Fruit Wine/Vinegar/Beverage pH Adjustment	0.05-1.0%

6. Packaging, Storage & Transportation

- **Small Batch:** 1kg/5kg/10kg – Food-grade aluminum foil bags (sealed, moisture-proof, oxygen-free) for small-scale production, infant food and laboratory use.
- **Standard Batch:** 25kg – Food-grade HDPE plastic drums with inner aluminum foil liner (sealed, dust-proof, moisture-proof) for medium/large-scale food production.
- **Bulk Batch:** 500kg/1000kg – Food-grade FIBC bulk bags with moisture-proof PE liner (sealed valve) for large-scale industrial production and export.
- **Custom Packaging:** 500g/2kg food-grade customized packaging available upon request (for health food and small-batch production).

7. Safety & Quality Assurance

- The product is food-grade, non-toxic, non-irritating; no PPE mandatory for small-scale use; wear food-grade nitrile gloves, non-slip safety shoes and FFP1 dust mask for bulk handling (to prevent slipping/dust).
- Follow food hygiene operation standards: wash hands with food-grade hand sanitizer after handling; use dedicated food-grade equipment/containers to avoid cross-contamination; infant food production uses sterile dedicated equipment.
- No special first aid required for accidental contact; rinse with water if needed; excessive ingestion causes mild bloating in sensitive individuals (symptoms disappear spontaneously).