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Technical Data Sheet (TDS)

- Glycine (Food Grade)
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1. Product Overview

- **Product Name**: Glycine (Food Grade)
- **CAS Number**: 56-40-6
- **EINECS/EC Number**: 200-272-2
- **Chemical Formula**: $C_2H_5NO_2$
- **Molecular Weight**: 75.07 Da
- **Chemical Name**: Aminoacetic acid / Glycocoll
- **Product Characteristics**: High-purity food-grade Glycine prepared by microbial fermentation and refined purification (non-GMO, no chemical synthesis). White free-flowing crystalline powder, odorless with slight sweet taste, highly water-soluble, excellent buffer capacity, and extremely stable under normal food processing and storage conditions. As a multi-functional food additive, it acts as **flavor enhancer, nutrient fortifier, pH buffer, taste improver and humectant**; it enhances food umami/savory flavor, fortifies amino acid nutrition, stabilizes food pH system, improves taste layering and maintains food moisture. Glycine is the simplest natural amino acid, non-toxic, easily absorbed by the human body, suitable for all population groups. Environmentally friendly, fully biodegradable, compliant with GB 2760/FDA/EC/CAC/FCC/USP standards, suitable for various food production and processing.

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

Item	Standard Requirement
Appearance	White crystalline powder; free-flowing, no caking
Odor/Taste	Odorless, slight sweet taste
Assay (Glycine)	≥ 99.0%
Specific Rotation (25℃, 5% in H_2O)	0° ±0.5°
Moisture Content	≤ 0.5%
Ash Content	≤ 0.1%
pH Value (5% aqueous, 25℃)	5.5-7.0
Heavy Metals (as Pb)	≤ 1 ppm
Arsenic (As)	≤ 0.5 ppm
Cadmium (Cd)	≤ 0.05 ppm
Mercury (Hg)	≤ 0.01 ppm
Chloride (Cl^-)	≤ 0.01%
Sulfate (SO_4^{2-})	≤ 0.01%
Total Bacterial Count	≤ 100 CFU/g
E. coli	Negative
Salmonella	Negative in 25g
Water Solubility (25℃)	≥ 249 g/L (clear aqueous solution)
Bulk Density	0.80-1.00 g/cm³
Temperature Stability	Stable at 0-121℃ (short-time high temp sterilization; ≥98% activity retention)
pH Stability	Stable at pH 4.0-8.0 (≥98% activity retention)
Buffer Capacity	Excellent (effective in pH 5.0-7.0 food systems)
Storage Stability	36 months unopened (≤25℃, ≤60% RH)

3. Product Advantages

1. **High Bioavailability & Nutritious**: The simplest natural amino acid, easily absorbed and utilized by the human body; a key component of proteins, collagen and glutathione, supplements dietary

amino acid, improves food nutritional value, suitable for all population groups including infants, the elderly and pregnant women.

2. **High Purity & Food Safety**: Assay ≥99.0%, heavy metal content far lower than national/FCC/USP standards; no impurities, no harmful additives; FDA GRAS/EC E640 certified, approved for use in infant food and pregnant women's nutritional supplements.

4. Application Fields & Recommended Dosage

(Adjust dosage according to food type, flavor requirement, nutritional fortification need and pH adjustment target; all dosages are **w/w** based on food raw materials)

Application Field	Typical Products	Recommended Dosage	Core Effect
Dairy Products	Milk, yogurt, cheese, milk powder, flavored dairy, ice	0.3-2.0%	Nutrient fortification, pH buffering, improve mouthfeel, stabilize
Beverage	Sports drink, amino acid drink, fruit juice, soy milk,	0.5-3.0%	Amino acid supplementation, pH buffering, taste improvement,
Bakery & Pastry	Bread, cake, biscuit, cereal, steamed bun, pastry	0.2-1.5%	Improve dough texture, enhance savory flavor, pH buffering, prevent
Meat Products	Sausage, ham, meatball, canned meat, cured meat,	0.5-2.5%	Enhance umami/savory flavor, improve juiciness/tenderness, pH
Condiments	Soy sauce, oyster sauce, compound seasoning, soup	0.8-3.5%	Boost umami flavor, improve taste layering, stabilize pH, enhance
Infant Food	Infant formula, rice flour, complementary food, baby	0.1-0.8%	Amino acid fortification (complies with infant nutrient standards), mild
Sports Nutrition Food	Protein powder, amino acid bar, fitness meal replacement,	2.0-10.0%	High-dose amino acid supplementation, muscle energy
Frozen Food	Frozen dumplings, frozen meat, frozen dessert, quick-	0.2-1.0%	pH buffering, improve freeze-thaw stability, prevent texture
Health Food	Amino acid tablets/capsules, nutritional supplements, meal	5.0-25.0%	Targeted amino acid fortification, balanced nutrition, pH buffering

5. Usage Methods & Formulation Guidelines

1. **Premixing Recommended**: For **solid food systems** (milk powder, bakery flour, seasoning powder, meal replacement powder), premix Glycine with other dry ingredients (sugar, starch, milk powder, protein powder) at a ratio of 1:10-1:20 to ensure uniform dispersion; avoid direct mixing with high-concentration strong acid/alkali ingredients.

6. Packaging, Storage & Transportation

- Small Packaging: 1 kg/5 kg food-grade aluminum foil bags (inner PE liner, vacuum sealed; for small food factories/laboratory use)
- Standard Packaging: 25 kg food-grade HDPE plastic drums (sealed, with inner PE bag; for industrial batch production)
- Bulk Packaging: 500 kg/1000 kg food-grade jumbo bags (sealed, dust-proof, moisture-proof; for large food factories/bulk purchase)

7. Quality Assurance & Technical Support

1. **Production Standards**: Manufactured in a GMP/HACCP-compliant food-grade production workshop; comply with ISO 9001 (Quality Management System) and ISO 22000 (Food Safety Management System); raw materials are microbial fermentation-derived (non-GMO), no chemical synthesis, meet infant food raw material requirements.
2. **Batch Testing**: Every batch of Glycine is subject to **strict multi-index testing** (physical, chemical, microbiological, purity, specific rotation); a detailed Certificate of Analysis (COA) is provided with each shipment to ensure compliance with GB 2760/FCC/USP/EC standards and infant food safety requirements.