

Safety Data Sheet (MSDS)

- L-Tyrosine

According to: GB/T 16483, GB/T 17519; GHS (Rev.9), IMDG, IATA Standards **Product Name:** L-Tyrosine **CAS Number:** 60-18-4 **Product Number:** LTY-20260222 **Brand:** SIGALD **Revision Date:** 22 February 2026 **Supplier:** NEWAY SINOPHC TECH. LIMITED **Address:** RM. 204, BUILDING 3, NO. 188, AONA RD., CHINA (SHANGHAI) PILOT FREE TRADE ZONE. **Tel/Fax:** +86-021-50350029 **Emergency Phone:** +86-021-50350029 (CHEMTREC)

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

1.1 Product Identifiers

- Product Name: L-Tyrosine
- Synonyms: (S)-2-Amino-3-(4-hydroxyphenyl)propanoic acid; L-2-Amino-3-p-hydroxyphenylpropionic acid
- CAS No.: 60-18-4
- EINECS No.: 200-451-8
- Chemical Formula: C₉ H₁₁NO₃
- Molecular Weight: 181.19 g/mol

1.4 Relevant Identified Uses and Uses Advised Against

- **Identified Uses:** Food fortifier, feed additive, pharmaceutical raw material, nutritional supplement ingredient, cosmetic skin care raw material.
- **Uses Advised Against:** Not for long-term high-temperature processing (> 180°C); not for excessive oral intake beyond the recommended dosage; no other prohibited uses.

SECTION 2: Hazards Identification

2.1 GHS Classification

- Eye irritation (Category 2): H319 - Causes serious eye irritation.
- Skin irritation (Category 2): H315 - Causes skin irritation (prolonged or repeated contact).

2.2 GHS Label Elements

- **Hazard Pictogram:** (Exclamation Mark)
- **Signal Word:** WARNING

- **Hazard Statements:**

- H315: Causes skin irritation.
- H319: Causes serious eye irritation.

- **Precautionary Statements:**

- P264: Wash skin thoroughly after handling.
- P280: Wear protective gloves/eye protection.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P332+P313: If skin irritation occurs: Get medical advice/attention.
- P337+P313: If eye irritation persists: Get medical advice/attention.

2.3-2.6 Hazards Summary

- **Physical/Chemical Hazards:** Non-flammable, non-explosive, no oxidizing properties; stable under normal storage and use conditions; decomposes at high temperature (>340°C) without producing hazardous substances.
- **Health Hazards:** Low acute toxicity; prolonged or repeated skin contact may cause mild irritation; direct eye contact causes serious eye irritation; no acute toxic effects at the recommended dosage for oral intake; no carcinogenic, mutagenic or reproductive toxicity.
- **Environmental Hazards:** Environmentally friendly, low aquatic toxicity, fully biodegradable, no bioaccumulation potential, no adverse effects on the ecological environment.



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- **Other Hazards:** No additional hazards identified.

SECTION 3: Composition/Information on Ingredients

- **Substance/Mixture:** Pure chemical substance (single component)
- **Active Ingredient:** L-Tyrosine (100%)
- **CAS No.:** 60-18-4
- **Hazardous Components:** None (only mild irritation to skin and eyes as classified in Section 2)
- **Impurities:** No hazardous impurities (all impurities meet the limit requirements of relevant national and international standards)

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- **If Inhaled:** Move the victim to fresh air and keep the respiratory tract unobstructed. No special treatment is needed if there is no discomfort; consult a doctor if coughing or throat irritation persists.
- **In Case of Skin Contact:** Remove contaminated clothing and shoes immediately; rinse the affected area with plenty of running water and mild soap for 5~10 minutes. If skin redness, itching or irritation occurs, apply a mild emollient and consult a doctor if necessary.
- **In Case of Eye Contact:** Rinse eyes thoroughly with plenty of running water for 10~15 minutes, holding the eyelids open to ensure complete flushing of the conjunctiva. Remove contact lenses if present and easy to do. Consult a doctor immediately if eye redness, tearing, pain or blurred vision persists.
- **If Swallowed: Food/feed/pharm/cosmetic grade is safe for oral intake at the recommended dosage.** If a large amount is accidentally ingested and gastrointestinal discomfort (nausea, abdominal distension) occurs, rinse the mouth with water, drink a small amount of warm water to promote dilution, and consult a doctor if necessary; do not induce vomiting.

4.2 Most Important Symptoms and Effects

- **Acute Effects:** Mild skin redness/itching (prolonged contact); eye redness, tearing, burning (direct contact); no acute toxic symptoms for oral intake of normal dosage.
- **Delayed Effects:** No known delayed toxic effects based on current scientific data and industrial use experience.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

- No specific antidote; treat symptomatically according to the actual condition (e.g., anti-irritant eye drops for eye irritation).
- Seek immediate medical attention if eye irritation persists for more than 24 hours or skin irritation is severe (erythema, swelling).

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- **Suitable Extinguishing Media:** Water spray (fog), dry chemical powder, carbon dioxide (CO₂), foam.
- **Unsuitable Extinguishing Media:** No limitations of extinguishing agents; high-pressure water jet is not recommended (unnecessary for solid powder).

5.2 Special Hazards Arising from the Substance or Mixture

- Non-flammable solid powder; no combustion risk under normal storage and use conditions; heating to decomposition temperature (342~345°C) produces non-hazardous decomposition products (carbon dioxide, water vapor, a small amount of nitrogen oxides); no toxic, explosive or corrosive combustion products.

5.3 Advice for Firefighters

- No special fire-fighting gear required for small fires; wear standard fire-fighting gear (helmet, fire suit, gloves) for large fires involving adjacent flammable materials.

- Cool exposed containers with water spray continuously if involved in a fire to prevent thermal decomposition; avoid inhaling the slight smoke generated by high-temperature decomposition.

- Fight the fire from the upwind direction and a safe distance.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

- Wear nitrile rubber gloves, safety glasses and a dust mask (P1) for spill handling; avoid direct contact with skin and eyes, and avoid inhaling dust.
- Ensure good natural or mechanical ventilation in the spill area; no high inhalation risk under normal conditions.
- Evacuate non-essential personnel only for large spills (≥ 50 kg) to prevent accidental contact.

6.2 Environmental Precautions

- The product is environmentally friendly; no special environmental precautions are needed for small spills; prevent a large amount of powder from entering sewers, rivers or soil (may cause slight turbidity, no toxic pollution).
- Collect the spilled powder as much as possible to avoid waste; the collected powder can be reused if it is not contaminated.

6.3 Methods and Materials for Containment and Cleaning Up

- **Small Spill (<5 kg):** Sweep up the spilled powder with a clean brush and shovel, and transfer it to a sealed clean container for reuse or storage; wipe the spill area with a damp cloth to prevent residual dust from flying.
- **Large Spill (≥ 5 kg):** Contain the powder with a plastic dike to prevent spread; sweep up and transfer to a sealed container; flush the contaminated area with a small amount of water (collect the washing water for harmless treatment if necessary).

6.4 Reference to Other Sections

- For waste disposal, see **Section 13**; for personal protective equipment, see **Section 8**.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling

- Operate in a well-ventilated area; avoid generating dust during handling, dispensing and mixing to prevent inhalation and skin/eye contact.
- Use dedicated stainless steel or plastic dispensing equipment; avoid long-term contact with strong acids ($\text{pH} < 3$), strong bases ($\text{pH} > 9$), strong oxidants and high temperature ($> 150^\circ\text{C}$).
- Wear personal protective equipment (gloves, safety glasses) during large-scale handling; wash hands thoroughly with soap and water after handling; do not eat, drink or smoke in the work area to avoid accidental ingestion.
- Avoid agglomeration during mixing; if agglomeration occurs, crush it gently and sieve before use (no change in product performance).

7.2 Conditions for Safe Storage, Including Any Incompatibilities

- **Storage Conditions:** Store in a cool, dry, well-ventilated warehouse at $5\sim 25^\circ\text{C}$; use airtight aluminum foil bags, PE-lined cartons or fiber drums; keep the container tightly sealed to prevent moisture absorption, oxidation and contamination by dust and microorganisms. Avoid direct sunlight, high temperature ($> 30^\circ\text{C}$) and high humidity (relative humidity $> 75\%$).
- **Incompatibilities:** Strong mineral acids (sulfuric acid, hydrochloric acid), strong alkalis (sodium hydroxide, potassium hydroxide), strong oxidizing agents (hydrogen peroxide, chlorine dioxide), high-temperature heat sources ($> 180^\circ\text{C}$).
- **Storage Class (TRGS 510):** 13 (Non-Hazardous Solids)
- **Shelf Life:** 24 months (unopened, under specified storage conditions); 6 months after opening (sealed and stored according to the above conditions).

- **Storage Note:** Slight discoloration (pale yellow) of the powder due to mild oxidation during storage does not affect the product performance and purity for normal use.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- **L-Tyrosine:** No official national/international occupational exposure limits (OEL); recommended time-weighted average (TWA) for inhalable dust: 10 mg/m³ (air).
- **Biological Exposure Indices:** No relevant data available.

8.2 Exposure Controls

- **Engineering Controls:** Local exhaust ventilation (for large-scale dispensing, mixing and grinding operations); general ventilation for routine handling to maintain low dust concentration in the air.
- **Personal Protective Equipment (PPE):**
 - Eye/Face Protection: Safety glasses (routine handling); chemical goggles (large-scale spill/dispensing to prevent dust from entering eyes).
 - Skin Protection: Nitrile rubber gloves (thickness ≥0.1 mm), protective lab coat and anti-slip shoes; avoid latex gloves (poor compatibility with amino acid powder).
 - Respiratory Protection: Disposable dust mask (P1/P2) for routine handling; half-face dust respirator for high dust concentration operations or poor ventilation.
 - Hand Protection: Disposable nitrile gloves for short-term handling; reusable nitrile gloves for prolonged contact.
- **Hygiene Measures:** Install a dedicated hand washing station with soap and running water near the work area; provide emergency eye wash facilities for large-scale operation areas (≥100 kg handling).
- **Control of Environmental Exposure:** No special environmental exposure controls required; prevent large-scale accidental release to the natural environment.

SECTION 9: Physical and Chemical Properties

Property	Value (25°C, unless otherwise stated)	Unit
Physical State	Crystalline powder	-
Color	White to off-white	-
Odor	Odorless or slight characteristic odor	-
Melting Point	342~345°C (decomposes)	°C
Boiling Point	Not applicable (decomposes before boiling)	°C
Flash Point	Non-flammable	°C
Autoignition Temperature	> 400°C	°C
Relative Density (solid)	1.45 g/cm ³	g/cm ³
Bulk Density	0.55~0.75 g/cm ³	g/cm ³
Specific Rotation [α] ₂₀ ^D	-12.8° (5% in 1mol/L HCl)	°
pH Value	5.8 (1% aqueous suspension)	-
Solubility in Water	≈0.45 g/100 mL	g/100 mL
Solubility	Soluble in dilute acids/bases; insoluble in ethanol, ether, chloroform, benzene	-
Vapor Pressure	<0.001 hPa	hPa
Viscosity	Not applicable (solid)	-
Flammability	Non-flammable solid	-



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Property	Value (25°C, unless otherwise stated)	Unit
Explosive Properties	Not explosive (no dust explosion risk under normal conditions)	-
Oxidizing Properties	None	-
Decomposition Temperature	342~345°C	°C
Water Absorption	Slightly hygroscopic	-

SECTION 10: Stability and Reactivity

10.1 Chemical Stability

- The product is chemically stable under recommended storage and use conditions (5~25°C, sealed, dry); mild oxidation may occur on long-term contact with air and moisture (slight discoloration), with no hazardous products generated and no effect on product performance.
- No decomposition or chemical change under normal use conditions (room temperature, neutral pH).

10.2 Possibility of Hazardous Reactions

- No hazardous reactions under normal storage and use conditions; no polymerization risk under any industrial use conditions.

10.3 Conditions to Avoid

- High temperature (>150°C for long-term, >340°C for decomposition), direct strong sunlight, high humidity (relative humidity >75%), long-term contact with strong acids/strong bases/strong oxidizing agents.

10.4 Incompatible Materials

- Strong mineral acids (sulfuric acid, hydrochloric acid, nitric acid), strong alkalis (sodium hydroxide, potassium hydroxide, calcium hydroxide), strong oxidizing agents (hydrogen peroxide, chlorine dioxide, potassium permanganate), heavy metal salts (lead acetate, copper sulfate).

10.5 Hazardous Decomposition Products

- Thermal decomposition at 342~345°C produces carbon dioxide (CO₂), water vapor (H₂O) and a small amount of nitrogen oxides (NO_x); no toxic, corrosive or explosive decomposition products.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects (based on L-Tyrosine)

- **Acute Toxicity:**
 - Oral (Rat, LD₅₀): >5000 mg/kg bw (Low toxicity, practically non-toxic)
 - Dermal (Rabbit, LD₅₀): >10000 mg/kg bw (Practically non-toxic)
 - Inhalation (Rat, LC₅₀): >5000 mg/m³ (4-hour exposure, practically non-toxic)
- **Skin Corrosion/Irritation:** Mild skin irritation (Rabbit, 24-hour repeated contact) – reversible redness, no corrosion or blistering; no irritation for short-term contact.
- **Serious Eye Damage/Eye Irritation:** Moderate to severe eye irritation (Rabbit, 24-hour exposure) – redness, tearing, conjunctival congestion, reversible within 72 hours; no permanent eye damage.
- **Respiratory or Skin Sensitization:** No skin or respiratory sensitization (Guinea pig test); no allergic reaction reported in industrial use.
- **Germ Cell Mutagenicity:** No mutagenic effect (Ames test, chromosome aberration test); no genetic toxicity.
- **Carcinogenicity:** Not classified as a carcinogen by IARC, EPA, NTP or OSHA; no carcinogenic effect in long-term animal tests and industrial use.

- **Reproductive Toxicity:** No reproductive/developmental toxicity (Rat and mouse tests) at the recommended dosage; no adverse effect on fertility, embryo and fetal development.
- **Specific Target Organ Toxicity (Single/Repeated Exposure):** No target organ toxicity for single/repeated exposure at the recommended dosage; prolonged inhalation of high-concentration dust may cause mild respiratory tract irritation (cough, throat discomfort).
- **Aspiration Hazard:** Very low (crystalline powder with low bulk density, no aspiration risk for normal industrial and daily use).

11.2 Additional Information

- The toxicological properties of L-Tyrosine have been fully studied; it is a conditionally essential amino acid for humans and animals, and is safe for food, feed, pharmaceutical, cosmetic and nutritional supplement use when used according to the recommended dosage and safety precautions.
- No adverse health effects have been reported in long-term industrial production and application.

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, LC₅₀): >5000 mg/L (96-hour exposure)
- Daphnia (EC₅₀): >2000 mg/L (48-hour exposure)
- Algae (Chlorella, EC₅₀): >5000 mg/L (72-hour exposure)
- **Conclusion:** Low aquatic toxicity, practically non-toxic to aquatic organisms; no acute toxic effect at normal discharge levels.

12.2 Persistence and Degradability

- Fully biodegradable (BOD₅/COD = 0.75) in 28 days under aerobic aquatic conditions; can be completely degraded by microorganisms into carbon dioxide, water and nitrogen, no persistent residues in the natural environment.

12.3 Bioaccumulative Potential

- Very low bioaccumulation potential (log Kow = -0.85); no bioaccumulation in the aquatic food chain, no biomagnification effect.

12.4 Mobility in Soil

- Low mobility in soil; the product is an amino acid, which can be absorbed and utilized by soil microorganisms and plants, no leaching risk to groundwater or underground water sources.

12.5 Results of PBT and vPvB Assessment

- Not classified as PBT (Persistent, Bioaccumulative, Toxic) or vPvB (very Persistent, very Bioaccumulative) according to GHS and EU REACH regulations.

12.6 Endocrine Disrupting Properties

- No data available; no known endocrine disrupting effect based on current scientific studies and industrial use experience (it is a natural amino acid with physiological functions consistent with the human/animal body).

12.7 Other Adverse Effects

- No long-term adverse effects on terrestrial and aquatic ecosystems at normal use and discharge levels; the product can be used as a nutrient source for microorganisms and plants, and has no environmental pollution risk after biodegradation.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- **Product Waste:** Unused/expired L-Tyrosine (non-contaminated) – can be used as feed additive or organic fertilizer raw material; if the quality is unqualified (exceeding the impurity limit), incinerate in a licensed waste incineration plant (complete combustion to avoid slight smoke).

- **Contaminated Waste:** Spilled powder contaminated by dust/microorganisms – collect and incinerate as non-hazardous solid waste; no toxic waste generated.
- **Wastewater:** Contaminated wastewater (from cleaning) – treat by biological wastewater treatment system (biodegradation) before discharge; comply with local effluent quality standards.
- **Packaging Waste:** Rinse the packaging with clean water (recycle the rinse liquid for industrial use if necessary); aluminum foil bags, PE liners, cartons and fiber drums – recycle and reuse or dispose of as non-hazardous solid waste in a licensed facility.

13.2 Disposal Notes

- Comply with local, national and international waste disposal regulations; do not dump waste powder, contaminated waste or wastewater directly into the natural environment, soil or water bodies.
- Pharmaceutical/cosmetic grade L-Tyrosine waste shall be disposed separately from food/feed grade waste if required by local regulations (due to different quality requirements).

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

- Classified as **non-hazardous goods** for transport; transport by ordinary closed vehicles (trucks, containers).
- Transport at 5~30°C; avoid direct sunlight, high temperature (>30°C), high humidity and rain during transit; protect the packaging from collision, extrusion and breakage to prevent moisture absorption and contamination.
- Use sealed, moisture-proof packaging (aluminum foil bags, PE-lined cartons/fiber drums); mark the package with **Keep in a Cool/Dry Place** and **Non-Flammable**.
- Load and unload the package gently to prevent the powder from agglomerating and the packaging from being damaged; no special loading and unloading equipment required.

14.7 Incompatible Materials

- Do not transport with strong acids, strong bases, strong oxidizing agents, food raw materials (cross-contamination prevention) and pharmaceutical/cosmetic raw materials of different grades.

Further Information: Not classified as dangerous goods under international and national transport regulations (ADR/RID, IMDG Code, IATA-DGR).

SECTION 15: Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

- **National Regulations (China):**

- Hazardous Chemical Safety Management Regulation (Non-hazardous classification)
- GB 1886.237-2021 (National Food Safety Standard - Food Additive L-Tyrosine)

- Feed Additive Variety Catalogue (2023) (approved as feed additive)
- Cosmetic Safety Technical Specifications (2021) (approved for cosmetic use)
- Environmental Protection Law of the People's Republic of China
- **International Regulations:**
 - GHS Classification (Rev. 9): Classification as per Section 2.1 (Skin Irritation, Eye Irritation)
 - EU REACH: Registered in ECHA; not listed in SVHC Candidate List; complies with CLP regulation
 - US TSCA: Listed on the TSCA Inventory; FDA GRAS (Generally Recognized as Safe) for food use; approved as pharmaceutical and cosmetic raw material
 - USP NF (United States Pharmacopeia): Complies with the quality standards of L-Tyrosine
 - FCC VIII (Food Chemicals Codex): Complies with food grade quality requirements
 - Codex Alimentarius Commission (CAC): Approved as a food fortifier

15.2 Other Regulations

- Comply with local food, feed, pharmaceutical, cosmetic and nutritional supplement regulations; industrial use shall meet occupational health and safety standards.
- Food grade L-Tyrosine shall comply with the national food additive use standard (GB 2760) for dosage control; feed grade shall comply with the feed additive use specification.
- Pharmaceutical/cosmetic grade shall comply with GMP production and quality control requirements.

SECTION 16: Other Information

16.1 Further Information

This MSDS is based on current scientific knowledge, industrial use experience and relevant national/international standards (GB/T 16483, GB/T 17519, GHS Rev.9, USP, FCC). It is intended for the safe handling, storage, transport and disposal of L-Tyrosine. The data in this MSDS is for reference only and does not constitute a product quality guarantee.

16.2 Liability Note

The supplier (NEWAY SINOPHC TECH. LIMITED) is not liable for any damage or loss caused by improper use (e.g., long-term contact with strong acids/alkalis, high-temperature processing, excessive oral intake), non-compliance with safety precautions or use beyond the product's intended scope.

16.3 Update Note

This MSDS will be updated in a timely manner if new scientific safety data, regulatory requirements or product quality changes become available. The latest version will be provided by the supplier upon request.

16.4 Application Note

L-Tyrosine is a conditionally essential amino acid, and the dosage shall be strictly in accordance with the relevant national standards and product recommendations; excessive intake may cause mild gastrointestinal discomfort, and no other adverse effects have been reported.

16.5 Contact Information

For further information about the product (quality, application, formulation), please contact the supplier at +86-021-50350029 (Tel/Fax) or the official email address (provided by the supplier upon request).

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