Technical Data Sheet (TDS)

- Calcium Carbonate (Food Grade)
Issue Date: 29 FEB 2026 | Version: V1.0

1. Product Overview

- **Product Name**: Calcium Carbonate (Food Grade)
- **CAS Number**: 471-34-1
- **EINECS/EC Number**: 207-439-9
- **Chemical Formula**: $CaCO_3$
- **Molecular Weight**: 100.09
- **Product Characteristics**: High-purity food-grade calcium carbonate (heavy calcium carbonate) produced by mineral grinding, purification and ultra-fine processing; white fine free-flowing powder, odorless, tasteless, non-hygroscopic and insoluble in water. As a **multi-functional food additive and essential calcium supplement**, it acts as a calcium fortifier (provides bioavailable calcium), anticaking agent (prevents powder food caking), bulking agent (improves food texture), acidity regulator (neutralizes mild acidic taste) and whitening agent (enhances food whiteness). It is a natural inorganic mineral with excellent stability, compatible with all common food ingredients, and is a widely used core additive in nutritional food and processed food production. FDA GRAS/EC E170 certified; compliant with GB 1886.214-2016/GB 2760/FDA/EC/CAC standards, the most common food-grade calcium supplement in the global food industry.

2. Technical Specifications (Compliant with GB 1886.214-2016 & FCC/USP)

Item	Standard Requirement
Appearance	White fine powder, free-flowing, no caking
Odor/Taste	Odorless, tasteless, no off-taste
Assay ($CaCO_3$, dry basis)	≥98.5%
Loss on Drying (105℃, 2h)	≤0.5%
Loss on Ignition (900℃, 1h)	43.0-44.5%
pH Value (10% suspension, 25℃)	8.0-10.0
Chloride (as Cl^-)	≤0.01%
Sulfate (as SO_4^{2-})	≤0.02%
Heavy Metals (as Pb)	≤1 ppm
Arsenic (As)	≤0.5 ppm
Iron (Fe)	≤5 ppm
Mg & Alkali Metals (as MgO)	≤1.0%
Barium (Ba)	≤0.03%
Water Solubility	Insoluble (≤0.02 g/100mL)
Total Bacterial Count	≤100 CFU/g
Yeast & Mold	≤10 CFU/g
E. coli	Negative in 1g
Salmonella	Negative in 25g
Temperature Stability	Stable at 0-800℃; decomposes at >825℃
pH Stability	Stable in neutral/alkaline systems (pH 7.0-11.0)
Storage Stability	36 months (unopened), 12 months (after opening)

3. Product Advantages

1. **High Calcium Content**: Calcium content ≥39.0% (on dry basis), high bioavailability; ideal food-grade calcium supplement for all population groups, easy to be absorbed by the human body.
2. **Excellent Anticaking Effect**: Fine powder with good flowability; prevents powder food (milk powder, nutritional powder, seasoning) from caking, improves product storage stability and appearance.

3. **Natural & Safe**: Pure natural inorganic mineral, no chemical additives in production; approved by all international food safety authorities, no adverse health effects at normal doses.

4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, calcium fortification requirement and processing technology; 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
Dairy Products	Milk powder, yogurt, cheese, milk drink	1.0-5.0%	Calcium supplement, texture improvement, anticaking
Cereal & Nutritional Food	Nutritional powder, oatmeal, baby food, calcium tablet	5.0-20.0%	Main calcium supplement, bulking, anticaking
Bakery	Bread, cake, biscuit, pastry	0.5-3.0%	Whitening, bulking, acidity regulation, texture improvement
Confectionery	Candy, chocolate, chewing gum, jelly	1.0-8.0%	Whitening, bulking, anticaking, hardness adjustment
Beverage	Fruit juice, plant beverage, sports drink	0.5-2.0%	Calcium supplement, mild acidity regulation
Seasoning & Powder Food	Seasoning powder, monosodium glutamate, chicken essence	0.1-1.0%	Anticaking, flowability improvement
Processed Food	Ham, sausage, canned food, frozen food	0.3-1.5%	Calcium supplement, texture modification, pH adjustment
Other Food	Ice cream, dessert, snack food	0.5-4.0%	Whitening, bulking, texture improvement

5. Usage Methods & Formulation Guidelines

Key Tip: Food-grade calcium carbonate is insoluble in water, suitable for dry mixing with powder food or uniform dispersion in semi-solid/solid food; for liquid food, use micro-nano grade calcium carbonate for better dispersion; avoid mixing with dilute strong acids.

1. **Dry Mixing Method (Powder Food)**: Premix calcium carbonate powder with other dry food ingredients (flour, starch, sugar, milk powder) at the required ratio; mix thoroughly by mechanical stirring to ensure uniform dispersion (no agglomeration), suitable for milk powder, nutritional powder and seasoning.

6. Packaging, Storage & Transportation

- **Small Packaging**: 1 kg/5 kg food-grade sealed paper bags with inner PE liner (for small food factories and nutritional food production)
- **Standard Packaging**: 25 kg food-grade HDPE plastic drums or paper bags (inner PE liner, sealed cover; for industrial batch production)
- **Bulk Packaging**: 500 kg/1000 kg food-grade jumbo bags (dust-proof film, inner PE liner; for large food factories with bulk handling)

7. Quality Assurance & Technical Support

1. **Production Standards**: Manufactured in a GMP/HACCP-compliant food-grade production workshop; adopts advanced mineral grinding, purification and ultra-fine processing technology (no chemical solvents/additives); meets ISO 9001 (Quality Management) and ISO 22000 (Food Safety) standards; assay ≥98.5%, high purity and stable performance.
2. **Batch Testing**: Every batch of calcium carbonate is subject to **strict multi-index testing** (physical, chemical, microbiological, purity, heavy metals, calcium content); a detailed Certificate of Analysis (COA) is provided with each shipment to ensure compliance with GB 1886.214-2016/FCC/USP standards.