

Technical Data Sheet (TDS)

Date of Issue: February 22, 2026 **Document No.:** TDS-LYS-260222-01 **Product:** L-Lysine (CAS 56-87-1) **Grade:** Food/Pharmaceutical Grade

1. Product Description

L-Lysine is an essential α -amino acid with the chemical name (S)-2,6-diaminocaproic acid. It is a white, crystalline powder, odorless, and freely soluble in water. As an essential amino acid, it cannot be synthesized by humans and animals and must be obtained through diet. It is widely used as a nutritional supplement in food, beverages, animal feed, and pharmaceuticals.

2. Chemical and Physical Properties

Property	Value
Chemical Name	(S)-2,6-Diaminocaproic acid
Synonym	L-2,6-Diaminohexanoic acid
CAS No.	56-87-1
EC No.	200-294-2
Molecular Formula	$C_6H_{14}N_2O_2$
Molecular Weight	146.19 g/mol
Structural Formula	$H_2N(CH_2)_4CH(NH_2)COOH$
Appearance	White crystalline powder
Odor	Odorless
Melting Point	215°C (decomposes)
pH (5% w/v in H_2O)	9.5 – 11.0
Specific Rotation $[\alpha]_D^{20}$	+14.5° to +16.0° (5% in H_2O)
Solubility	Freely soluble in water; slightly soluble in ethanol; insoluble in ether, chloroform
Bulk Density	0.6 – 0.8 g/cm ³
Optical Activity	Optically active (L-isomer)

3. Quality Specifications (Typical Values)

Test Item	Specification
Assay (on dry basis)	$\geq 98.5\%$
Loss on Drying	$\leq 0.3\%$
Residue on Ignition	$\leq 0.1\%$
Heavy Metals (as Pb)	≤ 5.0 mg/kg
Arsenic (As)	≤ 1.0 mg/kg
Other Amino Acids	$\leq 0.5\%$
Microbial Limits	Total Aerobic Count $\leq 10^3$ CFU/g; Yeast & Mold $\leq 10^2$ CFU/g; E. coli/Salmonella: Absent

4. Applications

- Food and Beverages:** Nutritional fortifier in cereals, bread, beverages, and infant formula. Improves protein quality.



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2. **Pharmaceuticals:** Intermediate for amino acid infusions, dietary supplements, and medications.
3. **Animal Feed:** Essential amino acid supplement for swine, poultry, and aquaculture. Improves growth performance and feed efficiency.
4. **Cosmetics:** Used in skin care products for its moisturizing and anti-aging properties.

5. Manufacturing Process

L-Lysine is produced by microbial fermentation using glucose or corn starch as the primary carbon source. The fermentation broth is subjected to filtration, ion exchange chromatography, crystallization, and drying to obtain the final product.

6. Handling and Storage

- **Handling:** Avoid dust formation. Use in a well-ventilated area. Wear appropriate PPE (gloves, safety glasses) if necessary.
- **Storage:** Store in a cool, dry, well-ventilated warehouse. Keep the container tightly closed to prevent moisture absorption.
- **Shelf Life:** 24 months from the date of manufacture when stored in the original, unopened packaging under recommended conditions.

7. Packaging

- **Standard Packaging:** 25 kg net weight in multi-ply paper bags with an inner polyethylene (PE) liner.
- **Custom Packaging:** 1 kg, 5 kg, 10 kg bags available upon request.

8. Transportation

- The product is non-hazardous and can be transported by all modes of transport (road, rail, sea, air).
- Protect from rain, moisture, and direct sunlight during transportation.
- Comply with local transportation regulations.

9. Regulatory Compliance

- **EU:** Complies with REACH, EU Food Additives Regulation (1333/2008).
- **US:** GRAS (FDA 21 CFR 172.320), meets USP/FCC standards.
- **China:** Complies with GB 1903.1-2015 (Feed Additive L-Lysine).