

Technical Data Sheet (TDS)

- L-Threonine

Product Name: L-Threonine **English Name:** L-Threonine **CAS Number:** 72-19-5 **EINECS Number:** 200-774-1 **Molecular Formula:** C₄H₉ NO₃ **Molecular Weight:** 119.12 g/mol **Revision Date:** 26 FEB 2026

1. Product Overview

SIGALD L-Threonine is a high-purity, food/feed/pharm grade essential amino acid produced by **advanced microbial fermentation** (non-GMO strain) and multi-step purification (filtration, crystallization, drying). As the only essential amino acid with a chiral hydroxyl group, it cannot be synthesized by humans, poultry, swine, and most aquatic animals, and must be obtained through dietary supplementation.

Our L-Threonine is the biologically active L-isomer (100% bioavailable), featuring high purity (≥98.5%), low heavy metal/microbial counts, excellent free-flowing properties, and high processing stability. It is a critical nutritional fortifier that balances amino acid profiles, improves protein utilization efficiency, and promotes growth/development in animals; it is also used in human food fortification, dietary supplements, and pharmaceutical amino acid formulations. Compliant with GB/T 23886, FDA GRAS, and EU regulations, it is suitable for all food, feed, and pharmaceutical applications.

2. Technical Specifications (Complies with GB/T 23886 & FDA GRAS)

Parameter	Specification (Food/Feed/Pharm Grade)	Typical Result	Test Method
Appearance	White to off-white crystalline free-flowing powder	White crystalline powder	Visual Inspection
Odor/Taste	Odorless/faint characteristic odor, mild sweetish taste	Odorless, mild sweet	Sensory Evaluation
Assay (L-Threonine)	≥98.5%	99.2%	HPLC
Specific Rotation (20°C, 5% in H ₂ O)	-26.0° ~ -29.0°	-27.5°	Polarimeter
pH Value (5% aqueous, 25°C)	5.0 ~ 6.5	5.8	Digital pH Meter
Loss on Drying	≤0.5%	0.10%	Gravimetric (105°C, 3h)
Residue on Ignition (Ash)	≤0.1%	0.02%	Gravimetric (550°C)
Heavy Metals (Pb)	≤0.5 ppm	0.06 ppm	ICP-MS
Heavy Metals (As)	≤0.2 ppm	0.01 ppm	ICP-MS
Iron (Fe)	≤10 ppm	1.8 ppm	Colorimetric Method
Chloride (Cl ⁻)	≤0.02%	0.004%	Titrimetric Method
Sulfate (SO ₄ ²⁻)	≤0.02%	0.003%	Turbidimetric Method
Solubility in Water (25°C)	≥80 g/L	90 g/L	Gravimetric Method
Microbiology	Total Plate Count ≤100 CFU/g E. coli/Salmonella: Negative	<10 CFU/g Negative	GB 4789.2 GB 4789.3/4
Heat Stability	≥95% retention at 121 °C (30mins)	98.5%	HPLC

3. Application Fields & Recommended Dosage

L-Threonine is an essential amino acid fortifier for **animal feed (main application)**, human food, dietary supplements, and pharmaceuticals. Dosage can be adjusted according to species, age, nutritional requirements, and raw material amino acid profiles.



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Industry	Application Scenario	Recommended Dosage	Core Function
Animal Feed (Main)	Poultry (broilers/layers): corn -soybean meal diet	0.10% ~ 0.30% of total feed	Improve feed conversion, promote growth, enhance egg production/quality
	Swine (weanling/growing-finishing)	0.15% ~ 0.40% of total feed	Reduce diarrhea, improve muscle growth, increase feed efficiency
	Aquaculture (shrimp/fish)	0.20% ~ 0.50% of total feed	Promote growth, improve survival rate, enhance stress resistance
	Ruminants (dairy cattle/beef cattle)	0.05% ~ 0.15% of total feed	Improve milk production, enhance muscle growth
Food & Beverage	Fortified cereals, protein bars, milk powder, health drinks	0.05% ~ 0.20% of finished product	Nutritional fortification, balance amino acid profile
Dietary Supplements	Tablets, capsules, powder sachets, amino acid blends	200mg ~ 1000mg per serving	Support muscle health, immune function, intestinal barrier
Pharmaceuticals	Amino acid infusions, enteral nutrition formulations, medical food	As per pharmaceutical formulation	Nutritional support for patients with malnutrition/protein deficiency

4. Usage Guidelines & Processing

- Solid System Incorporation:** Directly mix with other solid ingredients (flour, feed powder, excipients) at any production stage; pre-mix with a carrier (e.g., corn starch) for uniform distribution in bulk feed/food.
- Liquid System Incorporation:** Dissolve in water (room temperature) with mild agitation; soluble in water (90g/L at 25°C), no heating required. Suitable for liquid food, beverages, and pharmaceutical infusions.
- Dust Control:** Minimize violent pouring/agitation to reduce dust generation; use dry equipment to prevent moisture absorption and caking.

5. Packaging & Storage

Grade	Packaging	Application Scenario
Sample	100g/500g Sealed HDPE Bottles	Formulation testing, small-batch trial
Commercial	1kg/5kg Vacuum-Sealed Aluminum Foil Bags	Small-batch food/feed/pharm production
Bulk (Feed/Food)	20kg/25kg Multi-Wall Paper Sacks (PE-lined, moisture-proof)	Industrial large-scale feed/food production
Bulk (Pharm)	20kg/25kg HDPE Drums (inner aluminum foil, sterile)	Pharmaceutical production
Custom	Customized packaging (50g-10kg)	OEM/ODM according to customer requirements

6. Quality Assurance & Regulatory Compliance

- Produced in **ISO 9001 (Quality)**, **ISO 22000 (HACCP, Food Safety)**, and **GMP (Pharm)** certified facilities.
- Microbial fermentation with non-GMO strains; multi-step purification (ultrafiltration, crystallization, drying) ensures high purity and low impurities.
- Full production traceability (batch number tracking from raw material to finished product); strict in-process quality control (IPC) for all production stages.