Calcium Citrate Product Specification Sheet

1. Basic Product Information

Product Name: Calcium Citrate

Product Grade: Food Nutrient Fortifier (Food Grade)

Executive Standard: GB 1903.14-2016 National Food Safety Standard - Food Nutrient Fortifier: Calcium Citrate

CAS Number: 813-94-5

Chemical Name: Calcium 2-hydroxypropane-1,2,3-tricarboxylate tetrahydrate

Molecular Formula: $Ca_3(C_6H_5O_7)_2 \cdot 4H_2O$

Relative Molecular Mass: 570.50 (Based on 2011 International Relative Atomic Mass)

Appearance & Properties: White crystals or crystalline powder, odorless, tasteless and non-irritating

Solubility: Slightly soluble in water; insoluble in organic solvents such as ethanol and ether; solubility increases significantly in acidic solutions

Product Characteristics:

- Mild and non-irritating, gastrointestinal-friendly, suitable for people with insufficient gastric acid secretion
- High bioavailability (superior to calcium carbonate, 1.2-1.5 times that of ordinary inorganic calcium)
- Stable chemical properties, unlikely to have antagonistic reactions with other nutrients
- Does not affect the original flavor and color of food with strong compatibility
- Stable calcium content (theoretical calcium content of about 21%), controllable fortification effect

2. Technical Specification Index (Physical and Chemical Index)

Item	Standard Index
Calcium Citrate Content (on dry basis)	97.% ~ 100.5%
Calcium (as Ca, dry basis)	20.0% ~ 21.5%
Loss on Drying	10.0% ~ 14.0%
Fluoride (as F)	≤30 mg/kg
Lead (Pb)	≤2.0 mg/kg
Arsenic (As)	≤3.0 mg/kg
Total Mercury (Hg)	≤0.3 mg/kg
Cadmium (Cd)	≤0.1 mg/kg

3. Microbial Limit (Food Grade)

- Total Aerobic Plate Count: ≤1000 CFU/g
- Molds and Yeasts: ≤100 CFU/g
- Coliforms: ≤30 MPN/100g
- Salmonella: 0/25g
- Staphylococcus Aureus: 0/25g

4. Production Process

Prepared with citric acid and calcium carbonate (or calcium oxide, calcium hydroxide) as raw materials through neutralization reaction, filtration, washing, drying, crushing and sieving; alternatively, taking eggshells as raw materials, making lime milk via cleaning, crushing and calcination, then neutralizing with citric acid solution, followed by filtration, water washing, drying, crushing and sieving. No harmful additive residues in the whole process.

5. Packaging and Storage

• **Packaging**: 25kg/drum (cardboard drum/paper drum/kraft paper bag/plastic woven bag), lined with double-layer food-grade PE bag, sealed for moisture resistance to prevent moisture absorption and caking

• **Storage Conditions**: Store in cool, dry and ventilated place with tight sealing; keep away from light, moisture and pollution. Avoid mixed storage with oxidants, acids and alkaline substances. Warehouse temperature shall not exceed 37℃

• **Shelf Life**: 24 months (unopened original package under specified storage conditions)

6. Main Applications

Used as food nutrient fortifier (high-efficiency calcium supplement), and also applied as food acidity regulator, stabilizer and chelating agent. Suitable for:

• **Dairy Products:** Modified milk powder, infant formula food, flavored fermented milk, milk beverages

• **Cereals and Cereal Products:** Rice, wheat flour, biscuits, oatmeal, breakfast cereals, energy bars

• **Beverages:** Solid beverages, acidic liquid beverages, fruit juice powder, oral liquid

• **Calcium fortification scenarios** such as health food, candy, jelly, baked food and salt; also used as calcium supplement raw material in pharmaceutical field

7. Compliance Statement

This product fully complies with the national standard **GB 1903.14-2016**, and also meets the international specifications of **GB 14880 Standard for Use of Food Nutrient Fortifiers**, CAC, FCC and JECFA. Heavy metal, microbial and physical-chemical indexes all meet the requirements of Codex Alimentarius and global market access. The production process conforms to **GB 14881 General Hygiene Specification for Food Production**.

Calcium Citrate Nutrition Facts Table

Product Name: Calcium Citrate (Food Nutrient Fortifier)

Application Recommendation: Added in accordance with GB 14880, GB 2760 and relevant standards for nutrient fortifiers;

Addition amount for cereals and cereal products: 8-16g/kg;

Addition amount for beverages and milk drinks: 1.8-3.6g/kg

(Calculated as elemental calcium: 0.6-0.8g/kg and 1.6-3.2g/kg respectively)

Daily Reference Intake of Calcium: 800mg ~ 1000mg for adults

Nutritional Component	**Content per 100g**	**Nutrient Reference Value Percentage (NRV%)**
Energy	≤100 kJ	1%
Protein	≤0.3 g	1%
Fat	≤0.1 g	0%
Carbohydrates	≤2.0 g	0%
Calcium (Ca)	20.0g ~ 21.5g	2500% ~ 2688%
Citric Acid	76.5g ~ 80.5g	—

Remarks

1. This nutrition facts table is calculated based on the standard index of **GB 1903.14-2016**, the actual data shall be subject to the third-party test report.
2. This product is a high-content calcium fortifier, not for direct consumption; only for formula addition of food and health products.
3. NRV% refers to China's **Administrative Specifications for Food Nutrition Labeling** (NRV benchmark: Calcium 800mg).