

## Safety Data Sheet (MSDS)

- **Food Grade L-Isoleucine**(Compliant with GB/T 16483, GB 1886.209-2016, GHS Rev.9, IMDG, IATA)**Revision Date: 20 FEB 2026**

### SECTION 1: Identification

#### 1.1 Product Identifiers

- Name: L-Isoleucine (Food Grade)
- Product Number: LIL-FOOD-20260220
- Brand: SIGALD
- CAS No.: 73-32-5
- Synonyms: (2S,3S)-2-Amino-3-methylpentanoic acid; L-2-Amino-3-methylvaleric acid
- Molecular Formula: C<sub>6</sub> H<sub>13</sub>NO<sub>2</sub>
- Molecular Weight: 131.17 g/mol

#### 1.2 Supplier Details

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

#### 1.3 Emergency Contact: +86-021-50350029 (24h)

#### 1.4 Uses & Restrictions

- **Identified Uses:** Food additive (essential amino acid supplement, nutrient fortifier); used in nutritional food, dairy, bakery, beverage, meat products and infant food industries.
- **Uses Advised Against:** Not for pharmaceutical injection use; no excessive direct oral consumption without formulation.

### SECTION 2: Hazards Identification

#### 2.1 GHS Classification

- No hazardous classification (GHS 0 category)

#### 2.2 GHS Label Elements

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

2.3 Summary White odorless crystalline powder, slightly hygroscopic, soluble in water. Non-flammable, non-explosive, non-toxic. No acute/chronic health hazards; mild dust irritation may occur in sensitive individuals during bulk handling. As an essential human amino acid, it is safe at food additive recommended dosages. Environmentally friendly, fully biodegradable, no adverse effects on aquatic/terrestrial organisms.

### SECTION 3: Composition/Information on Ingredients

- **Substance/Mixture:** Pure substance (≥98.5%)
- **Active Component:** L-Isoleucine (CAS 73-32-5), 98.5-99.5% (w/w)



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- **Impurities:** Trace water and inorganic salts ( $\leq 1.5\%$ ), no hazardous ingredients
- **Hazardous Components:** None (at food grade application concentrations)

## SECTION 4: First Aid Measures

### 4.1 First-Aid Measures

- **Inhalation:** Move victim to fresh air if dust inhalation causes coughing. No special treatment required; symptoms subside spontaneously. Seek medical advice only if irritation persists.
- **Skin Contact:** Rinse contaminated skin with plenty of running water for 5 minutes. Wipe off residual powder first if needed; no skin irritation, no further treatment required.
- **Eye Contact:** Rinse eyes thoroughly with clean running water for 5-10 minutes, hold eyelids open during rinsing. Remove contact lenses if present. Consult an ophthalmologist only if mild dust irritation persists in sensitive individuals.
- **Ingestion (Human):** Rinse mouth with water. The product is non-toxic; accidental ingestion causes no adverse effects. Seek medical advice only if large amounts are swallowed and gastrointestinal discomfort occurs (rare).

4.2 Key Symptoms & Effects: Mild transient respiratory/eye irritation from dust in sensitive individuals; no other toxic effects.

4.3 Antidote: No specific antidote; treat symptomatically if needed.

## SECTION 5: Firefighting Measures

5.1 Extinguishing Media: Water spray, carbon dioxide ( $\text{CO}_2$ ), dry chemical powder, foam. All common agents are suitable.

5.2 Hazards in Fire: Non-combustible. Decomposes at high temperatures ( $>280^\circ\text{C}$ ) to produce non-toxic ammonia, carbon dioxide and water; no hazardous combustion gases or smoke. No explosion risk.

5.3 Firefighter Advice: Wear standard fire-fighting gear and a dust mask to avoid inhalation of combustion dust. Cool surrounding containers with water spray to prevent thermal expansion and powder scattering.

## SECTION 6: Accidental Release Measures

6.1 Personal Precautions: Wear N95 dust mask and disposable food-grade gloves for large spills to avoid dust inhalation and skin contact. Ensure good ventilation in the spill area.

6.2 Environmental Precautions: No special environmental precautions; the product is fully biodegradable. Prevent large amounts from entering water bodies to avoid temporary minor pH change (no toxic impact on aquatic life).

6.3 Cleanup Methods:

- **Small Spill:** Sweep into a sealed HDPE container for reuse. Wipe the area with a dry cloth and dispose of the cloth as general waste.
  - **Large Spill:** Collect with a dust-free vacuum cleaner into sealed drums. Avoid contact with excessive water to prevent hygroscopic caking and slippery surfaces.
- 6.4 Disposal Reference: See Section 13.

## SECTION 7: Handling and Storage

### 7.1 Handling Precautions



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- Operate in a well-ventilated area with local dust extraction for bulk handling. Avoid generating dust during weighing/mixing.
- Use dry food-grade equipment/tools (slightly hygroscopic); avoid contact with strong oxidizers, strong alkalis and high-temperature environments (>60°C) for long periods.
- Hygiene Measures: Wash hands with soap and water after handling; avoid touching eyes/mouth before hand washing; comply with food hygiene GMP standards.

## 7.2 Storage Conditions

- **Temperature:** ≤25°C; store in a cool, dry, well-ventilated food-grade warehouse
- **Humidity:** ≤60% (prevent hygroscopic caking)
- **Packaging:** Keep tightly sealed in original food-grade moisture-proof aluminum foil bags/HDPE drums with inner PE liners
- **Shelf Life: 36 months (unopened, under specified conditions)**
- **Incompatibilities:** Strong oxidizing agents (e.g., KMnO<sub>4</sub>, H<sub>2</sub>O<sub>2</sub>), strong bases (e.g., NaOH)
- **Segregation:** Store separately from oxidizers, alkalis and non-food grade chemicals. Mark "FOOD GRADE" clearly.

## SECTION 8: Exposure Controls/Personal Protection

### 8.1 Occupational Exposure Limit (OEL)

- No specific OEL for L-Isoleucine; follow general industrial dust limit (10 mg/m<sup>3</sup> TWA, respirable fraction) and food hygiene standards.

### 8.2 Engineering Controls

- Local exhaust ventilation in bulk handling/loading areas to control dust concentration.
- Closed mixing systems for food production to minimize dust release and ensure hygiene.

### 8.3 Personal Protective Equipment (PPE)

- **Respiratory:** N95 dust mask (for bulk handling/loading/unloading only)
- **Eye/Face:** Food-grade safety glasses (recommended for large-scale handling to prevent dust from entering eyes)
- **Skin:** Food-grade nitrile rubber gloves (optional; no skin irritation risk)
- **Other:** Dust-proof food-grade overalls and shoes (for food production environment)

## SECTION 9: Physical and Chemical Properties

Property	Details (25°C, 1 atm)
Physical State	White crystalline powder
Odor	Odorless
Taste	Slightly sweet and bitter taste
pH Value (1% aqueous)	5.5~7.0
Melting Point	284~286°C (decomposes)
Boiling Point	N/A (decomposes before boiling)
Flash Point	Not applicable (non-combustible)
Flammability	Non-combustible
Hygroscopy	Slightly hygroscopic
Water Solubility	Soluble (4.1 g/100 mL at 25°C)

Property	Details (25°C, 1 atm)
Ethanol Solubility	Slightly soluble
Methanol Solubility	Sparingly soluble
Bulk Density	0.75-0.90 g/cm <sup>3</sup>
True Density	1.07 g/cm <sup>3</sup>
Vapor Pressure	<0.0001 kPa
Specific Rotation	+38.0° ~ +41.0° ([α] <sub>20</sub> <sup>D</sup> , 6 mol/L HCl)
Decomposition Temperature	>280°C

## SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under recommended storage/use conditions (cool, dry, sealed, away from oxidizers/alkalis). Slightly hygroscopic in humid air; no chemical degradation under normal food processing conditions. 10.2 Hazardous Reactions: No hazardous reactions under normal use and storage conditions. Reacts with strong oxidizers/alkalis only at high temperatures to produce non-toxic decomposition products. 10.3 Conditions to Avoid: High humidity, high temperature (>60°C), direct contact with strong oxidizers/alkalis, prolonged exposure to open air. 10.4 Incompatible Materials: Potassium permanganate, hydrogen peroxide, concentrated sodium hydroxide, concentrated sulfuric acid. 10.5 Hazardous Decomposition Products: Ammonia, carbon dioxide, water (no toxic fumes or residues at normal decomposition temperature). 10.6 Hazardous Polymerization: Will not occur.

## SECTION 11: Toxicological Information

### 11.1 Toxicological Effects

- **Acute Toxicity:** Oral (Rat) LD<sub>50</sub> >20,000 mg/kg; Dermal (Rabbit) LD<sub>50</sub> >20,000 mg/kg; Inhalation (Rat) LC<sub>50</sub> >50 mg/m<sup>3</sup> (4h) (Non-toxic)
- **Skin Corrosion/Irritation:** No skin irritation (Rabbit, 4-hour exposure; GHS Category 0)
- **Serious Eye Damage/Irritation:** Mild transient irritation from dust (Rabbit, 24-hour exposure; fully reversible)
- **Respiratory/Skin Sensitization:** No sensitizing effects (no known allergic reactions)
- **Carcinogenicity:** IARC Classification - Group 3 (not classifiable); essential human amino acid with no carcinogenic risk
- **Reproductive Toxicity:** No reproductive toxicity; essential for fetal development and human body metabolism
- **Target Organ Toxicity:** No single/repeated exposure target organ toxicity at any food additive dosage
- **Mutagenicity:** No mutagenic effects detected in standard tests
- **Aspiration Hazard:** Low (crystalline powder, no aspiration risk under normal handling)

11.2 Additional Information: L-Isoleucine is an essential branched-chain amino acid (BCAA) for humans; the body cannot synthesize it and must obtain it from food. It is a safe food additive with no cumulative toxicity at recommended application levels.

## SECTION 12: Ecological Information

12.1 Aquatic Toxicity: LC<sub>50</sub> (Zebrafish, 96h) >5000 mg/L; EC<sub>50</sub> (Daphnia, 48h) >5000 mg/L (Non-toxic to aquatic organisms) 12.2 Persistence and Degradability: Fully biodegradable (BOD<sub>5</sub> /COD >0.8) in soil and aquatic environments; degraded by microorganisms into amino acids and inorganic salts within 7-14 days 12.3 Bioaccumulative Potential: No bioaccumulation potential (water-soluble, essential amino acid, rapidly metabolized by all organisms) 12.4 Mobility in Soil: Moderate mobility (water-soluble); binds weakly to soil organic matter, minor leaching risk (no environmental pollution) 12.5 Environmental Impact: Environmentally friendly; at food production discharge levels, no adverse effect on soil/water. Excretion in human/animal waste acts as a nutrient source for soil microorganisms, improving soil fertility. Large spills cause no secondary pollution.

### SECTION 13: Disposal Considerations

13.1 Product Waste: Expired/caked L-Isoleucine is non-hazardous waste. Can be reused (if re-dried/crushed and qualified by retest) or disposed of as general solid waste. Mix with organic fertilizer for soil amendment (amino acid/nutrient supplement) is allowed. 13.2 Packaging Waste: Rinse packaging thoroughly with water (meet food hygiene standards); recycle food-grade PP/HDPE packaging as non-hazardous plastic waste or dispose of as general waste. 13.3 Disposal Compliance: Comply with China General Solid Waste Pollution Control Law, Food Safety Law and local environmental regulations. No special treatment required for waste product.

### SECTION 14: Transport Information

- **UN Number:** None (Non-hazardous goods for transport)
- **UN Proper Shipping Name:** L-Isoleucine (Food Grade), Not Dangerous Goods
- **Hazard Class:** None | **Packaging Group:** None | **Environmental Hazard:** No
- **Transport Precautions:**
  1. Transport in covered, dry food-grade ordinary cargo vehicles; avoid rain/snow/humidity (prevent hygroscopic caking and contamination).
  2. Secure packaging with pallets; avoid collision/damage to prevent dust leakage and packaging contamination.
  3. Avoid mixing with strong oxidizers, strong alkalis and non-food grade chemicals in the same vehicle.
  4. Protect from direct sunlight and high temperature (≤30°C) during summer transport; comply with food additive transport hygiene standards.

### SECTION 15: Regulatory Information

- **China:** Compliant with **GB 1886.209-2016 (National Food Safety Standard for L-Isoleucine)**, **GB 2760 (Food Additive Use Standard)**, listed in the national food additive catalogue as an essential amino acid supplement.
- **EU:** Compliant with EC 1333/2008 (Food Additive Regulation), REACH registered (73-32-5), not in SVHC List, approved for all food categories.



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- **US:** TSCA listed (73-32-5), approved by FDA for food additive use (21 CFR Part 172.320), meets GRAS standards, classified as an essential amino acid nutrient.
- **International:** Complies with Codex Alimentarius Commission (CAC) food additive specifications; accepted globally for food additive use in nutritional fortification.

### SECTION 16: Other Information

- **Disclaimer:** This MSDS is for food grade L-Isoleucine (73-32-5) only. Misuse for non-food purposes (e.g., unformulated human consumption, industrial non-food use) is at the user's sole risk. The supplier is not liable for damages from improper handling/storage/transport/use.
- **Key Note:** The product is slightly hygroscopic; ensure sealed storage and dry food-grade handling to prevent caking and maintain product quality.
- **Revision Date:** 20 FEB 2026

