

Technical Data Sheet (TDS)

Issue Date: 25 FEB 2026 Version: V1.0

1. Product Overview

- **Product Name:** L-Lysine Free (50%)
- **Chemical Name:** (S)-2,6-Diaminohexanoic acid
- **CAS Number:** 56-87-1
- **Molecular Formula:** C₆ H₁₄N₂O₂
- **Molecular Weight:** 146.19 g/mol (Active Ingredient)
- **Product Trait:** Colorless clear homogeneous aqueous solution (50% active content), almost odorless, non-flammable, food/feed/cosmetic/industrial grade; L-Lysine is an essential amino acid with good water solubility and biological activity; mild eye irritation only in sensitive individuals (undiluted), non-toxic for intended use, fully biodegradable, environmentally friendly.
- **Core Properties:** 50% high-concentration aqueous solution (48.0-52.0%), stable pH (6.0-8.0), high optical purity ($[\alpha]_{20}^D +14.0^{\circ} \sim +16.0^{\circ}$), low heavy metal and microbial limit; easy to formulate and dilute, compatible with most food/feed/cosmetic raw materials; 24-month long shelf life (unopened), stable under normal storage conditions.
- **Main Application:** Food additive (nutritional fortifier for beverages, dairy, bakery, health food); feed additive (amino acid supplement for poultry, livestock, aquatic animals); cosmetic raw material (skin care humectant, anti-aging ingredient); industrial raw material (biochemical reagent, organic synthesis intermediate, pharmaceutical intermediate).

2. Technical Specifications (Multi-Grade, Complies with GB/EU/FDA Standards)

Item	Specification (Food/Feed/Cosmetic/Industrial Grade)
Appearance	Colorless to pale yellow clear homogeneous liquid, no precipitation
Assay (L-Lysine Free)	48.0-52.0%
Specific Rotation $[\alpha]_{20}^D$	+14.0° ~ +16.0°
pH Value (25°C)	6.0-8.0
Viscosity (25°C)	10-30 mPa·s
Density (25°C)	1.05-1.15 g/cm ³
Heavy Metals (Pb)	≤ 5 ppm
Heavy Metals (As)	≤ 1 ppm
Heavy Metals (Hg)	≤ 0.1 ppm
Total Bacterial Count	≤ 100 CFU/mL
E. coli/Staphylococcus aureus	Negative
Yeast & Mold	≤ 50 CFU/mL
Storage Stability (30°C, 12 months)	Assay retention ≥ 99.0%
Decomposition Temperature	≥ 200°C
Solubility	Fully miscible with water; soluble in methanol/ethanol

3. Product Advantages

1. **Multi-Grade Compliance:** Meets food/feed/cosmetic/industrial grade standards simultaneously; FDA GRAS certified, EU E641 approved, GB 1886.203-2016 compliant; suitable for multiple application fields with one product.
2. **High Concentration & Easy Formulation:** 50% aqueous solution, no need for dissolution (avoids caking and slow dissolution of solid L-Lysine); easy to dilute to any required concentration (1-40%) with water/food-grade solvent; stable after dilution, no precipitation.
3. **Excellent Stability:** 24-month shelf life (unopened, ≤30°C); 6-month shelf life after opening (refrigerated); stable in pH 4.0-9.0 formulations; no decomposition, discoloration or precipitation under normal storage/use conditions.



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- 4. **High Purity & Low Impurity:** High optical purity (no D-Lysine isomer), low heavy metal content (Pb≤5ppm, As≤1ppm), ultra-low microbial limit; meets strict food/feed/cosmetic safety requirements.
- 5. **Biological Activity & Safety:** Natural essential amino acid, good biological absorbability for humans/animals; non-toxic, non-irritating (except mild eye irritation in sensitive individuals); fully biodegradable, environmentally friendly.
- 6. **Good Compatibility:** Compatible with most food/feed/cosmetic raw materials (sugars, vitamins, minerals, humectants, emulsifiers); only incompatible with strong oxidizing agents; no formulation conflict, easy to add in any production step.

4. Application Fields & Dosage Guide

4.1 Main Application Fields

- **Food Industry:** Nutritional fortifier for functional beverages, milk/yogurt, bread/cookies, protein powder, health food, infant food (complies with national food additive dosage limits).
- **Feed Industry:** Essential amino acid supplement for chicken, pig, cattle, fish, shrimp; improves feed conversion rate, promotes animal growth and reproduction; reduces feed cost.
- **Cosmetic Industry:** Skin care raw material (humectant, anti-aging, skin barrier repair); used in facial serum, lotion, cream, mask, hair care products.
- **Industrial/Biochemical:** Biochemical reagent for cell culture, protein synthesis; organic synthesis intermediate for pharmaceutical/chemical products; metal chelating agent for water treatment.

4.2 Recommended Dosage (By Application Field)

Application Field	Dosage (w/w in formulation/solution)
Food (Beverages/Dairy/Bakery)	0.1-2.0%
Health Food/Protein Powder	1.0-5.0%
Feed (Poultry/Livestock)	0.5-3.0%
Feed (Aquatic Animals/Fish/Shrimp)	0.8-4.0%
Cosmetic (Serum/Lotion/Cream)	0.5-3.0%
Biochemical Reagent/Cell Culture	0.01-0.5%
Industrial Water Treatment (Chelating Agent)	0.1-1.0%

5. Usage & Formulation Guidelines

5.1 Basic Formulation Tips

- **Food Formulation:** Add the product to the aqueous phase under normal temperature (25-35°C) and low-speed stirring (100-200 rpm); can be added at any production step (before/after sterilization, sterilization temperature ≤121°C is recommended); adjust formulation pH to 4.0-9.0 with food-grade acid/base (citric acid/sodium bicarbonate).
- **Feed Formulation:** Dilute the product with water (1:10) and spray on feed pellets; or mix directly with feed liquid; no heating required (room temperature is sufficient); compatible with feed minerals/vitamins (avoid mixing with strong oxidizing feed additives).

6. Packaging & Storage

6.1 Packaging Specifications (Food/Feed/Cosmetic/Industrial Grade, Food-Grade Material)

- 500 mL HDPE food-grade plastic bottle (small-batch food/cosmetic/laboratory use, inner seal + screw cap)
- 5 L HDPE food-grade plastic bucket (medium-batch food/feed use, anti-leakage cap + handle)
- 25 kg HDPE food-grade plastic drum (bulk food/feed/industrial use, inner plastic lining + anti-leakage cap)

7. Safety & Protection

- The product is non-toxic, GRAS certified, with only mild transient eye irritation in sensitive individuals (undiluted contact); minimal personal protection required for all handling operations.
- **Routine Handling:** No special PPE needed; ordinary work clothes, gloves and safety glasses are sufficient.
- **Large-Scale Handling:** Wear nitrile rubber gloves and safety glasses to avoid accidental splashing; basic ventilation is sufficient (no respiratory protection required).