

Technical Data Sheet (TDS)

- Sodium Gluconate (Food Grade)

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1. Product Overview

- **Product Name:** Sodium Gluconate (Food Grade)
- **CAS Number:** 526-95-4
- **EINECS/EC Number:** 208-407-7
- **Chemical Formula:** C₆ H₁₁O₇ Na
- **Molecular Weight:** 218.14
- **Chemical Name:** D-Gluconic acid monosodium salt
- **Product Characteristics:** High-purity food-grade sodium gluconate (≥98.0%) produced by glucose fermentation and neutralization crystallization; white crystalline powder, odorless, mild salty-sweet taste, highly water-soluble and slightly hygroscopic. As a **multi-functional food additive with strong chelating ability**, it can form stable water-soluble complexes with Ca²⁺, Mg²⁺, Fe³⁺, Cu²⁺ and other metal ions, and has excellent performance as sequestrant, stabilizer, buffering agent, pH regulator and humectant. It is stable under normal food processing conditions, compatible with all common food ingredients, and is a green and safe food additive derived from glucose. FDA GRAS/EC E576 certified; compliant with GB 2760/FDA/EC/CAC/FCC/USP standards, widely used in various food production.
- **Core Application:** Food additive (sequestrant/chelating agent/stabilizer) for beverage, dairy, meat, aquatic products, bakery, confectionery, sauce/seasoning and canned food industries; pH regulator for food processing, texture improver for meat products, anti-turbidity agent for beverage.

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

Item	Standard Requirement
Appearance	White crystalline powder, free-flowing, no caking
Odor/Taste	Odorless, mild salty-sweet, no off-taste
Assay (Sodium Gluconate)	≥98.0%
Reducing Sugar (as glucose)	≤0.5%
Glucose	≤0.2%
Loss on Drying	≤0.5%
Residue on Ignition	30.0-32.0%
Heavy Metals (as Pb)	≤1 ppm
Arsenic (As)	≤0.5 ppm
Cadmium (Cd)	≤0.05 ppm
Mercury (Hg)	≤0.01 ppm
pH Value (10% aqueous solution, 25°C)	7.0-8.5
Chloride (Cl ⁻)	≤0.05%
Sulfate (SO ₄ ²⁻)	≤0.05%
Total Bacterial Count	≤100 CFU/g
E. coli	Negative
Salmonella	Negative in 25g
Water Solubility (25°C)	≥59 g/100mL
Hygroscopy	Slightly hygroscopic
Chelating Ability	Effective for Ca ²⁺ /Mg ²⁺ /Fe ³⁺ /Cu ²⁺
Temperature Stability	Stable at 0-121°C (food processing temperature)
Storage Stability	36 months unopened (≤25°C, RH ≤60%, sealed)

3. Product Advantages

- Strong Chelating Ability:** Forms stable water-soluble complexes with Ca^{2+} , Mg^{2+} , Fe^{3+} , Cu^{2+} and other metal ions; effectively removes free metal ions in food systems, preventing food discoloration, turbidity and precipitation.
- Excellent Stabilization Effect:** Stabilizes food emulsions, gels and pigments; prevents emulsion demulsification, gel syneresis and pigment oxidation; extends food shelf life by 30-50%.

4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, functional requirement (chelating/stabilizing/pH regulation) and raw material quality; all dosages are **w/w** based on food raw materials, comply with GMP dosage limits for all food categories.)

Application Field	Typical Products	Recommended Dosage	Core Effect
Beverage	Fruit juice, carbonated drink, tea drink, dairy	0.05-0.3%	Anti-turbidity, chelate metal ions, stabilize pigment,
Dairy Products	Milk, yogurt, cheese, ice cream	0.03-0.2%	Stabilize emulsion, prevent protein denaturation,
Meat & Aquatic Products	Ham, sausage, frozen meat, aquatic products	0.1-0.5%	Texture improver, water retention, chelate metal ions,
Bakery & Confectionery	Bread, cake, pastry, candy, jelly	0.05-0.2%	Stabilize dough, improve texture, humectant, prevent
Sauce & Seasoning	Soy sauce, vinegar, ketchup, salad dressing,	0.05-0.4%	Stabilize emulsion, prevent stratification, chelate metal
Canned Food	Fruit/vegetable cans, meat cans, aquatic cans	0.1-0.5%	Anti-discoloration, chelate metal ions, stabilize texture,
Food Processing Aids	Water treatment for food processing, pH adjustment	0.02-0.1%	Soften water (chelate Ca^{2+} / Mg^{2+}), mild pH

5. Usage Methods & Formulation Guidelines

Key Tip: Sodium gluconate has high water solubility and stable chelating ability; dissolve in room temperature food-grade deionized water for all food systems, add at the early stage of food processing to fully play its chelating and stabilizing effects.

- Aqueous Dissolution Method:** For all liquid/semi-solid food systems (beverage, dairy, sauce, jam), dissolve sodium gluconate 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).

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)

7. Quality Assurance & Technical Support

- Production Standards:** Manufactured in a GMP/HACCP-compliant food-grade production workshop; adopts advanced glucose fermentation and neutralization crystallization technology, no harmful solvents; meets ISO 9001 (Quality Management) and ISO 22000 (Food Safety) standards; sodium gluconate content $\geq 98.0\%$, high chelating purity.
- Batch Testing:** Every batch of sodium gluconate is subject to **strict multi-index testing** (physical, chemical, microbiological, purity, reducing sugar, heavy metals, chelating ability); a detailed Certificate of Analysis (COA) is provided with each shipment to ensure compliance with GB 2760/FCC/USP/EC standards.