

Technical Data Sheet (TDS)

- DL-Tartaric Acid (Food Grade)

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1. Product Overview

- **Product Name:** DL-Tartaric Acid (Food Grade)
- **CAS Number:** 87-69-4
- **EINECS/EC Number:** 201-766-0
- **Chemical Formula:** C₄H₆ O₆
- **Molecular Weight:** 150.09 Da
- **Chemical Name:** DL-2,3-Dihydroxysuccinic acid
- **Product Characteristics:** High-purity food-grade DL-tartaric acid (≥99.5%) produced by chemical synthesis and subsequent crystallization/purification, or fermentation of natural raw materials. White free-flowing crystalline powder, odorless with a clean, mild sour taste; highly water-soluble, slightly hygroscopic, and highly stable under food processing conditions. As a multi-functional food additive, it acts as **acidulant, flavor enhancer, sequestrant, stabilizer and anti-crystallizer**; provides a refreshing sour taste, chelates harmful metal ions (Fe³⁺, Ca²⁺), stabilizes food emulsions and gels, and prevents sugar crystallization in confectionery. A natural component of grapes and fruits, FDA GRAS/EC E334 certified; compliant with GB 2760/FDA/EC/CAC/FCC/USP standards, widely used in wine, beverage and confectionery production.
- **Core Application:** Food additive (acidulant/sequestrant/stabilizer) for beverage, wine, confectionery, bakery, dairy, canned food, jam and processed food industries; anti-crystallizer for candy and syrup, gelling aid for jellies and desserts.

2. Technical Specifications (Compliant with GB 2760 & FCC/USP)

Item	Standard Requirement
Appearance	White crystalline powder, free-flowing, no caking
Odor/Taste	Odorless, clean mild sour taste, no off-taste
Assay (DL-Tartaric Acid)	≥ 99.5%
Loss on Drying	≤ 0.5%
Residue on Ignition	≤ 0.1%
Sulfate (SO ₄ ²⁻)	≤ 0.005%
Chloride (Cl ⁻)	≤ 0.002%
Heavy Metals (as Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.05 ppm
Mercury (Hg)	≤ 0.01 ppm
Iron (Fe)	≤ 0.001%
Calcium (Ca ²⁺)	≤ 0.005%
Optical Rotation	±0.5° (20% aqueous, 25°C)
Total Bacterial Count	≤ 100 CFU/g
E. coli	Negative
Salmonella	Negative in 25g
Water Solubility (25°C)	≥ 130 g/100mL
pH Value (1% aqueous solution)	2.0-2.5
Hygroscopy	Slightly hygroscopic
Temperature Stability	Stable at 0-121°C (food processing temperature)
Storage Stability	36 months unopened (≤25°C, RH ≤60%, sealed)

3. Product Advantages

- Clean & Refreshing Sour Taste:** Mild, clean sour flavor with no bitter/astringent aftertaste; enhances the natural flavor of food, especially suitable for wine, fruit beverage and confectionery production, superior to citric acid in flavor harmony for grape-based products.
- Strong Sequestration Ability:** Efficiently chelates metal ions (Ca^{2+} , Mg^{2+} , Fe^{3+} , Cu^{2+}) in food systems; prevents food discoloration, oxidation and turbidity, stabilizes beverage clarity, and inhibits enzymatic browning in fruits and vegetables.
- Excellent Anti-Crystallization Effect:** Prevents sugar crystallization in confectionery, syrup and jam; maintains the smooth texture of hard candy, soft candy and honey, extends product shelf life by preventing crystal formation.

4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, sour taste requirement, sequestration need and anti-crystallization effect; all dosages are **w/w** based on food raw materials, comply with national/international dosage limits.)

Application Field	Typical Products	Recommended Dosage	Core Effect
Wine & Fruit Wine	Red wine, white wine,	0.1-0.8%	Acidity adjustment, color
Beverage	Fruit juice, carbonated	0.05-0.4%	Clean acidulation,
Confectionery	Hard candy, soft candy,	0.1-1.0%	Anti-crystallization, sour taste
Bakery	Bread, cake, biscuit,	0.03-0.2%	Dough acidification, mold
Dairy Products	Yogurt, sour milk, cheese,	0.05-0.3%	Sour taste enhancement, pH
Jam & Jelly	Fruit jam, fruit jelly,	0.1-0.6%	Acidulation, gelling aid, anti-
Canned Food	Fruit/vegetable cans,	0.08-0.5%	Sequestration (anti-
Sauces &	Salad dressing, ketchup,	0.08-0.5%	Acidulation, emulsion

5. Usage Methods & Formulation Guidelines

Key Tip: DL-tartaric acid has high water solubility; dissolve in room temperature food-grade deionized water for all food systems to ensure uniform dispersion and full play of its functions.

- Aqueous Dissolution Method:** For liquid food systems (wine, beverage, sauce, jam), dissolve DL-tartaric acid in room temperature deionized water (5-10% stock solution) with stirring; add the stock solution to food and mix evenly (no precipitation, suitable for all temperatures).
- Dry Mixing Method:** For solid food systems (confectionery powder, baking flour, snack seasoning), premix DL-tartaric acid with other dry food ingredients (sugar, starch, salt) at a ratio of 1:10-1:20; mix thoroughly to ensure uniform dispersion (avoids local high concentration).

6. Packaging, Storage & Transportation

- Small Packaging: 1 kg/5 kg food-grade aluminum foil bags (heat-sealed, moisture-proof; for small food factories/laboratory use)
- Standard Packaging: 25 kg food-grade HDPE plastic drums (inner PE bag, sealed cover; for industrial batch production)
- Bulk Packaging: 500 kg/1000 kg food-grade jumbo bags (moisture-proof film, sealed; for large food factories/bulk purchase)
- Labeling:** All packages are labeled with product name, CAS number, purity, dosage limits, and "Keep Dry/Slight Hygroscopic" warning.

7. Quality Assurance & Technical Support

- Production Standards:** Manufactured in a GMP/HACCP-compliant food-grade production workshop; synthesis/crystallization/purification processes meet ISO 9001 (Quality Management) and ISO 22000 (Food Safety) standards; heavy metal/impurity content far lower than FCC/USP standards.
- Batch Testing:** Every batch of DL-tartaric acid is subject to **strict multi-index testing** (physical, chemical, microbiological, purity, optical rotation, heavy metals); a detailed Certificate of Analysis (COA) is provided with each shipment to ensure compliance with GB 2760/FCC/USP/EC standards.