



# NEWAY SINOPHC TECH. LIMITED

ADD:RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE.  
Email:marketing01@newayphc.com; Phone:+86-021-50350029 <https://www.newayphc.com>

## Safety Data Sheet (MSDS)

### - L-Threonine

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

**Name:** L-Threonine **Revision Date:** 26 FEB 2026

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

#### 1.1 Product Identifiers

- Product Name: L-Threonine
- Synonyms: L-2-Amino-3-hydroxybutyric acid; (2S,3R)-2-Amino-3-hydroxybutanoic acid
- Product Number: L-THR-20260226
- Brand: SIGALD
- CAS-No.: 72-19-5
- EINECS Number: 200-774-1
- Molecular Formula: C<sub>4</sub>H<sub>9</sub> NO<sub>3</sub>
- Molecular Weight: 119.12 g/mol

#### 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:** Essential amino acid nutritional fortifier for animal feed (poultry, swine, aquaculture); food additive (fortified cereals, protein supplements); pharmaceutical intermediate (amino acid infusions, enteral nutrition); dietary supplement raw material.
- **Uses Advised Against:** Industrial non-nutritional applications; use in unformulated pure form for medical injection without pharmaceutical grade purification.

### SECTION 2: Hazards Identification

#### 2.1 GHS Classification

- **Not Classified** as hazardous according to GHS criteria (GHS 0 category)

#### 2.2 GHS Label Elements

- Hazard Pictogram: None
- Signal Word: None
- Hazard Statements: None
- Precautionary Statements: None (standard handling precautions apply)

#### 2.3 Physical and Chemical Hazards

Non-flammable, non-explosive, non-corrosive, non-oxidizing. No physical or chemical hazards under normal storage and handling conditions. No dust explosion risk for normal use.

#### 2.4 Health Hazards

- **Acute:** Generally regarded as safe (GRAS). May cause mild gastrointestinal discomfort (bloating, nausea) if consumed in extremely excessive quantities (>50g/day). Inhalation of dust may cause mild respiratory/eye irritation in sensitive individuals; no systemic toxicity.
- **Chronic:** No known chronic health hazards with normal use; it is an essential amino acid for human and animal protein synthesis with no cumulative toxicity.

#### 2.5 Environmental Hazards



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- Not hazardous to the environment; readily biodegradable, non-toxic to aquatic/terrestrial organisms, acts as a nutrient for microorganisms. No bioaccumulation or soil/water pollution potential.

## 2.6 Other Hazards

No additional hazards identified.

## SECTION 3: Composition/Information on Ingredients

- **Substance:** Pure chemical compound (single amino acid)
- **Non-Hazardous Ingredient:**

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Ingredient	CAS No.	Concentration (w/w)	GHS Classification
L-Threonine	72-19-5	≥98.5% (Typical 99.2%)	Non-hazardous

## SECTION 4: First Aid Measures

### 4.1 Description of First-Aid Measures

- **If Inhaled:** Move the victim to fresh air, rest in a comfortable position. Rinse mouth with water if needed. No special treatment required if no discomfort; consult a physician if coughing/irritation persists.
- **In Case of Skin Contact:** Wipe off excess powder with a dry cloth, then rinse skin with running water and mild soap if desired. No adverse skin effects expected; no special treatment needed.
- **In Case of Eye Contact:** Rinse eyes thoroughly with plenty of running water for 5-10 minutes, holding eyelids open. Remove contact lenses if present. Consult a physician only if irritation/redness persists.
- **If Swallowed:** Rinse mouth with water. Do not induce vomiting. The product is safe for oral consumption; consult a physician only if severe gastrointestinal discomfort occurs after excessive ingestion.

### 4.2 Most Important Symptoms and Effects

- **Acute:** Mild transient eye/respiratory irritation from dust; mild GI upset from extreme overconsumption. No severe acute toxic effects.
- **Delayed:** No known delayed toxic effects based on current scientific data.

### 4.3 Indication of Immediate Medical Attention

No specific medical treatment required; treat symptomatically if mild irritation/ discomfort occurs.

## SECTION 5: Firefighting Measures

### 5.1 Extinguishing Media

- **Suitable:** Water spray, dry chemical powder, carbon dioxide (CO<sub>2</sub>), foam.
- **Unsuitable:** No limitations; all common extinguishing agents are effective.

### 5.2 Special Hazards Arising from the Substance

Non-flammable. At extremely high temperatures (>300°C), combustion may produce minor amounts of carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>) and water vapor; no other hazardous combustion products.

### 5.3 Advice for Firefighters

Wear standard fire-fighting protective gear (helmet, fire coat, gloves). Cool storage containers with water spray if exposed to fire/ high temperatures to prevent thermal degradation. No special respiratory protection needed unless heavy smoke is present.

## SECTION 6: Accidental Release Measures

### 6.1 Personal Precautions



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For small spills: No special PPE required. For large spills: Wear disposable dust mask and nitrile gloves to avoid dust inhalation and minor skin contact; ensure good ventilation in the spill area.

## 6.2 Environmental Precautions

No special environmental precautions; the product is biodegradable and non-toxic to the environment. Avoid direct discharge into large water bodies only for the purpose of product recovery.

## 6.3 Methods for Containment and Cleaning Up

- **Small Spill:** Sweep or wipe up with a dry cloth, transfer to a sealed container for reuse or disposal as non-hazardous waste.
- **Large Spill:** Dampen the powder with a small amount of water to prevent dust dispersion, then sweep into sealed HDPE drums for recycling or disposal. Clean the spill area with water and dry thoroughly.

## 6.4 Reference to Other Sections

For waste disposal, see Section 13.

## SECTION 7: Handling and Storage

### 7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; minimize dust generation during pouring/mixing (avoid violent agitation).
- Use dry equipment for handling to prevent caking due to moisture absorption.
- Hygiene Measures: Wash hands thoroughly with water and soap after handling; maintain normal food processing hygiene standards for food/feed grade use.
- Avoid contact with strong acids/alkalis at high temperatures to prevent amino acid degradation.

### 7.2 Conditions for Safe Storage

- **Storage Temperature:** 5-30°C, store in a cool, dry, well-ventilated warehouse.
- **Humidity Control:** Relative humidity ≤60%; keep containers tightly sealed to prevent moisture absorption and caking.
- **Protection:** Avoid direct sunlight, high temperature (>35°C) and damp environments.
- **Incompatibilities:** Strong oxidizing agents, concentrated strong acids/alkalis (at temperatures >80°C).
- **Storage Class:** TRGS 510 - 13 (Non-Hazardous Liquids/Solids)
- **Shelf Life:** 36 months (unopened, under the specified storage conditions).

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Control Parameters

No official occupational exposure limits (OEL) for L-Threonine; it is a GRAS food/feed ingredient with no toxic exposure risk.

### 8.2 Exposure Controls

- **Engineering Controls:** Basic general ventilation is sufficient for normal handling. Local exhaust ventilation is optional for large-scale bulk handling to reduce dust concentration.
- **Personal Protective Equipment (PPE):**
  - Eye/Face: Safety glasses with side shields recommended for bulk handling to prevent powder from entering eyes.
  - Skin: Nitrile/latex gloves for hygiene purposes (mandatory for food/feed/pharmaceutical production).
  - Respiratory: Disposable dust mask for large spills/bulk mixing (to avoid dust inhalation); not required for normal use.
  - Other: Lab coat/apron recommended for industrial handling to prevent powder contamination of clothing.

## 8.3 Hygiene Measures

Provide hand wash and eye rinse facilities in the workplace; follow GMP/ food safety hygiene protocols for food/feed/pharm grade production. Launder contaminated clothing before reuse.

## SECTION 9: Physical and Chemical Properties

Property	Details
Physical State	White crystalline free-flowing powder
Color	White to off-white
Odor	Odorless or faint characteristic amino acid odor
Taste	Mild sweetish taste
Melting Point	255°C (decomposition)
Boiling Point	Not applicable (decomposes before boiling)
Flash Point	>300°C (Non-flammable)
Autoignition Temperature	Not applicable (non-flammable)
Relative Density (20°C)	1.307 g/cm <sup>3</sup>
Bulk Density	0.55-0.70 g/cm <sup>3</sup>
Solubility (25°C)	Soluble in water (≈90 g/L); slightly soluble in ethanol; insoluble in ether, acetone
pH Value (5% aqueous solution, 25°C)	5.0-6.5
Specific Rotation (20°C, 5% in H <sub>2</sub> O)	-26.0° to -29.0°
Viscosity	Not applicable (solid powder)
Decomposition Temperature	≥255°C
Explosive Properties	None
Oxidizing Properties	None
Hygroscoy	Slightly hygroscopic (absorbs moisture in RH >70%)

## SECTION 10: Stability and Reactivity

### 10.1 Chemical Stability

Stable under recommended storage and handling conditions (5-30°C, dry, sealed). Excellent stability to heat processing typical in food/feed production (pelleting, extrusion, pasteurization up to 121°C for 30mins with no significant degradation).

### 10.2 Possibility of Hazardous Reactions

No hazardous polymerization, decomposition, or violent chemical reactions under normal use and storage conditions.

### 10.3 Conditions to Avoid

Prolonged exposure to high temperature (>255°C), high humidity (RH>70%), concentrated strong acids/alkalis, and strong oxidizing agents.

### 10.4 Incompatible Materials

Concentrated nitric acid, hydrogen peroxide (high concentration), sodium hydroxide solution (≥20%), potassium permanganate.

### 10.5 Hazardous Decomposition Products

Complete combustion at high temperature produces carbon dioxide, water vapor, and minor nitrogen oxides; no toxic or corrosive decomposition products at normal processing/storage temperatures.

## SECTION 11: Toxicological Information

### 11.1 Information on Toxicological Effects

- **Acute Toxicity:** LD<sub>50</sub> (Oral, Rat) >10,000 mg/kg; LD<sub>50</sub> (Dermal, Rabbit) >20,000 mg/kg; Inhalation (Rat, LC<sub>50</sub>) >50 mg/m<sup>3</sup> (4h exposure) – **Practically non-toxic.**
- **Skin Corrosion/Irritation:** Non-irritating to skin (Rabbit 4-hour patch test; no redness/edema).
- **Serious Eye Damage/Irritation:** Slightly irritating only if large powder quantities remain in the eye (reversible redness; no permanent damage).
- **Respiratory/Skin Sensitization:** No sensitizing effects (no reported cases in humans/animals).
- **Germ Cell Mutagenicity:** No mutagenic potential (Ames test, chromosome aberration test negative).
- **Carcinogenicity:** IARC Group 3 (Not classifiable as to carcinogenicity to humans); no carcinogenic potential in animal studies.
- **Reproductive Toxicity:** No adverse effects on fertility, pregnancy, or fetal development (animal studies with oral exposure up to 5000 mg/kg/day); it is an essential nutrient for fetal/neonatal growth.
- **Specific Target Organ Toxicity:** No target organ toxicity with normal consumption/handling.
- **Aspiration Hazard:** Low (solid powder with moderate bulk density; no aspiration risk under normal use).

### 11.2 Additional Information

L-Threonine is an essential amino acid that cannot be synthesized by humans and most livestock; it is a critical component of protein synthesis with no toxicological effects at normal nutritional doses.

## SECTION 12: Ecological Information

### 12.1 Toxicity

Non-toxic to all aquatic/terrestrial organisms:

- Fish (Zebrafish, LC<sub>50</sub>): >5000 mg/L (96h exposure)
- Daphnia (EC<sub>50</sub>): >2000 mg/L (48h exposure)
- Algae (EC<sub>50</sub>): >5000 mg/L (72h exposure)
- Soil microbes: No inhibitory effect; acts as a nutritional substrate.

### 12.2 Persistence and Degradability

**Readily biodegradable** (>90% degradation in 28 days) by microorganisms in water and soil; no environmental persistence.

### 12.3 Bioaccumulative Potential

None (water-soluble amino acid with no lipophilicity; BCF <10 in fish studies); no biomagnification in aquatic food chains.

### 12.4 Mobility in Soil

High mobility (water-soluble) but rapidly degraded by soil microbes; no leaching or soil accumulation risk.

### 12.5 PBT/vPvB Assessment

Not classified as PBT/vPvB (meets biodegradability, low toxicity, and no bioaccumulation criteria).

### 12.6 Other Adverse Effects

No eutrophication risk (no nitrogen/phosphorus excess); no adverse effects on ecological systems. Acts as a beneficial nutrient for soil microorganisms.

## SECTION 13: Disposal Considerations

### 13.1 Waste Treatment Methods

- **Product Waste:** Dispose of as non-hazardous food/feed/pharmaceutical waste. Uncontaminated powder can be recycled/reused. Contaminated powder can be

discharged to municipal sewage systems (biodegradable) or sent to non-hazardous solid waste treatment facilities.

- **Packaging Waste:** Rinse empty packaging with water to remove residual powder, then dispose of as recyclable waste (paper/plastic/HDPE) or non-hazardous solid waste.
- **Spilled Waste:** Collected spilled powder can be reused if not contaminated; contaminated spill waste is disposed of as non-hazardous waste.

### 13.2 Disposal Notes

Comply with local, national, and international waste disposal regulations (e.g., China GB 18599, EU WFD, US RCRA). No special disposal requirements for this non-hazardous product.

### SECTION 14: Transport Information

- **UN Number:** ADR/RID: -; IMDG: -; IATA-DGR: - (**Not dangerous goods**)
- **UN Proper Shipping Name:** ADR/RID: Not dangerous goods; IMDG: Not dangerous goods; IATA-DGR: Not dangerous goods
- **Transport Hazard Class:** ADR/RID: -; IMDG: -; IATA-DGR: -
- **Packaging Group:** ADR/RID: -; IMDG: -; IATA-DGR: -
- **Marine Pollutant:** No (IMDG Code)
- **Special Precautions for User:**
  1. Transport as food/feed/pharm grade cargo; use sealed, moisture-proof packaging to prevent caking and contamination.
  2. Avoid transport in damp, high-temperature (>35°C) or direct sunlight conditions; use dry, cool closed vehicles.
  3. Avoid mixing with strong oxidants, concentrated acids/alkalis, and hazardous chemicals during transport.
  4. No special transport documentation required (non-dangerous goods); provide COA for food/feed/pharm grade cargo upon request.

### SECTION 15: Regulatory Information

#### 15.1 National/International Regulations

- **China:** Compliant with GB 2760-2021 (Food Additive), GB/T 23886-2009 (Feed Grade L-Threonine), Chinese Pharmacopoeia (CP) 2020 (Pharm Grade); approved as an essential amino acid fortifier for food/feed.
- **US:** FDA GRAS (GRN No. 189); listed in TSCA Inventory; compliant with 21 CFR for food/dietary supplement/feed use; Kosher certified.
- **EU:** REACH Registered; compliant with EC 1333/2008 (Food Additives), EC 1831/2003 (Feed Additives); Halal certified; meets EFSA nutritional standards.
- **Codex Alimentarius:** Compliant with Codex standards for amino acid food ingredients.

#### 15.2 Other Regulations

Compliant with GMP (Good Manufacturing Practice) for food/feed/pharmaceutical production; meets international food safety standards (HACCP, ISO 22000).

### SECTION 16: Other Information

#### 16.1 Further Information

This product is a natural L-isomer threonine (biologically active form) produced by advanced microbial fermentation and purification; it is the only essential amino acid with a chiral hydroxyl group, critical for protein structure and function in humans and animals.

#### 16.2 Revision Note

First issue of MSDS for L-Threonine (CAS 72-19-5) of brand SIGALD, complying with GB/T 16483, GB/T 17519, GHS Rev.9, IMDG and IATA standards.

#### 16.3 Disclaimer



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This MSDS is based on current scientific and regulatory data. The supplier is not liable for any damage caused by improper use, non-compliance with storage/handling precautions, or unauthorized mixing with incompatible materials.

### **16.4 Contact for Further Information**

NEWAY SINOPHC TECH. LIMITED | Tel: +86-021-50350029 (24h technical support for application and formulation).

