



NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
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Safety Data Sheet (MSDS)

According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards
Product Name: L-Lysine Monohydrochloride (Food Grade, Crystalline Powder)
Revision Date: February 26, 2026

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

1.1 Product Identifiers

- Product Name: L-Lysine Monohydrochloride (Food Grade)
- Product Number: LLM-20260228
- Brand: SIGALD
- CAS-No.: 657-27-2
- EINECS-No.: 211-518-3
- Synonyms: (S)-2,6-Diaminohexanoic acid hydrochloride; L-Lysine HCl; Food grade essential amino acid hydrochloride
- Product Form: White crystalline free-flowing powder

1.2 Details of the Supplier

- Company: NEWAY SINOPHC TECH. LIMITED
- Address: RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.
- Telephone: +86-021-50350029
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1.3 Emergency Telephone

Emergency Phone #: +86-021-50350029 (CHEMTREC)

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses:** Food additive (amino acid fortifier, nutritional supplement); raw material for food, beverage, health food, infant food and feed industry; pharmaceutical intermediate.
- **Uses Advised Against:** Not for pharmaceutical injection without medical grade purification; no excessive addition beyond national food additive limit standards; no use in high-temperature processing (>240°C) without microencapsulation.

SECTION 2: Hazards Identification

2.1 GHS Classification

Not classified as a hazardous substance or mixture under GHS (Regulation (EC) 1272/2008)

2.2 GHS Label Elements

- Hazard Pictogram: None
- Signal Word: None
- Hazard Statements: None
- Precautionary Statements: P261, P271, P330

2.3 Physical and Chemical Hazards

Non-combustible, non-explosive; stable under normal use conditions; freely soluble in water, slightly hygroscopic; weak acidic in aqueous solution, no physical/chemical hazard risks.

2.4 Health Hazards

Generally non-toxic; essential amino acid for human/animal body (cannot be synthesized by human body); inhalation of fine crystalline powder may cause mild respiratory irritation in sensitive individuals; weak acidic powder may cause mild eye/skin irritation upon direct contact; no acute/chronic toxic effects at standard food additive use dosages.

2.5 Environmental Hazards

Environmentally friendly; fully biodegradable by microorganisms; no toxic effects on aquatic/terrestrial organisms; no bioaccumulation potential; no environmental pollution risk.

2.6 Other Hazards

No additional hazards identified; dust may form slippery surfaces on hard floors after spillage.

SECTION 3: Composition/Information on Ingredients

3.1 Basic Composition

- Substance / Mixture: **Pure chemical substance (essential amino acid hydrochloride)**
- Active Component: L-Lysine Monohydrochloride (99.0-99.8%, CAS 657-27-2)
- Inert Components: No artificial additives, binders, preservatives or fillers
- Hazardous Impurities: None (all heavy metals/impurities meet food grade limit requirements)
- Key Purity Index: Assay $\geq 99.0\%$, specific rotation $[+20.4^\circ \sim +21.4^\circ]$, Chloride content 18.0-19.0%

3.2 Hazardous Ingredients

None (all components are non-hazardous and meet national food safety standards)

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled:** Move to fresh air, keep at rest in a comfortable breathing position. If coughing/irritation persists, rinse mouth with clean water and consult a doctor if needed.
- **In Case of Skin Contact:** Rinse skin thoroughly with running water for 5 minutes; remove contaminated clothing and wash before reuse. No special treatment required for mild contact.
- **In Case of Eye Contact:** Rinse eyes cautiously with plenty of running water for 10-15 minutes (hold eyes open while rinsing); remove contact lenses if present and easy to do. Consult a doctor if redness or irritation persists.
- **If Swallowed:** Rinse mouth with water; drink a small amount of warm water or weak alkaline drink (e.g., baking soda water) to neutralize if needed. Do not induce vomiting. No toxic effects at normal food intake; consult a doctor only if excessive ingestion causes gastrointestinal discomfort (e.g., bloating, nausea).

4.2 Most Important Symptoms and Effects

- **Acute Effects:** Mild respiratory/eye/skin irritation from fine powder inhalation or direct contact in sensitive individuals; no other acute toxic effects.
- **Delayed Effects:** No known delayed toxic effects based on long-term food, pharmaceutical and feed use data.

4.3 Immediate Medical Attention

No specific medical treatment required; treat symptomatically if irritation/symptoms persist for more than 24 hours.

4.4 Notes to Physician

Inform the physician of the product composition (pure food-grade L-Lysine Monohydrochloride, weak acidic essential amino acid) if medical consultation is needed.

SECTION 5: Fire-Fighting Measures

5.1 Extinguishing Media

- **Suitable:** Water spray, foam, carbon dioxide (CO₂), dry chemical powder.
- **Unsuitable:** No limitations of extinguishing agents.

5.2 Special Hazards Arising from the Substance

Non-combustible; decomposes at extreme high temperature (>240°C) to produce non-toxic carbon dioxide, water, nitrogen and trace hydrogen chloride; no hazardous combustion gases; extremely low dust explosion risk in confined spaces (negligible).

5.3 Advice for Firefighters

Wear standard fire-fighting protective gear (gloves, goggles, dust respirator); avoid inhalation of thermal decomposition dust and trace hydrogen chloride; eliminate dust cloud if possible; fight fire from a safe distance.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

Wear FFP1 dust mask, nitrile rubber gloves and safety goggles; ensure good ventilation at the spill site; wear non-slip shoes as dust may cause slippery surfaces on floors.

6.2 Environmental Precautions

No special environmental precautions; the product is biodegradable and non-polluting; sweep up spilled powder to avoid direct entry into water bodies (no eutrophication or toxic risk).

6.3 Methods for Clean-Up

- **Small Spill:** Gently sweep up the powder with a brush and collect in a sealed plastic container for reuse/disposal; wipe the floor with a weak alkaline solution (e.g., 0.1% baking soda water) then water to remove residual acidic powder and prevent slipping.
- **Large Spill:** Contain with plastic barriers; transfer to sealed drums for recycling; clean the contaminated area with weak alkaline solution then water and dry thoroughly.

6.4 Reference

For disposal, see Section 13.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; use dust suppression measures (mist spray) to avoid fine powder formation/inhalation during mixing/transfer.



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- Avoid contact with strong alkalis, strong oxidizing agents and high-temperature environments (>240°C) to prevent neutralization reaction and decomposition.
- Hygiene Measures: Wash hands thoroughly with soap and water after handling; do not eat/drink/smoke while operating the product (follow food hygiene operation standards for food grade materials); avoid touching eyes/mucous membranes after handling.
- Mixing Note: Dissolve in water first for uniform dispersion in liquid food/beverage; direct dry mixing for solid food products; avoid mixing with strong alkaline food raw materials in large quantities without pre-dissolution.

7.2 Conditions for Safe Storage

- **Storage Conditions:** Store in a cool, dry, well-ventilated warehouse; keep container tightly sealed to prevent moisture absorption and caking; storage temperature $\leq 25^{\circ}\text{C}$, relative humidity $\leq 65\%$.
- **Incompatibilities:** Strong alkalis (NaOH, KOH), strong oxidizing agents (hydrogen peroxide, chlorine-based disinfectants), alkaline food additives, high-temperature processing equipment (>240°C).
- **Storage Class (TRGS 510):** 13 (Non-Hazardous Solids)
- **Shelf Life:** 36 months (unopened, under specified storage conditions); 12 months after opening (seal tightly and store in dry environment).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

No specific occupational exposure limit (OEL) for L-Lysine Monohydrochloride; follow general food additive dust exposure limits (TWA 10 mg/m³) and national food hygiene operation standards.

8.2 Exposure Controls

- **Engineering Controls:** Local exhaust ventilation (LEV) for large-scale processing; dust collection system to reduce airborne powder concentration; dehumidification equipment to maintain low humidity in storage/processing areas.
- **Personal Protective Equipment (PPE):**
 - Eye/Face Protection: Safety goggles with side shields (mandatory for bulk handling/mixing to avoid powder splashing into eyes).
 - Skin Protection: Nitrile rubber gloves (food grade, thickness ≥ 0.11 mm) and clean protective clothing for prolonged contact.
 - Respiratory Protection: FFP1 dust mask for regular handling; FFP2 mask for large-scale spill or fine dust generation.
 - Foot Protection: Non-slip food-grade safety shoes for all handling operations.
 - Hygiene: Provide food-grade hand washing facilities with pure water and soap at the workplace; prepare weak alkaline hand sanitizer for post-handling cleaning.

- **Environmental Exposure:** Install dust collection systems; collected dust can be reused (meets food grade quality standards).

SECTION 9: Physical and Chemical Properties

a) Physical State: Crystalline powder b) Color: White to off-white c) Odor: Odorless, no pungent smell d) Melting Point: 263-265°C (decomposes) e) Boiling Point: Not applicable (decomposes before boiling) f) Flammability: Non-combustible g) Flammability Limits: Not applicable h) Flash Point: Not applicable i) Autoignition Temperature: > 300°C j) Decomposition Temperature: ≥ 240°C k) pH Value (1% aqueous solution, 25°C): 5.0-6.0 l) Viscosity: N/A (solid); 8-14 mPa·s (10% aqueous solution, 25°C) m) Solubility: Freely soluble in water (70 g/100 mL at 25°C); slightly soluble in ethanol; insoluble in ether, chloroform and acetone n) Partition Coefficient (log K_{ow}): -2.8 (hydrophilic) o) Vapor Pressure (25°C): Negligible (< 0.0001 hPa) p) Density (25°C, solid): 1.280 g/cm³ q) Bulk Density: 0.6-0.9 g/cm³ r) Explosive Properties: Not explosives s) Oxidizing Properties: None t) Hygroscopy: Slightly hygroscopic

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under recommended storage/use conditions (≤25°C, dry, sealed); stable in food system pH (4.0-9.0); no degradation at normal food processing temperature (<120°C).

10.2 Possibility of Hazardous Reactions

No hazardous reactions under normal use/handling conditions; no polymerization; neutralization reaction occurs with strong alkalis (no toxic by-products).

10.3 Conditions to Avoid

High temperature (>240°C), direct contact with strong alkalis/strong oxidizing agents, prolonged exposure to high humidity (caking risk), direct contact with strong alkaline food raw materials in large quantities.

10.4 Incompatible Materials

Concentrated mineral alkalis, strong oxidizing agents, high-concentration alkaline food additives, heavy metal salts (high concentration).

10.5 Hazardous Decomposition Products

No hazardous decomposition products; decomposes into non-toxic carbon dioxide, water, nitrogen and trace hydrogen chloride at >240°C; no toxic by-products generated.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity:** Oral (Rat, LD₅₀) > 20,000 mg/kg (practically non-toxic); Dermal (Rabbit, LD₅₀) > 20,000 mg/kg; Inhalation (Rat, LC₅₀) > 10 mg/m³ (4-hour exposure)
- **Skin Corrosion/Irritation:** Mild transient irritation (Rabbit test, 4-hour exposure, food grade); reversible after rinsing.
- **Serious Eye Damage/Irritation:** Mild irritation (Rabbit test, 24-hour exposure; reversible within 24 hours after rinsing).

- **Respiratory/Skin Sensitization:** No sensitizing effects reported in long-term use tests and industrial applications.
- **Germ Cell Mutagenicity:** No mutagenic effects (Ames test, chromosome aberration test).
- **Carcinogenicity:** IARC Class 3 (not classifiable as to its carcinogenicity to humans); recognized as a safe food additive by FDA/FAO/WHO.
- **Reproductive Toxicity:** No adverse reproductive effects in animal tests at doses up to 5000 mg/kg body weight; essential for fetal and infant growth and development.
- **Specific Target Organ Toxicity:** No target organ toxicity; essential amino acid for human/animal body, participates in protein synthesis, collagen formation, immune function regulation and lysine-dependent enzyme activity.
- **Aspiration Hazard:** Low (crystalline powder, moderate bulk density, no aspiration risk for humans/animals).

11.2 Additional Information

L-Lysine Monohydrochloride is an essential amino acid, a food additive approved by FAO/WHO/Codex Alimentarius; long-term food, pharmaceutical and feed use data confirm its safety at standard dosages. It is a core nutrient for human growth and development, especially critical for infants and adolescents, with no toxic side effects at normal intake.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, LC₅₀): > 10,000 mg/L (96-hour exposure)
- Daphnia (EC₅₀): > 5000 mg/L (48-hour exposure)
- Algae (EC₅₀): > 10,000 mg/L (72-hour exposure) No toxic effects on aquatic organisms; serves as a nutrient supplement for aquatic microorganisms.

12.2 Persistence and Degradability

Fully biodegradable (BOD₅ /COD > 0.9) in aquatic/soil environments; degraded by microorganisms into small molecular nutrients and inorganic substances within 3-7 days; no residual pollution.

12.3 Bioaccumulative Potential

None; L-Lysine Monohydrochloride is an amino acid, rapidly metabolized and utilized by all organisms; no bioaccumulation in aquatic/terrestrial organisms.

12.4 Mobility in Soil

Moderate mobility (freely soluble in water); readily dissolves in soil water, but rapidly degraded by soil microorganisms; no long-term soil accumulation.

12.5 PBT/vPvB Assessment

Not classified as PBT/vPvB (fully biodegradable, non-toxic, no bioaccumulation).

12.6 Endocrine Disrupting Properties

No endocrine disrupting effects reported in standard tests and long-term food use data.

12.7 Other Adverse Effects

No known adverse ecological impacts; environmentally benign, acts as a microbial nutrient in natural environment.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste:** Uncontaminated waste can be reused as food/feed additive; contaminated waste can be disposed of as non-hazardous solid waste in accordance with local/national food safety regulations; aqueous waste can be neutralized with weak alkali then treated by biological wastewater treatment systems.
- **Packaging Waste:** Rinse empty containers thoroughly with pure water (rinse water can be used for food/feed preparation if qualified); dispose of rinsed packaging as food-grade non-hazardous waste or recycle (HDPE/paper packaging).

13.2 Disposal Notes

Incineration is not recommended (wastes a valuable amino acid nutrient resource and produces trace hydrogen chloride); landfilling is acceptable and the product will biodegrade in soil, serving as a nutrient for soil microorganisms; avoid large amounts of spilled powder entering water bodies (no environmental risk, follow food waste disposal standards).

SECTION 14: Transport Information

14.1 UN Number

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

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

Transport at $\leq 25^{\circ}\text{C}$; avoid rain, moisture, direct sunlight and package collision during transport; use food-grade sealed/moisture-proof packaging; prevent powder leakage; use pallets for loading to avoid ground contact and contamination.

14.7 Incompatible Materials

Avoid transport with strong alkalis, strong oxidizing agents, alkaline food additives, toxic/hazardous chemicals and non-food grade materials.

Further Information: Classified as non-dangerous goods under international transport regulations; comply with food additive transport hygiene and safety standards.

SECTION 15: Regulatory Information

15.1 National Regulations (China)

- Hazardous Chemical Safety Management Regulation (Non-hazardous classification)
- National Food Safety Standard for Food Additives (GB 1886.20-2016)
- GB 2760-2021 (National Food Safety Standard for Use of Food Additives)
- Food Hygiene Law of the People's Republic of China
- National Food Safety Standard for Infant Formula Food (GB 10765/GB 10767)

15.2 International Regulations

- GHS Classification (Rev. 9): Non-hazardous
- REACH (EU): Registered; not listed in SVHC Candidate List; complies with EC 1333/2008 (food additives)
- TSCA (US): Listed on the TSCA Inventory; GRAS certified by FDA (21 CFR 172.320)
- Codex Alimentarius (FAO/WHO): Approved as food amino acid fortifier (Codex STAN 192-1995)
- EFSA (EU): Evaluated and approved for food use (EFSA Journal 2012; 10(12):3017)

15.3 Other Regulations

Comply with local food safety, environmental protection and transport regulations; follow the maximum addition limit of amino acid fortifiers in food products specified by national and international standards, especially strict compliance with infant food additive regulations.

SECTION 16: Other Information

16.1 Further Information

This MSDS is based on current scientific knowledge and complies with GB/T 16483, GB/T 17519, GHS, IMDG and IATA standards. It is intended for the safe handling, storage, transport and disposal of food-grade L-Lysine Monohydrochloride. The supplier is not liable for any damage caused by improper use, non-compliance with safety precautions or violation of national food additive use standards.

16.2 Revision History

First version (February 26, 2026)