Technical Data Sheet (TDS)

- L-Phenylalanine

Revision Date: 24 February 2026**Product Number**: LPA-20260224**CAS Number**: 63-91-2**EINECS Number**: 200-568-1**Chemical Formula**: $C_9H_{11}NO_2$**Molecular Weight**: 165.19 g/mol

1. Product Overview

L-Phenylalanine is an essential aromatic a-amino acid that cannot be synthesized endogenously by humans and animals, and must be obtained from dietary sources. It exists as a white to off-white crystalline powder, slightly soluble in water, soluble in dilute acids and alkalis, and insoluble in organic solvents such as ethanol and ether. As a precursor for the synthesis of L-Tyrosine, dopamine, norepinephrine and melanin, it plays a key role in protein synthesis, nerve signal transmission and skin pigment metabolism. Our L-Phenylalanine is produced by microbial fermentation and refined via high-purity purification technology, with stable quality, low impurity content and high bioavailability, suitable for food, feed, pharmaceutical, nutritional supplement and cosmetic industries.

2. Technical Specifications

Item	Specification
Physical State	Crystalline powder (25℃)
Color	White to off-white
Assay (Dry Basis)	≥ 98.5%
Specific Rotation	-33.0° ~ -35.0° (5% in 1mol/L HCl)
pH (1% Aqueous Suspension)	5.4 ~ 6.0
Solubility	Slightly soluble in water (≈2.9 g/100 mL, 25℃); soluble in dilute acids/bases; insoluble in ethanol, ether, chloroform
Melting Point	283~284℃ (decomposes)
Loss on Drying	≤ 0.5%
Residue on Ignition	≤ 0.1%
Particle Size	95% through 80 mesh (200 μm) (customizable)
Optical Purity	≥ 99.0% (L-isomer)

3. Product Advantages

1. **High Purity & Purity**: Fermentation-derived with HPLC purity ≥98.5%, low related substances and heavy metal impurities, meeting multi-grade quality requirements.
2. **Natural Configuration**: Pure L-configuration, consistent with the physiological absorption and metabolism characteristics of humans and animals, high bioavailability.
3. **Stable Quality**: Strict quality control throughout the production process, small batch-to-batch variation, stable physical and chemical properties.
4. **Multi-Scene Application**: Complies with USP, FCC, GB and other international and domestic standards, applicable to food, feed, pharmaceutical, cosmetics and other fields.
5. **Good Compatibility**: Reacts stably with most amino acids, vitamins, minerals and food/feed/cosmetic additives, easy to formulate.

4. Application Fields

- **Food Industry**: Food fortification (dairy, bakery, nutritional meal, functional beverage), balance amino acid composition, suitable for infant food, sports food and special medical purpose food.

- **Feed Industry**: Livestock, poultry and aquatic feed additive, promote animal growth and development, improve feed conversion rate and animal product quality.
- **Pharmaceutical Industry**: Raw material for amino acid infusion, antipyretic and analgesic drugs; precursor for the synthesis of L-Tyrosine and dopamine drugs.
- **Nutritional Supplements**: Production of amino acid tablets, capsules, oral liquids, used for relieving fatigue, improving cognitive ability and supplementing essential amino acids.
- **Cosmetic Industry**: Skin care product ingredient, promote skin melanin synthesis, improve skin tone, and have antioxidant auxiliary effects.

5. Usage Methods

5.1 Recommended Dosage (by weight)

- **Food Fortification**: 0.04% ~ 0.4% of the total formula (adjust according to amino acid fortification requirements).
- **Feed Additive**: Poultry and livestock: 0.02% ~ 0.1%; Aquatic products: 0.05% ~ 0.18%.
- **Nutritional Supplements**: 250 ~ 500 mg per serving (adult daily dosage).
- **Pharmaceutical/Cosmetic Raw Materials**: According to formulation design requirements of drugs and skin care products.

5.2 Processing Guidelines

1. **Dissolution**: Add to dilute acid/base solution or water with gentle stirring (heating to 40~60℃ can appropriately increase solubility); avoid direct mixing with organic solvents.
2. **Mixing**: In solid formulations, mix thoroughly with other powdered raw materials to ensure uniformity and prevent agglomeration.
3. **Compatibility**: Avoid long-term contact with strong oxidants, high temperature (＞150℃) and strong light; it can be compounded with other amino acids, vitamins and minerals in any proportion.

6. Packaging & Storage

- **Packaging**: 1 kg/aluminum foil bag; 25 kg/carton with PE inner liner; 25 kg/fiber drum with PE inner liner; 1000 kg/bulk bag (FIBC) (customizable packaging specifications).
- **Storage**: Store in a **cool, dry, well-ventilated warehouse** at 5~25℃. Keep the container tightly sealed to prevent moisture absorption, oxidation and microbial contamination. Avoid direct sunlight and high temperature.
- **Shelf Life**: 24 months from the date of manufacture in unopened, properly stored packaging.
- **Transport**: Classified as **Non-Hazardous Goods**. Transport in covered vehicles to protect from rain, moisture and direct sunlight. Avoid collision and extrusion during transportation, and separate from strong acids and alkalis.

7. Quality Assurance

- Manufactured in ISO 9001 (Quality Management System), ISO 22000 (Food Safety Management System) and GMP certified production facilities.
- Complies with USP NF, FCC VIII, GB 1886.218 (Food Grade), national feed additive standards and pharmaceutical raw material quality specifications.
- Each batch of products is strictly tested for assay, specific rotation, impurities, microbiology and other indicators, and is accompanied by a Certificate of Analysis (COA).
- Provide professional technical support for product application, including dosage adjustment, formulation compatibility, processing technology guidance and customized solution design.