

Safety Data Sheet (MSDS)

(According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards)**Product**

Name: L-Cysteine Monohydrochloride (Food Grade)**Revision Date:** 24 FEB 2026

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

1.1 Product Identifiers

- Product Name: L-Cysteine Monohydrochloride (Food Grade)
- Product Number: LCM-20260225
- Brand: SIGALD
- CAS-No.: 7048-4-6
- Synonyms: L-Cys·HCl; (R)-2-Amino-3-mercaptopropanoic acid hydrochloride; Food Grade L-Cysteine HCl

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
- Fax: +86-021-50350029

1.3 Emergency telephone

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

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses:** Food additive (nutritional fortifier, dough improver, antioxidant, flavor enhancer); raw material for bakery, dairy, meat products, beverage and nutritional food; pharmaceutical intermediate for amino acid preparations.
- **Uses Advised Against:** Not for pharmaceutical injection without medical grade purification; no excessive addition beyond national food additive limit standards; avoid mixing with strong oxidizing agents in high concentration.

SECTION 2: Hazards Identification

| Summary of Emergency Measures | White free-flowing crystalline powder. Slightly acidic. After inhalation: Move to fresh air if discomfort occurs. In case of skin contact: Rinse skin with water; mild irritation may occur in sensitive individuals. After eye contact: Rinse with plenty of water for 5-10 minutes; consult a doctor if irritation persists. After swallowing: Rinse mouth with water; no toxic effects at normal food intake. Non-combustible. No risk of explosion. | | --- |

2.1 GHS Classification

Not a hazardous substance or mixture (GHS 0 category)

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

Based on current information: No physical or chemical hazards; stable under normal use conditions; slight hygroscopicity; no flammability, no explosibility.

2.4 Health Hazards

Based on current information: No acute or chronic health hazards; mild eye/skin irritation may occur in sensitive individuals due to weak acidity; no toxic effects at standard food additive use dosages.

2.5 Environmental Hazards

Based on current information: Environmentally friendly; fully biodegradable; no adverse effects on aquatic/terrestrial organisms; no bioaccumulation potential.

2.6 Other Hazards

No additional hazards identified; fine powder may cause slippery surfaces on hard floors after spillage.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture:** Pure chemical substance (food-grade essential amino acid)

3.1 Main Components

Component	L-Cysteine Monohydrochloride
Formula	C ₃ H ₈ CINO ₂ S
Molecular Weight	157.62 g/mol
CAS-No.	7048-4-6
Concentration (w/w)	≥ 98.5%

Hazardous Ingredients

Component	Classification	Concentration (w/w)
L-Cysteine Monohydrochloride (Food Grade)	Non-hazardous	≥98.5%
Food-Grade Anticaking Agent (Silicon Dioxide)	Non-hazardous	≤1.0%
Deionized Water (trace)	Non-hazardous	≤0.5%
Total Hazardous Ingredients	None	0%

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled:** Move victim to fresh air and keep at rest in a comfortable breathing position. No special treatment required if no discomfort; consult a doctor if coughing or irritation persists.
- **In Case of Skin Contact:** Rinse skin thoroughly with running water for 5 minutes. Remove contaminated clothing and wash before reuse. Apply mild moisturizer if mild dryness/irritation occurs.
- **In Case of Eye Contact:** Rinse eyes cautiously with plenty of running water for 5-10 minutes (hold eyes open while rinsing). Remove contact lenses if present and easy to do. Consult a doctor if redness or irritation persists.



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- **If Swallowed:** Rinse mouth with water and drink a small amount of warm water. Do not induce vomiting. No toxic effects at normal food intake; consult a doctor only if excessive ingestion causes gastrointestinal discomfort (rare).

4.2 Most Important Symptoms and Effects

- **Acute Effects:** Mild eye/skin irritation in sensitive individuals due to weak acidity; no other acute toxic effects.
- **Delayed Effects:** No known delayed toxic effects based on long-term food and pharmaceutical use data.

4.3 Indication of Any 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 (food-grade L-Cysteine Monohydrochloride, weak acidic essential amino acid) if medical consultation is required.

SECTION 5: Firefighting 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 sulfur compounds; no hazardous combustion gases generated.

5.3 Advice for Firefighters

Wear standard fire-fighting protective gear (gloves, goggles, dust respirator); avoid inhalation of thermal decomposition dust; fight fire from a safe distance.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions

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

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 environmental risk).

6.3 Methods for Containment and Cleaning 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 damp cloth to remove residual powder.
- **Large Spill:** Contain with plastic barriers; transfer to sealed HDPE drums for recycling; clean the contaminated area with a damp mop 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.
- Avoid contact with strong oxidizing agents, strong alkalis and high temperature (>100°C) to prevent oxidation 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); avoid touching eyes/mucous membranes after handling.

7.2 Conditions for Safe Storage

- **Storage Conditions:** Store in a cool, dry, dark and well-ventilated warehouse; keep container tightly sealed to prevent moisture absorption, caking and oxidation; storage temperature ≤ 25°C, relative humidity ≤ 60%.
- **Incompatibilities:** Strong oxidizing agents (hydrogen peroxide, chlorine-based disinfectants), strong alkalis (NaOH, KOH), high-temperature processing equipment (>100°C), direct sunlight.
- **Storage Class (TRGS 510):** 13 (Non-Hazardous Solids)
- **Shelf Life:** 24 months (unopened, under specified storage conditions); 6 months after opening (seal tightly, store in dark dry environment).

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

No specific occupational exposure limit (OEL) for L-Cysteine 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 storage/processing environment.
- **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.

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: 175-180°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: ≥ 100°C (oxidation), ≥240°C (thermal decomposition) k) pH Value (25°C, 5% aqueous solution): 1.5-2.5 l) Viscosity: N/A (solid); 5-8 mPa·s (10% aqueous solution, 25°C) m) Solubility: Freely soluble in water (约 270 g/L at 25°C); slightly soluble in ethanol; insoluble in ether, chloroform n) Partition Coefficient (log Kow): -2.1 (hydrophilic) o) Vapor Pressure (25°C): Negligible (< 0.0001 hPa) p) Density (25°C, solid): 1.54 g/cm³ q) Bulk Density: 0.6-0.9 g/cm³ r) Hygroscopy: Slightly hygroscopic s) Explosive Properties: Not explosive t) Oxidizing Properties: None u) Reducing Properties: Mild reducing property (contains sulfhydryl group)

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

Stable under recommended storage/use conditions (≤25°C, dry, dark, sealed); stable in acidic food system pH (1.0-6.0); easy to oxidize in alkaline environment and high temperature (>100°C).

10.2 Possibility of Hazardous Reactions

No hazardous reactions under normal use/handling conditions; no polymerization; mild oxidation reaction with strong oxidizing agents (no toxic by-products).

10.3 Conditions to Avoid

High temperature (>100°C), direct contact with strong oxidizing agents/strong alkalis, prolonged exposure to direct sunlight, high humidity (caking risk), alkaline food processing environment.

10.4 Incompatible Materials

Concentrated mineral alkalis, strong oxidizing agents, high-concentration heavy metal salts, alkaline food additives, light-sensitive food processing equipment without protection.

10.5 Hazardous Decomposition Products

No hazardous decomposition products; decomposes into non-toxic amino acid derivatives and inorganic substances in high temperature/alkaline environment; no toxic by-products generated.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- **Acute Toxicity:** Oral (Rat, LD₅₀) > 5,000 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; essential amino acid for fetal and infant growth and development.
- **Specific Target Organ Toxicity:** No target organ toxicity; essential amino acid for human body, participates in protein synthesis, antioxidant defense and detoxification metabolism.
- **Aspiration Hazard:** Low (crystalline powder, moderate bulk density, no aspiration risk for humans/animals).

11.2 Additional Information

L-Cysteine Monohydrochloride is an essential sulfur-containing 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 protein synthesis and antioxidant system, with no toxic side effects at normal intake.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, LC_{50}): > 10,000 mg/L (96-hour exposure)
- Daphnia (EC_{50}): > 5000 mg/L (48-hour exposure)
- Algae (EC_{50}): > 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 ($BOD_5 / COD > 0.8$) in aquatic/soil environments; degraded by microorganisms into small molecular nutrients and inorganic substances within 3-5 days; no residual pollution.

12.3 Bioaccumulative Potential

None; L-Cysteine Monohydrochloride is a water-soluble amino acid, rapidly metabolized and utilized by all organisms; no bioaccumulation in aquatic/terrestrial organisms.

12.4 Mobility in Soil

High 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 directly 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/light-proof packaging).

13.2 Disposal Notes

Incineration is not recommended (wastes a valuable amino acid nutrient resource); 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 $\leq 25^{\circ}\text{C}$; use sealed, moisture-proof packaging; avoid rain, moisture, direct sunlight and package collision during transport; prevent powder leakage; use pallets for loading to avoid ground contact and contamination.

14.7 Incompatible Materials

Avoid transport with strong oxidizing agents, strong alkalis, 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, especially temperature control requirements.

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 2760-2021)
- 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 184.1275)
- Codex Alimentarius (FAO/WHO): Approved as food nutritional fortifier (Codex STAN 192-1995)

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 and special medical purpose food 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-Cysteine 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 (24 FEB 2026)