Safety Data Sheet (MSDS)

- L-Lysine Free (35%)

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)**Revision Date**: 26 FEB 2026

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identifiers

- Product Name: L-Lysine Free (35%)
- Synonyms: Free L-Lysine 35% Aqueous Solution; L-Lysine Solution
- Product Number: LLF-20260226
- Form: Colorless to pale yellow clear liquid
- CAS Number: 56-87-1 (pure L-Lysine)
- Molecular Formula: $C_6H_{14}N_2O_2$ (35% in H_2O)
- Grade: Food Grade / Feed Grade / Cosmetic Grade / Industrial Grade

1.2 Details of the supplier of the safety data sheet

- Company: 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

1.3 Emergency telephone

- Emergency Phone #: +86-021-50350029 (24h Chemical Emergency Response)

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses**: Food nutritional fortifier; feed amino acid additive; cosmetic skin conditioner; biochemical reagent; pharmaceutical raw material.
- **Uses Advised Against**: Not for injection use in pure form; do not use as a sole food/feed source; avoid long-term contact with strong oxidants/high temperature.

SECTION 2: Hazards Identification

2.1 GHS Classification

Not a hazardous substance or mixture (GHS 0 category) - No classification for physical, health or environmental hazards.

2.2 GHS Label Elements

- Hazard Pictogram: None
- Signal Word: None
- Hazard Statements: None
- Precautionary Statements: None

2.3-2.6 Hazards Summary

- **Physical/Chemical Hazards**: Non-flammable, non-explosive; no physical/chemical hazards under normal storage and use conditions; degrades slowly at high temperature (>80℃), no hazardous reaction or gas release.

- **Health Hazards**: Non-toxic, non-irritating to skin, eyes and respiratory tract; no acute/chronic toxic effects, no carcinogenic, mutagenic or reproductive toxic effects; safe for human and animal ingestion and topical use.
- **Environmental Hazards**: Environmentally friendly, fully biodegradable; non-toxic to aquatic and terrestrial organisms; no soil and water pollution risk; no bioaccumulation potential.
- **Other Hazards**: No additional hazards identified; no aspiration hazard for normal use; the product is an essential amino acid, a natural nutrient with no harmful effects on the human body and the environment.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture**: Aqueous mixture of pure L-Lysine (no hazardous impurities)
- **Main Components**: | Component | Content (w/w) | CAS-No. | Function | Hazard Classification | |---|---|---|---|---| | Free L-Lysine | 35.0% | 56-87-1 | Active nutrient/additive | Non-hazardous | | Deionized Water | 65.0% | 7732-18-5 | Solvent | Non-hazardous |
- **Hazardous Components**: None (no classified hazardous ingredients in the product; all impurities meet grade standard limits)

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled (mist/vapor)**: Move the victim to fresh air immediately if discomfort occurs; the product has low volatility, no inhalation hazard under normal conditions, no special treatment needed.
- **In Case of Skin Contact**: No special treatment required; the product is mild and non-irritating, can be absorbed by the skin and has a moisturizing effect; rinse with water only if the user needs to clean it.
- **In Case of Eye Contact**: Rinse eyes with plenty of clean running water for 5~10 minutes if the liquid splashes into eyes; no irritation in most cases, consult an ophthalmologist only if mild redness persists (rare).
- **If Swallowed**: No toxic effect; rinse mouth with water, do not induce vomiting; the product is a food-grade essential amino acid, massive ingestion may cause mild gastrointestinal discomfort (e.g., bloating), drink warm water and rest, consult a physician only if symptoms persist.

4.2 Most Important Symptoms and Effects

- **Acute Effects**: No acute toxic effects; rare mild eye discomfort if splashed into eyes (reversible after flushing); no skin irritation or respiratory tract discomfort.
- **Delayed Effects**: No known delayed toxic effects based on current scientific data; long-term use in specified dosage can supplement essential amino acids and has nutritional benefits for human and animal bodies.

4.3 Immediate Medical Attention

No immediate medical attention needed under normal use and accidental contact; consult a physician only if massive ingestion causes persistent gastrointestinal discomfort or rare severe eye irritation.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable**: Water spray, foam, carbon dioxide (CO_2), dry powder; use water spray to cool the container for large-scale fire.
- **Unsuitable**: No special limitations on extinguishing media; avoid high-pressure water jet (may cause liquid splashing).

5.2 Special Hazards Arising from the Substance or Mixture

- Non-flammable, no fire risk under normal conditions; burns at high temperature (>300℃) to produce carbon dioxide, water vapor, nitrogen gas and a small amount of non-toxic hydrocarbon gases.
- No hazardous polymerization during combustion; slow degradation at high temperature produces non-toxic amino acid oligomers, no toxic gas release.

5.3 Advice for Firefighters

- Wear standard fire-fighting gear (fire-proof clothing, gloves, respiratory mask); fight the fire from the upwind direction.
- Cool the surrounding containers with water spray continuously to prevent high-temperature deformation and liquid leakage; avoid inhaling combustion fumes.
- After the fire, ventilate the scene thoroughly and clean the fire site with water; the residual product has no irritation and no secondary pollution.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

- No special personal protective equipment needed; wear nitrile rubber gloves and safety glasses for large spills to avoid splashing; no respiratory protection required.
- Ensure good ventilation in the spill area; avoid high temperature exposure to prevent product degradation.

6.2 Environmental Precautions

- No special environmental precautions; the product is fully biodegradable and non-toxic to the environment; a small amount of spilled liquid can be naturally degraded, no pollution to soil and water.
- Avoid direct discharge of a large amount of spilled liquid into water bodies (may cause mild nutrient enrichment, which can be diluted with water).

6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill**: Wipe the liquid with absorbent cotton, paper towel or inert materials (sand, diatomite); the absorbed product can be recycled if not contaminated, or disposed of as non-hazardous waste.

- **Large Spill**: Contain the liquid with sandbags or dikes to prevent spreading; transfer the liquid to a sealed HDPE container with a pump, label the container with "L-Lysine Free (35%) - Non-hazardous"; clean the spill area with a small amount of water, the cleaning wastewater can be directly discharged into the sewer.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a **cool, well-ventilated area**; avoid high temperature (>80℃) and strong light during handling to prevent amino acid degradation and reduce nutritional value.
- Use food/feed grade HDPE containers for mixing and transfer; avoid contact with strong acids, strong bases and oxidizing agents to prevent chemical reaction.
- **Hygiene Measures**: Wash hands with soap and water after handling (for food/feed/cosmetic grade production, follow GMP hygiene requirements); no restrictions on eating/drinking in the workplace if hygiene is maintained.
- For large-scale production, use closed mixing equipment to reduce contact with air and prevent oxidation.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

- **Storage Conditions**: Store in a cool, dry, well-ventilated warehouse at 5 ~ 30℃; avoid direct sunlight, high temperature (>35℃) and freezing (<0℃); keep the container tightly sealed.
- **Incompatibilities**: Strong acids (pH <3), strong bases (pH >9), strong oxidants (e.g., hydrogen peroxide, potassium permanganate), high-temperature heat sources and odorous substances.
- **Storage Class (TRGS 510)**: 13 (Non-Hazardous Liquids)
- **Shelf Life**: 12 months (unopened, under the specified storage conditions); use within 3 months after opening, reseal tightly and store in a cool place.
- **Other**: Store food/feed/cosmetic grade products separately from industrial grade products to avoid cross-contamination; keep away from children and pets (to avoid accidental ingestion of large quantities).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **Occupational Exposure Limit (OEL)**: No national/international OEL for L-Lysine; the product is non-toxic, no exposure limit required.
- **Biological Exposure Limit**: No relevant biological exposure limit at present.

8.2 Exposure Controls

- **Engineering Controls**: No special engineering controls required; ensure basic ventilation in the operation area; install local exhaust ventilation only if mist is generated during high-speed stirring.
- **Personal Protective Equipment (PPE)**:
  - Eye/Face: Safety glasses recommended for large-scale handling to avoid liquid splashing; no face shield needed under normal conditions.

- Skin: Nitrile rubber gloves (food/feed grade for corresponding production) recommended for prolonged contact; no protective clothing required.
- Respiratory: No respiratory protection needed under normal handling conditions; a dust/mist mask is optional if mist is generated.
- Other: Disposable hair cap and shoe covers (for food/feed/cosmetic grade GMP production).

- **Control of Environmental Exposure**: No special environmental exposure controls; the product is biodegradable and non-polluting, no risk of environmental exposure.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

a) Physical State: Clear liquidb) Color: Colorless to pale yellowc) Odor: Faint characteristic amino acid odord) Melting Point/Freezing Point: ≤ 0℃ (freezes into solid, recovers after thawing without performance change)e) Initial Boiling Point and Boiling Range: 100 ~ 105℃ (water evaporation)f) Flammability (Liquid/Gas): Non-flammableg) Upper/Lower Flammability or Explosive Limits: Not applicableh) Flash Point: > 100℃ (Closed Cup)i) Autoignition Temperature: > 300℃j) Decomposition Temperature: > 80℃ (slow amino acid degradation)k) pH Value (25℃): 5.0 ~ 7.0l) Viscosity (25℃): 15 ~ 30 mPa·sm) Water Solubility: Fully miscible with water; miscible with ethanol, glycoln) Partition Coefficient (n-octanol/water): log Kow = -3.8 (high water solubility)o) Vapor Pressure (25℃): < 1 hPa (equivalent to water vapor pressure)p) Specific Gravity (25/25℃): 1.08 ~ 1.12q) Relative Vapor Density: >1 (heavier than air)r) Explosive Properties: Not explosives) Oxidizing Properties: None

9.2 Other Safety Information

The product freezes at low temperature (<0℃), which is a physical change; thaw at room temperature (5~30℃) and stir evenly, the performance and nutritional value remain unchanged, no impact on use.

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under **recommended storage and use conditions (5~30℃, sealed)**; no decomposition, no chemical reaction; the nutritional activity remains stable for a long time.

10.2 Possibility of Hazardous Reactions

No hazardous reactions under normal sealed and dry handling/storage conditions; no polymerization risk under any conditions.

10.3 Conditions to Avoid

High temperature (>80℃), direct sunlight, long-term contact with air/oxygen, contact with strong acids/strong bases/strong oxidants.

10.4 Incompatible Materials

Concentrated sulfuric acid, hydrochloric acid, sodium hydroxide, potassium hydroxide, hydrogen peroxide, potassium permanganate and other strong oxidants/strong acids/bases.

10.5 Hazardous Decomposition Products

Slowly degrades into amino acid oligomers and small molecular amines (non-toxic) when exposed to high temperature/strong oxidants; decomposes at >300℃ to produce non-toxic carbon dioxide, water vapor and nitrogen gas; no hazardous decomposition products.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity**:
  - Oral (Rat, LD_{50}): > 20,000 mg/kg bw (non-toxic, food-grade nutrient)
  - Dermal (Rabbit, LD_{50}): > 20,000 mg/kg bw (non-toxic, no skin irritation)
  - Inhalation (Rat, LC_{50}): > 10 mg/m³ (4h exposure, mist) (no inhalation hazard, low volatility)
- **Skin Corrosion/Irritation**: No irritation (Rabbit test, 24h exposure); the product has a moisturizing effect on human skin.
- **Serious Eye Damage/Eye Irritation**: No irritation (Rabbit test); rare mild transient discomfort if splashed into eyes (reversible after flushing).
- **Respiratory or Skin Sensitization**: No skin/respiratory sensitization (Guinea pig test); no allergic reaction to the human body.
- **Germ Cell Mutagenicity**: Ames test negative (no mutagenicity); no genotoxic effect.
- **Carcinogenicity**: IARC Class 3 (not classifiable as carcinogenic to humans); long-term use has no carcinogenic risk, and is an essential nutrient for the human body.
- **Reproductive/Developmental Toxicity**: No reproductive/developmental toxicity in animal studies; appropriate dosage is beneficial to reproductive health and fetal development.
- **Specific Target Organ Toxicity (Single/Repeated Exposure)**: No target organ toxicity; long-term use in specified dosage supplements essential amino acids and maintains normal physiological functions of the human/animal body.
- **Aspiration Hazard**: None (low viscosity, low volatility, no aspiration risk under normal use).

11.2 Additional Information

L-Lysine is an essential amino acid necessary for the human and animal body, with no toxic effects in the recommended dosage; massive oral ingestion may cause mild gastrointestinal discomfort, which is reversible after stopping use. The product is safe for skin topical use, no irritation or allergic reaction, and has a moisturizing and conditioning effect.

SECTION 12: Ecological Information

12.1 Toxicity

- **Aquatic Organisms (Non-toxic)**:
  - Zebrafish (LC_{50}, 96h): > 5000 mg/L
  - Daphnia (EC_{50}, 48h): > 5000 mg/L
  - Green algae (EC_{50}, 72h): > 5000 mg/L
- **Terrestrial Organisms**: Non-toxic to soil plants, microorganisms and earthworms; can be used as a nutrient for soil microorganisms and promote soil fertility.

- **Other Organisms**: Non-toxic to birds, mammals and pets; accidental ingestion supplements essential amino acids and has nutritional benefits, no harmful effects.

12.2-12.7 Ecological Properties

- **Persistence/Degradability**: Fully biodegradable (biodegradation rate >95% in 28d) in aquatic and soil environments; degraded into non-toxic small molecular compounds by microorganisms, no persistent organic pollution.
- **Bioaccumulative Potential**: No bioaccumulation potential (water-soluble amino acid, can be metabolized by organisms; no biomagnification in the food chain).
- **Mobility in Soil**: Moderate mobility; can be absorbed by plants as a nitrogen nutrient, no leaching into groundwater to cause pollution.
- **PBT/vPvB Assessment**: Not classified as PBT/vPvB (no persistence, no bioaccumulation, non-toxic).
- **Endocrine Disrupting Properties**: No endocrine disrupting effect (in vitro/in vivo animal tests negative); on the contrary, it is an essential nutrient for maintaining normal endocrine function.
- **Other Adverse Effects**: No known adverse ecological impacts; the product is a natural amino acid nutrient, biodegradable, and can be used as a feed additive to improve the quality of animal products and a fertilizer additive to promote crop growth.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste/Expired Solution**: Classified as **non-hazardous liquid waste**; a small amount can be directly discharged into the domestic sewage system (biodegradable); a large amount can be sent to licensed waste treatment facilities for centralized treatment, or used as a nutrient additive for microbial fermentation/agricultural fertilizer.
- **Spill Waste/Absorbent Material**: The absorbed product can be recycled if not contaminated; otherwise, dispose of as non-hazardous waste, which can be naturally degraded in the environment.
- **Packaging Waste**: Rinse the HDPE packaging with plenty of water to remove residual product; the clean packaging can be recycled or disposed of as non-hazardous plastic waste; food/feed/cosmetic grade packaging is not reused to avoid cross-contamination.

13.2 Disposal Regulations

Comply with China's **Solid Waste Pollution Prevention and Control Law**, **Water Pollution Prevention and Control Law** and **Food Safety Law (for food grade)**; comply with EU REACH (EC 1907/2006) and US FDA waste disposal regulations; follow local non-hazardous waste disposal standards. Prioritize recycling and reuse of the product and packaging to reduce waste discharge.

SECTION 14: Transport Information

14.1 UN Number

ADR/RID: -; IMDG: -; IATA-DGR: - (non-hazardous goods)

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods; IMDG: Not dangerous goods; IATA-DGR: Not dangerous goods

14.3 Transport Hazard Class(es)

ADR/RID: -; IMDG: -; IATA-DGR: -

14.4 Packaging Group

ADR/RID: -; IMDG: -; IATA-DGR: -

14.5 Environmental Hazards

ADR/RID: No; IMDG Marine Pollutant: No; IATA-DGR: No

14.6 Special Precautions for User

1. Transport by **ordinary closed vehicles**; avoid direct sunlight, high temperature and freezing during transport; transport temperature 5 ~ 35℃.
2. Use sealed food/feed grade HDPE packaging; avoid package collision, extrusion and leakage during transport; load and unload gently.
3. Do not transport with strong acids, strong bases, strong oxidants, flammable and explosive materials and odorous substances; food/feed/cosmetic grade products are transported in dedicated clean vehicles to avoid cross-contamination.
4. No special transport qualification required (non-hazardous goods); comply with ordinary food/feed/chemical raw material transport regulations.
5. For low-temperature transport, take thermal insulation measures to prevent product freezing (freezing is a physical change, no impact on use after thawing).

SECTION 15: Regulatory Information

15.1 National/International Regulations

- **National Regulations (China)**:
  - GB 14880-2012 (Food Nutritional Fortifier Use Standard)
  - GB/T 6432-2018 (Feed Additive - L-Lysine)
  - Cosmetic Safety Technical Specifications (2021 Version)
  - Hazardous Chemical Safety Management Regulation (Non-hazardous classification)
  - Food Safety Law of the People's Republic of China
- **International Regulations**:
  - EU REACH (EC 1907/2006): Listed in TSCA Inventory, no SVHC
  - EU Cosmetics Regulation (EC 1223/2009): Approved cosmetic raw material
  - US FDA: GRAS (Generally Recognized As Safe) food additive, approved feed/cosmetic raw material
  - GHS Rev.9: Non-hazardous classification
  - IMDG/IATA: Non-hazardous goods for transport
- **Other Standards**: ISO 9001 (quality management); ISO 14001 (environmental management); ISO 22000 (food safety management); ISO 22716 (cosmetic GMP).

15.2 Other Requirements

- The product label/packaging must be marked with product name, grade, batch number, shelf life, dosage, usage method and manufacturer information in accordance with food/feed/cosmetic regulations; food/feed grade products must be marked with the corresponding grade logo.
- All batch production records, test reports and COA must be retained for ≥5 years in accordance with regulatory requirements; food/feed/cosmetic grade production workshops must meet GMP clean standards.
- The production process complies with environmental protection requirements, no waste gas, wastewater and solid waste discharge exceeding the standard; the product meets the international amino acid quality standards for food/feed/cosmetic use.

SECTION 16: Other Information

16.1 Further Information

This MSDS is based on current scientific and industrial knowledge, complying with GB/T 16483, GB/T 17519, GHS Rev.9 and international food/feed/cosmetic safety standards. It is intended for the safe handling, storage, transport and disposal of the product. The supplier is not liable for any damage caused by improper handling, non-compliance with storage/transport/disposal requirements, unauthorized use or use beyond the specified dosage.

16.2 MSDS Validity

This MSDS is valid for 3 years from the revision date (26 FEB 2026) unless the product formula, production process or hazard information changes.

16.3 Technical Support

For product application (dosage adjustment, formulation optimization for different industries) and grade customization, contact the food/feed technical department at +86-021-50350029 ext. 880 (for licensed manufacturers and research institutions only).

16.4 Key Reminder

This product is a water-soluble free L-lysine aqueous solution, an essential amino acid nutrient with multiple grades, non-toxic and safe for use in specified dosage. Strictly follow the sealed storage requirements to prevent oxidation; avoid high temperature (>80℃) and contact with strong acids/strong bases/strong oxidants; food/feed/cosmetic grade products are used separately to avoid cross-contamination; the product freezes at low temperature, which is a normal physical change, and can be thawed at room temperature for use without affecting performance and nutritional value.