

Technical Data Sheet (TDS)

- Food Grade L-Glutamic Acid (56-86-0)

Issue Date: 28 FEB 2026 | Version: V1.0

1. Product Overview

- **Product Name:** L-Glutamic Acid (Food Grade)
- **CAS Number:** 56-86-0
- **Molecular Formula:** C₅ H₉ NO₄ | **Molecular Weight:** 147.13 g/mol
- **Chemical Classification:** Non-essential amino acid, food grade flavor enhancer & nutrient fortifier
- **Core Characteristics:** High purity (≥98.5%), white crystalline powder, slightly hygroscopic, water-soluble, stable under normal food processing conditions. Acts as a natural **umami agent** and nutrient fortifier; the precursor of monosodium glutamate (MSG), complies with GB, EU, FDA and CAC food safety standards. Non-toxic at recommended dosages, participates in human protein synthesis and metabolism, suitable for various food processing industries.
- **Core Application:** Food additive for condiments, meat products, snack foods, beverages, dairy, bakery and nutritional food industries. Enhances food umami flavor, improves taste layering, fortifies nutritional components, and can be used to synthesize food-grade glutamates (sodium/potassium glutamate); also used in food fermentation and amino acid formula food.

2. Technical Specifications (Food Grade, Compliant with GB 1886.48-2016 & CAC)

Item	Standard Requirement	Test Method
Appearance	White crystalline powder, free-flowing, odorless	Visual & Olfactory Inspection
Assay (L-Glutamic Acid)	≥98.5%	High Performance Liquid Chromatography (HPLC)
Specific Rotation [α] ₂₀ ^D	+31.5° ~ +32.5° (2 mol/L HCl)	Polarimetry
Moisture Content	≤0.5%	Karl Fischer Titration
pH Value (1% aqueous, 25°C)	3.0~3.5	Digital pH Meter
Residue on Ignition	≤0.1%	Gravimetric Method (600±50°C)
Chloride (as Cl ⁻)	≤0.02%	Volumetric Method (AgNO ₃)
Sulfate (as SO ₄ ²⁻)	≤0.02%	Turbidimetric Method
Heavy Metals (as Pb)	≤5 ppm	Atomic Absorption Spectrometry (AAS)
Arsenic (As)	≤1 ppm	Atomic Fluorescence Spectrometry (AFS)
Cadmium (Cd)	≤0.1 ppm	AAS
Mercury (Hg)	≤0.01 ppm	Cold Vapor Atomic Absorption
Total Bacterial Count	≤100 CFU/g	Plate Count Method
E. coli	Negative	Food Microbial Detection Method
Salmonella	Negative in 25g	Food Microbial Detection Method
Bulk Density	0.80-0.95 g/cm ³	Volumetric Method
Water Solubility	≥3.5 g/100 mL (25°C)	Visual/Volumetric Method

3. Product Advantages (Food Grade Focus)

- Double Functional Value:** Integrates **umami flavor enhancement** and **nutrient fortification**; one product for multiple uses, improves food taste and nutritional value simultaneously, reduces the use of other additives.
- High Food Safety:** ≥98.5% high purity, no harmful impurities, complies with international food safety standards; non-essential amino acid for humans, no toxic side effects at recommended dosages, suitable for all food categories including infant food.

4. Application & Dosage Guide (Food Formulation, Compliant with GB 2760)

4.1 Target Food & Core Benefits

- Condiments (soy sauce, vinegar, monosodium glutamate, compound seasoning):** Core umami raw material, enhances umami flavor, improves taste stability, the main raw material for MSG synthesis.
- Meat/Aquatic Products (sausage, ham, bacon, surimi products):** Enhances meat umami, improves product tenderness and taste, inhibits fishy/odor taste of aquatic products.
- Snack Foods (potato chips, dried fruit, pastry, instant noodles):** Improves snack taste layering, enhances umami and sweet taste coordination, prolongs flavor retention.

4.2 Recommended Addition Levels (w/w, based on food raw materials)

Food Category	Recommended Dosage	Core Effect
Condiments	5.0~20.0%	Umami enhancement/MSG synthesis raw material
Meat/Aquatic Products	0.1~0.5%	Umami enhancement/odor inhibition
Snack Foods	0.05~0.2%	Taste improvement/flavor enhancement
Beverages	0.01~0.05%	Nutrient fortification/amino acid supplement
Dairy/Bakery	0.02~0.1%	Nutrient fortifier/fermentation promotion
Nutritional Food	1.0~5.0%	Amino acid supplement/balance formula
Fermented Food	0.05~0.3%	Fermentation nutrient/flavor improvement

5. Handling & Formulation Guidelines

- Premixing is Recommended:** Premix with food-grade inert carrier (sucrose, maltodextrin, corn starch) at a ratio of 1:10 to 1:20 to create a premix; ensures uniform distribution in food raw materials and prevents hygroscopic caking.
- Dry Handling First:** The product is slightly hygroscopic and acidic; use dry food-grade equipment/tools for weighing/mixing. Avoid contact with water and air for a long time during processing to prevent caking and moisture absorption.

6. Packaging, Storage & Shelf Life

- Small Packaging:** 1 kg/5 kg food-grade moisture-proof aluminum foil bags (for small food factories, laboratory use)
- Standard Packaging:** 25 kg food-grade moisture-proof HDPE drums with inner PE liners (industrial use, anti-hygroscopic)

7. Quality Assurance & Control

- Production Standards:** Produced in a GMP-compliant food-grade production workshop; comply with ISO 9001 (Quality Management) and ISO 22000 (Food Safety Management) system standards. Adopt closed fermentation/crystallization/drying process to ensure high purity, hygiene and no contamination, meeting food-grade production requirements.