

Technical Data Sheet (TDS)

- L-Valine

Revision Date: 25 February 2026 **Product Number:** LVA-20260225 **CAS Number:** 72-18-4 **EINECS Number:** 200-773-6 **Chemical Formula:** C₅ H₁₁NO₂ **Molecular Weight:** 117.15 g/mol

1. Product Overview

L-Valine is a branched-chain essential α -amino acid that cannot be synthesized by the human and animal body and must be obtained from dietary sources. It exists as a white to off-white crystalline powder, soluble in water, slightly soluble in ethanol, and insoluble in ether. As a key component of protein synthesis, it plays a vital role in muscle growth and repair, energy metabolism, and immune system regulation, and is one of the three core branched-chain amino acids (BCAAs) together with L-Leucine and L-Isoleucine. Our L-Valine is produced by advanced microbial fermentation and high-purity purification technology, with stable quality, low impurity content and high bioavailability, suitable for food, feed, pharmaceutical, nutritional supplement and biological fermentation industries.

2. Technical Specifications

Item	Specification
Physical State	Crystalline powder (25°C)
Color	White to off-white
Assay (Dry Basis)	≥ 98.5%
Specific Rotation	+26.0° ~ +29.0° (5% in H ₂ O)
pH (1% Aqueous Solution)	5.5 ~ 7.0
Solubility	Soluble in water (≈8.8 g/100 mL, 25°C); slightly soluble in ethanol; insoluble in ether, chloroform
Melting Point	315~317°C (decomposes)
Loss on Drying	≤ 0.5%
Residue on Ignition	≤ 0.1%
Particle Size	95% through 80 mesh (200 μ m) (customizable according to demand)
Optical Purity	≥ 99.0% (L-isomer)

3. Product Advantages

- High Purity & Purity:** Fermentation-derived with HPLC purity ≥98.5%, low related substances and heavy metal impurities, meeting multi-grade quality requirements of food, feed and pharmacy.
- Natural Configuration:** Pure L-isomer, consistent with the physiological absorption and metabolism characteristics of humans and animals, high bioavailability and no side effects.
- Stable Quality:** Strict quality control throughout the production process, small batch-to-batch variation, stable physical and chemical properties under normal storage conditions.
- Core Nutritional Value:** Key branched-chain amino acid, with obvious effects on muscle repair, energy supplement and immune enhancement, high application value.
- Good Compatibility:** Reacts stably with most amino acids, vitamins, minerals and food/feed additives, easy to formulate and compound use.

4. Application Fields



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- **Food Industry:** Food fortification (dairy, bakery, nutritional meal, sports drinks), balance amino acid composition, suitable for infant food, sports food, elderly food and special medical purpose food.
- **Feed Industry:** Livestock, poultry and aquatic feed additive, promote animal growth and development, improve feed conversion rate, enhance animal immunity and reduce breeding mortality.
- **Pharmaceutical Industry:** Raw material for amino acid infusion, compound amino acid preparations, and drugs for treating muscle atrophy and malnutrition; adjuvant therapy for postoperative recovery.
- **Nutritional Supplements:** Production of BCAA compound tablets, capsules, oral liquids, used for muscle repair of athletes, anti-fatigue and nutritional supplement for fitness enthusiasts.
- **Biological Fermentation:** Raw material for microbial fermentation, used in the production of enzymes, antibiotics and other biological products.

5. Usage Methods

5.1 Recommended Dosage (by weight)

- **Food Fortification:** 0.05% ~ 0.5% of the total formula (adjust according to amino acid fortification requirements).
- **Feed Additive:** Poultry and livestock: 0.03% ~ 0.12%; Aquatic products: 0.06% ~ 0.20%.
- **Nutritional Supplements:** 300 ~ 800 mg per serving (adult daily dosage, can be compounded with L-Leucine and L-Isoleucine).
- **Pharmaceutical Raw Materials:** According to the formulation design requirements of drugs and amino acid preparations.

5.2 Processing Guidelines

1. **Dissolution:** Add directly to water with gentle stirring, dissolves quickly at room temperature; heating to 30~40°C can accelerate dissolution for large-scale use.
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 (>180°C) and strong light; can be compounded with other BCAAs, 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°C. 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, strong bases and oxidizing agents.

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 1886.203 (Food Grade), national feed additive standards and pharmaceutical raw material quality specifications.