

Technical Data Sheet (TDS)

- L-Serine

Product Name: L-Serine **English Name:** L-Serine **CAS Number:** 56-45-1 **EINECS Number:** 200-274-3
Molecular Formula: C₃H₇ NO₃ **Molecular Weight:** 105.09 g/mol **Revision Date:** 27 FEB 2026

1. Product Overview

SIGALD L-Serine is a high-purity, food and pharmaceutical grade amino acid produced via advanced microbial fermentation or enzymatic synthesis. It is the biologically active L-isomer and is classified as a **conditionally essential amino acid**—meaning it is normally synthesized by the body but becomes essential during periods of rapid growth, stress, or illness.

Our L-Serine is characterized by its exceptional purity (≥99.0%), high water solubility, and neutral pH. It is a key building block for the human body, involved in the synthesis of muscle tissue, collagen, neurotransmitters (such as serotonin and glycine), and cell membranes. Due to its hydrophilic nature, it also acts as an effective moisturizer in cosmetic applications. This product complies with the strictest international standards, making it ideal for nutritional supplements, parenteral nutrition, functional foods, and high-end cosmetics.

Key Benefits:

- **Conditionally Essential:** Critical for protein synthesis and neurotransmitter production.
- **High Solubility:** Freely soluble in water, ideal for liquid formulations and infusions.
- **Moisturizing:** Hydrophilic properties make it an excellent humectant for skin care products.
- **High Purity:** Low ash, heavy metals, and microbial counts meet pharm and food grade requirements.
- **Stable:** Shelf-stable when stored properly; compatible with most formulations.

2. Technical Specifications (Complies with FCC & CP)

Parameter	Specification	Typical Result	Test Method
Appearance	White crystalline powder	White powder	Visual
Assay (L-Serine)	≥ 99.0%	99.5%	HPLC
Specific Rotation	+14.5° to +16.5°	+15.8°	Polarimeter
pH Value (5% Solution)	5.5 - 6.5	6.0	pH Meter
Loss on Drying	≤ 0.3%	0.08%	Gravimetric (105°C)
Residue on Ignition	≤ 0.1%	0.02%	Gravimetric (550°C)
Heavy Metals (Pb)	≤ 0.5 ppm	0.05 ppm	ICP-MS
Iron (Fe)	≤ 5 ppm	1.2 ppm	Colorimetry
Chloride (Cl⁻)	≤ 0.01%	0.003%	Titration
Solubility	Freely soluble in water	500 g/L at 25°C	Gravimetric
Microbiology	Total Plate Count ≤ 50 CFU/g	<10 CFU/g	GB 4789.2
	E. coli / Salmonella: Negative	Negative	GB 4789.3/4

3. Application Fields & Recommended Dosage

L-Serine's versatility makes it suitable for pharmaceuticals, nutraceuticals, food, and cosmetics.

Industry	Application	Recommended Dosage
Pharmaceuticals	Amino acid infusions, enteral nutrition, wound care	As per formulation
Dietary Supplements	Nootropic blends, muscle recovery, sleep support	500mg - 3000mg per serving
Functional Foods	Sports drinks, protein powders, fortified beverages	0.1% - 0.5%
Cosmetics	Moisturizers, serums, hair conditioners	1.0% - 5.0%



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Industry	Application	Recommended Dosage
Cell Culture	Mammalian cell culture media (biotechnology)	0.05% - 0.2%

4. Usage Guidelines & Processing

4.1 Handling & Mixing

1. **High Hygroscopicity Warning:** L-Serine is **highly hygroscopic**. Always use dry equipment and avoid exposure to air with high humidity. Seal the container immediately after use.
2. **Solubility:** Dissolves rapidly and completely in water at room temperature. No heating is required, which preserves the integrity of heat-sensitive formulations.
3. **Mixing:** For solid blends, pre-mix with a non-hygroscopic carrier (e.g., maltodextrin) before adding to the main batch to prevent clumping.

4.2 Compatibility

- **Highly Compatible:** Works well with other amino acids, vitamins, minerals, proteins, and carbohydrates.
- **pH Stability:** Performs optimally in neutral to slightly acidic formulations (pH 5.0 - 7.0).
- **Processing:** Stable during typical food processing (pasteurization). Avoid temperatures exceeding 200°C to prevent decomposition.

5. Packaging & Storage

5.1 Packaging Specifications

Grade	Packaging
Sample	100g, 500g Sealed HDPE Bottles (with desiccant)
Commercial	1kg, 5kg Vacuum-Sealed Aluminum Foil Bags (with desiccant)
Bulk	25kg Fiber Drums with PE Liner (vacuum-sealed, with desiccant)

5.2 Storage Conditions

- **Critical Note:** Due to its **high hygroscopicity**, storage conditions are paramount.
- **Temperature:** 5-25°C (cool, dry warehouse).
- **Humidity:** Relative humidity ≤ 50% (strict control required).
- **Sealing:** Must be stored in airtight, moisture-proof packaging. Do not open unless ready to use.
- **Shelf Life:** **24 months** from manufacture (unopened, with desiccant).
- **After Opening:** Use immediately. If not used completely, reseal tightly with a fresh desiccant and use within 7 days.

6. Quality Assurance & Regulatory Compliance

- **Manufacturing:** Produced in ISO 9001, ISO 22000 (HACCP), and GMP certified facilities.
- **Compliance:**
 - **Food Grade:** Complies with FCC VII and GB 2760-2021.
 - **Pharm Grade:** Complies with Chinese Pharmacopoeia (CP) and USP standards.
 - **US:** FDA GRAS (Generally Recognized as Safe).
- **Documentation:** Each batch is accompanied by a Certificate of Analysis (COA). Certificates of Origin, Halal, and Kosher are available upon request.

7. Supplier Information

- **Supplier:** NEWAY SINOPHC TECH. LIMITED
- **Address:** RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE
- **Telephone:** +86-021-50350029
- **Fax:** +86-021-50350029
- **Technical Support:** Our team provides expert guidance on formulation stability, especially regarding the hygroscopic nature of L-Serine, and dosage optimization for specific applications.