Technical Data Sheet (TDS)

- L-Methionine

Product Name: L-Methionine**English Name**: L-Methionine**CAS Number**: 63-68-3**EINECS Number**: 200-562-9**Molecular Formula**: $C_5H_{11}NO_2S$**Molecular Weight**: 149.21 g/mol**Revision Date**: 28 FEB 2026

1. Product Overview

SIGALD L-Methionine is a high-purity, food/feed/pharm grade **essential sulfur-containing amino acid** produced by advanced microbial fermentation (non-GMO strain) and multi-step purification (filtration, crystallization, vacuum drying). As the biologically active L-isomer, it cannot be synthesized endogenously by humans, poultry, swine, aquaculture and most livestock, and must be obtained through dietary supplementation.

Our L-Methionine features ultra-high purity (≥99.0%), low heavy metal/microbial counts, excellent free-flowing properties and high processing stability. It is the only essential sulfur-containing amino acid in the human/animal body, serving as a critical building block for protein synthesis, a precursor for glutathione (the body's major antioxidant) and a key methyl donor for various biological methylation reactions. Compliant with FDA GRAS, EU and Chinese national standards, it is the premium choice for animal feed fortification, human food nutrition, pharmaceutical formulations and dietary supplements with **100% bioavailability** (no conversion required for metabolic utilization).

Core Characteristics & Advantages:

- **100% Bioavailable**: Natural L-isomer, direct utilization by human/animal metabolism with no isomer conversion needed.
- **Sulfur-Containing Essential Amino Acid**: Unique role in antioxidant defense, methylation and protein synthesis.

2. Technical Specifications (Complies with GB/T 17810 & FCC)

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	Mild sulfurous odor, slightly bitter taste	Mild characteristic odor	Sensory Evaluation
Assay (L-Methionine)	≥99.0%	99.6%	HPLC
Specific Rotation (20℃,5% in H_2O)	+21.0° ~ +25.0°	+23.2°	Polarimeter
pH Value (5% aqueous,25℃)	5.4 ~ 6.4	5.9	Digital pH Meter
Loss on Drying	≤0.5%	0.11%	Gravimetric (105℃,3h)
Residue on Ignition (Ash)	≤0.1%	0.02%	Gravimetric (550℃)
Heavy Metals (Pb)	≤0.5 ppm	0.05 ppm	ICP-MS
Heavy Metals (As)	≤0.2 ppm	0.01 ppm	ICP-MS
Iron (Fe)	≤10 ppm	1.5 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℃)	≥45 g/L	50 g/L	Gravimetric Method
Microbiology	Total Plate Count ≤100 CFU/g	<10 CFU/g	GB 4789.2
	E. coli/Salmonella: Negative	Negative	GB 4789.3/4
Heat Stability	≥95% retention at 121℃ (30mins)	98.6%	HPLC

3. Application Fields & Recommended Dosage

L-Methionine 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.

Industry	Application Scenario	Recommended Dosage	Core Function
Animal Feed (Main)	Poultry (broilers/layers): corn-soybean meal diet	0.08% ~ 0.30% of total feed	Improve feed conversion, promote growth, enhance egg quality/ production
	Swine (weanling/growing-finishing)	0.10% ~ 0.35% of total feed	Reduce stress, improve muscle growth, increase feed efficiency
	Aquaculture (shrimp/fish)	0.15% ~ 0.45% of total feed	Promote growth, improve survival rate, enhance stress resistance
	Ruminants (dairy cattle/beef cattle)	0.05% ~ 0.20% of total feed	Improve milk production, enhance meat quality, support rumen health
Food & Beverage	Fortified cereals, protein bars, milk powder, health drinks	0.05% ~ 0.20% of finished product	Nutritional fortification, balance amino acid profile, support antioxidant defense
Dietary Supplements	Tablets, capsules, powder sachets, amino acid blends	200mg ~ 1000mg per serving	Support liver health, antioxidant defense, muscle synthesis, hair/nail health
Pharmaceuticals	Amino acid infusions, enteral nutrition, liver protective formulations	As per pharmaceutical formulation	Nutritional support, methyl donor, glutathione precursor, pharmaceutical intermediate

4. Usage Guidelines & Processing

1. **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.
2. **Liquid System Incorporation**: Dissolve in warm water (40-50℃) with mild agitation for faster dissolution; suitable for liquid food, beverages and pharmaceutical infusions.
3. **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, vacuum drying) ensures high purity and low impurities; no solvent residues.