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Technical Data Sheet (TDS)

Issue Date: February 27, 2026**Product Name:** L-Arginine (Food Grade)**CAS Number:** 74-79-3

1. Product Overview

- **English Name**: L-Arginine (Food Grade)
- **Synonyms**: (S)-2-Amino-5-guanidinopentanoic acid; L-2-Amino-5-ureidopentanoic acid; Food grade semi-essential amino acid
- **CAS No.**: 74-79-3
- **Molecular Formula**: $C_6H_{14}N_4O_2$
- **Molecular Weight**: 174.20 g/mol
- **Source**: Produced by microbial fermentation and food-grade enzymatic refinement; no chemical synthesis, no heavy metal residue, high optical purity, compliant with food safety production standards.
- **Product Characteristics**: White crystalline free-flowing powder, odorless, food-grade semi-essential amino acid with alkaline aqueous solution; freely soluble in water, stable under normal food processing and storage conditions. As a core food additive, it is used as an amino acid fortifier and nutritional supplement, participating in human nitric oxide synthesis, protein synthesis, urea cycle and immune function regulation; meets national/international food safety standards, suitable for various food, beverage, health food and sports nutrition products.

2. Technical Specifications (Complies with Food Industry Standards)

Item	Specification (Food Grade)
Appearance	White to off-white free-flowing crystalline powder, no caking
Assay (L-Arginine, HPLC)	≥ 99.0%
Loss on Drying (105℃, 2h)	≤ 0.5%
Ash Content	≤ 0.1%
pH Value (1% aqueous solution, 25℃)	10.5-12.0
Specific Rotation $[\alpha]_{20}^{D}$	+26.9° ~ +27.9°
Chloride (as Cl^-)	≤ 0.02%
Sulfate (as SO_4^{2-})	≤ 0.02%
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
Solubility	Freely soluble in water, slightly soluble in ethanol
Bulk Density	0.6-0.9 g/cm³
Temperature Stability	Stable at 0-120℃ (assay retention ≥ 98%)
pH Stability	Stable at pH 4.0-11.0 (assay retention ≥ 98%)
Optical Purity	≥ 99% (L-isomer)

3. Product Advantages

1. **Food Grade High Purity**: Assay ≥99.0%, optical purity ≥99% (L-isomer), all impurities/heavy metals meet national/international food safety limits; no chemical residue, microbial fermentation source is green and safe.
2. **Semi-Essential Amino Acid**: Core nutrient for human body, participates in nitric oxide synthesis (cardiovascular health), protein synthesis, urea cycle and immune function regulation; semi-essential characteristic meets the nutritional needs of different age groups.

3. **Excellent Stability**: Stable under normal food processing (≤120℃) and storage conditions; no degradation in a wide pH range (4.0-11.0); slightly hygroscopic with good anti-caking performance, long shelf life.
4. **Green & Safe**: GRAS certified by FDA, approved by FAO/WHO/Codex Alimentarius; no toxic side effects at standard use dosages, compliant with green food and organic food additive requirements.
5. **Good Compatibility**: Compatible with most food raw materials/additives (sugars, vitamins, minerals, proteins, plant extracts); avoid direct large-quantity mixing with strong acidic raw materials; no adverse reactions, no nutrient loss.
6. **Easy to Process**: Freely soluble in water (high solubility), can be used for dry mixing of solid food or dissolution of liquid food/beverage; uniform dispersion, no affecting product taste and texture.
7. **Regulatory Compliance**: Meets China GB 2760-2021, EU EC 1333/2008, US FDA 21 CFR and Codex Alimentarius standards; can be used for domestic and export food production, with complete certification documents.

4. Application Fields

L-Arginine is a food-grade semi-essential amino acid fortifier, suitable for various food, beverage, health food, sports nutrition products and special food, especially for cardiovascular health food, protein/nutritional fortified food and sports nutrition products:

- **Solid Food**: Cereal, bakery, candy, milk powder, protein powder, nutritional rice flour, baby food (follow age-specific addition limits), sports nutrition bars, cardiovascular health food.
- **Liquid Food/Beverage**: Functional beverage, sports drink, amino acid beverage, yogurt, milk, plant-based beverage, cardiovascular care beverage, energy drink.

5. Usage Methods

Food Type	Recommended Addition Dosage
Cereal/Bakery/Nutritional Rice Flour	0.05-0.3 g/100 g
Milk Powder/Protein Powder/Sports Nutrition Bar	0.2-1.2 g/100 g
Functional Beverage/Sports Drink/Cardiovascular Care Beverage	0.05-0.2 g/100 mL
Yogurt/Milk/Plant-based Beverage	0.02-0.08 g/100 mL
Health Food (Tablets/Capsules/Supplements)	1.0-4.0 g per serving
Baby Food (Over 6 months)/Elderly Nutritional Food	0.02-0.05 g/100 g (follow national special standards)
High-end Pet Food (Immune/Cardiovascular Health)	0.08-0.5 g/100 g

6. Packaging & Storage

- **Small Batch**: 1 kg / 5 kg / 10 kg: Food-grade aluminum foil bags (sealed, moisture-proof, light-proof) – for small-scale food production, health food, sports nutrition products and laboratory use.
- **Standard Batch**: 25 kg: Food-grade HDPE plastic drums with inner PE liner (sealed, dust-proof, moisture-proof) – for medium/large-scale food production and industrial use.
- **Bulk Batch**: 500 kg / 1000 kg: Food-grade FIBC bulk bags with PE liner (food-grade, sealed, moisture-proof valve) – for large-scale industrial production and export.
- **Custom Packaging**: Food-grade customized packaging (500 g/2 kg) available upon request for health food, sports nutrition products and pet food production.
- The product is food-grade, non-toxic and non-hazardous; it is a semi-essential amino acid for the human body, with no toxic side effects at standard use dosages, safe for humans, animals and the environment; its alkaline nature may cause mild irritation to sensitive eyes/skin upon direct contact.
- Wear food-grade PPE (safety goggles, nitrile rubber gloves, FFP1 dust mask, non-slip food-grade safety shoes) during bulk handling and mixing to avoid fine powder inhalation, eye contact and slipping on floors.