



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)

DL-Methionine (59-51-8)

Revision Date: 20 FEB 2026

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

1.1 Product Identifiers

- Product Name: DL-Methionine
- Product Number: DLM-20260220
- Brand: SIGALD
- CAS-No.: 59-51-8
- Synonyms: DL-2-Amino-4-(methylthio)butanoic acid; DL-Methionin
- EINECS/EC-No.: 200-432-1

1.2 Details of the supplier of the safety data sheet

- 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: Feed additive (essential amino acid supplement for livestock/poultry/aquatic); food additive (nutrient supplement/flavor enhancer); pharmaceutical intermediate (amino acid preparations); industrial raw material (cosmetics, polymer synthesis); biochemical reagent.
- Uses Advised Against: Avoid large-dose inhalation of dust in unventilated areas; no other restricted uses for qualified grades.

SECTION 2: Hazards Identification

| Summary of Emergency Measures | White crystalline powder with a slight characteristic odor. Non-hazardous solid; mild respiratory irritation may occur if inhaled as high-concentration dust; no skin/eye irritation; non-combustible. After inhalation: Move to fresh air and rest. In case of skin contact: Rinse with water if needed. After eye contact: Rinse with plenty of water for 5 minutes if dust enters eyes. After swallowing: No special treatment for normal dosage; drink water if large amount is swallowed. No fire or explosion risk. | | --- |

2.1 GHS Classification

- Specific target organ toxicity - single exposure (respiratory tract irritation, Category 3, dust inhalation)

2.2 GHS Label Elements

- Hazard Pictogram: (Exclamation mark)
- Signal Word: **Warning**



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- Hazard Statements:

- H335: May cause respiratory irritation

- Precautionary Statements:

- P261: Avoid breathing dust

- P304+P340: If inhaled: Remove person to fresh air and keep comfortable for breathing

- P312: Call a POISON CENTER or doctor/physician if you feel unwell

2.3 Physical and Chemical Hazards Non-combustible solid; no flammable/explosive properties; stable under normal storage and use conditions; no hazardous decomposition at normal temperature; dust may form small clumps in high humidity (no safety risk).

2.4 Health Hazards

- Acute: High-concentration dust inhalation causes mild cough and throat irritation; no skin/eye irritation upon direct contact; accidental large-dose swallowing causes mild gastrointestinal discomfort (nausea) in rare cases.

- Chronic: Prolonged inhalation of low-concentration dust has no known persistent adverse effects; no carcinogenic, mutagenic or reproductive toxic effects; essential sulfur-containing amino acid for human/animal body, non-toxic at normal dosage.

2.5 Environmental Hazards Non-toxic to aquatic organisms (Zebrafish 96h LC₅₀ > 10000 mg/L); fully biodegradable in natural environment (BOD₅ /COD = 0.85); no bioaccumulation potential; can be directly discharged into water/soil in normal dosage without pollution, and can be used as a nutrient for microorganisms.

2.6 Other Hazards No additional hazards identified; compatible with most common raw materials under normal use conditions.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Pure Substance** | Component | CAS-No. | Formula | Concentration (w/w) | Classification | |---|---|---|---|---| | DL-Methionine | 59-51-8 | C₅ H₁₁NO₂S | ≥98.0% (Food/Feed/Pharm ≥99.0%) | H335 |

SECTION 4: First Aid Measures

4.1 Description of First-Aid Measures

- If Inhaled: Immediately move the victim to fresh, well-ventilated air. Loosen tight clothing to ensure unobstructed breathing. Let the victim rest in a comfortable position. No special treatment is needed if no discomfort; call a doctor if cough or chest tightness persists.

- In Case of Skin Contact: No special treatment required for normal contact; rinse skin with running water if contaminated with large amounts of dust and pat dry; no irritation or allergic reaction will occur.

- In Case of Eye Contact: Hold the eyelids open and rinse the eyes continuously with clean running water for at least 5 minutes if dust enters eyes. Do not rub the eyes. No further treatment needed if no discomfort; consult a doctor if slight redness persists.

- If Swallowed: Rinse the mouth with water if needed. Drink a small amount of water to dilute if large amount is accidentally swallowed. Do not induce vomiting. No special medical treatment required; consult a doctor only if gastrointestinal discomfort (nausea, abdominal distension) occurs.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

- Acute: Mild respiratory tract irritation (dust inhalation only); all symptoms are reversible with prompt ventilation and rest.
- Delayed: No known delayed toxic effects based on current scientific research and practical application data.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed No specific antidote available; treat symptomatically. Seek medical attention only for severe persistent respiratory irritation or rare severe gastrointestinal discomfort after large-dose swallowing.

SECTION 5: Firefighting Measures

5.1 Extinguishing Media

- Suitable: Water spray, carbon dioxide (CO₂), dry chemical powder, foam.
- Unsuitable: No limitations of extinguishing agents; all common fire-extinguishing media are applicable.

5.2 Special Hazards Arising from the Substance or Mixture Non-combustible solid; no hazardous combustion gases generated during high-temperature heating; decomposes to non-toxic gases (CO₂, N₂, SO₂, CH₄) at high temperature (>285°C); no fire or explosion risk during fire fighting.

5.3 Advice for Firefighters

- Wear standard fire-fighting protective gear (fire-resistant suit, goggles); self-contained breathing apparatus (SCBA) is recommended only if heavy dust is generated during high-temperature decomposition.
- Cool the surrounding containers with water spray if heating occurs; prevent dust from dispersing in large amounts during fire fighting.
- No special fire-fighting precautions needed; follow general fire safety procedures.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures Wear basic personal protective equipment (dust mask, nitrile rubber gloves, safety goggles) for large spills. Ensure good ventilation in the spill area; evacuate non-essential personnel if dust concentration is high. Avoid inhaling dust and direct eye contact with spilled powder.

6.2 Environmental Precautions No special environmental precautions; the product is non-toxic and biodegradable, no pollution risk if spilled into soil/water; can be cleaned directly without additional environmental protection measures.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Sweep the spilled powder with a clean brush into a sealed HDPE container for reuse or disposal; wipe the spill area with water and dry.
- Large Spill: Collect the spilled powder with a dust-free vacuum cleaner into sealed HDPE drums; clean the remaining powder with a damp cloth; the collected powder can be reused if not contaminated, no hazardous waste generated. 6.4 Reference to Other Sections For waste disposal, see Section 13; for personal protection, see Section 8.

SECTION 7: Handling and Storage

7.1 Precautions for Safe Handling Operate in a well-ventilated area with local dust extraction system for bulk handling. Wear specified PPE to avoid inhaling dust. Use closed transfer systems for large-scale processing to prevent dust dispersion. Avoid mixing with strong oxidizing agents at high temperature (>250°C). Wash hands with water after handling; no restrictions on eating/drinking in the workplace if hygiene is maintained.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a cool, dry, well-ventilated warehouse. Temperature $\leq 25^{\circ}\text{C}$, relative humidity $\leq 60\%$. Keep the container tightly sealed with a screw cap to prevent moisture absorption and caking; store in original HDPE or paper drums with inner plastic lining. Keep away from direct sunlight and high-temperature environments.
- Incompatibilities: Strong oxidizing agents (H_2O_2 , KMnO_4 , chlorine) at high temperature (>250°C).
- Storage Class (TRGS 510): 13 (Non-Hazardous Solids)
- Shelf Life: **36 months (unopened, under specified storage conditions)**
- Segregation: Store separately from strong oxidizing agents only; can be stored with other food/feed/pharmaceutical/industrial raw materials; mark clear grade labels (Industrial/Food/Feed/Pharm Grade) on the storage area and containers.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL) for DL-Methionine: TWA 10 mg/m³ (8-hour, ACGIH); STEL 20 mg/m³ (15-minute, ACGIH)
- Biological Limit Value (BLV): N/A

8.2 Exposure Controls

- Engineering Controls: Local dust extraction and collection system for bulk handling; regular ventilation (air exchange rate ≥ 8 times/hour); dust concentration detection alarm (set alarm limit at 10 mg/m³) for industrial production areas.
- Personal Protective Equipment (PPE) - **For bulk handling only:**
 - Eye/Face Protection: Chemical-resistant safety goggles to prevent dust from entering eyes.
 - Skin Protection: Nitrile rubber gloves (thickness ≥ 0.20 mm); no special protective clothing for routine handling.
 - Respiratory Protection: Dust mask (N95) for bulk handling; no respiratory protection needed for small-batch operation.

- o Other: No special PPE required; keep normal clean working environment.

SECTION 9: Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Propertiesa) Physical State: Crystalline powder/crystalsb) Color: White to off-whitec) Odor: Slight characteristic sulfur-containing odord) Melting Point/Freezing Point: 281-285°C (decomposes)e) Boiling Point: N/A (decomposes before boiling)f) Flammability (Solid): Non-combustibleg) Upper/Lower Flammability or Explosive Limits: Not applicableh) Flash Point: Not applicablei) Autoignition Temperature: >500°Cj) Decomposition Temperature: ≥285°C (decomposes to CO₂, N₂, SO₂, CH₄)k) pH Value: 5.5-6.5 (1% aqueous solution, 25°C)l) Viscosity: N/A (solid)m) Solubility: Soluble in water (3.3 g/100 mL at 25°C); soluble in dilute acid/alkali; slightly soluble in ethanol; insoluble in ether, acetone and benzenen) Partition Coefficient (log P, n-octanol/water): -1.83 (25°C)o) Vapor Pressure (25°C): <0.0001 kPa (extremely low volatility)p) Bulk Density: 1.30-1.35 g/cm³q) Relative Vapor Density (air=1): N/Ar) Dust Explosion Hazard: No (non-combustible)s) Explosive Properties: No explosive propertiest) Oxidizing Properties: None

9.2 Other Safety InformationHygroscopic in high-humidity environment (relative humidity >60%), easy to cake (no impact on quality and use); can be dissolved in water/dilute acid for reuse after caking; excellent thermal stability below 250°C; compatible with most food, feed, pharmaceutical and industrial raw materials under normal conditions.

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under the recommended storage and handling conditions (≤25°C, sealed, dry); no chemical changes under normal industrial processing conditions (≤250°C); stable in aqueous solution (pH 5.0-7.0) for a long time.10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal use and processing conditions; reacts with strong oxidizing agents only at high temperature (>250°C) to produce non-toxic gases; no hazardous polymerization occurs under any conditions.10.3 Conditions to Avoid: High temperature (>285°C, decomposition), high humidity (>60%, caking), direct sunlight (no degradation, only caking).10.4 Incompatible Materials: Strong oxidizing agents at high temperature (>250°C); no other incompatible materials under normal use conditions.10.5 Hazardous Decomposition Products: Carbon dioxide (CO₂), nitrogen (N₂), sulfur dioxide (SO₂), methane (CH₄) (high-temperature decomposition); no other hazardous decomposition products.

SECTION 11: Toxicological Information

11.1 Information on Toxicological Effects

- Acute Toxicity:
 - o Oral (Rat, LD₅₀): >10000 mg/kg (Non-toxic)
 - o Dermal (Rabbit, LD₅₀): >20000 mg/kg (Non-toxic)
 - o Inhalation (Rat, LC₅₀): >5000 mg/m³ (4-hour dust exposure) (Non-toxic)
- Skin Corrosion/Irritation: Rabbit 4-hour closed patch test - no irritation (Category 0).

- Serious Eye Damage/Irritation: Rabbit eye test - no irritation (Category 0); dust entering eyes causes slight physical discomfort only, no chemical irritation.
- Respiratory or Skin Sensitization: No sensitizing effects (human and animal tests).
- Germ Cell Mutagenicity: Ames test, chromosome aberration test - negative; no mutagenic effects.
- Carcinogenicity: IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans); no carcinogenic effects in long-term animal tests.
- Reproductive Toxicity: No adverse reproductive or developmental effects in animal tests; essential sulfur-containing amino acid for fetal and animal growth and development, non-teratogenic.
- Specific Target Organ Toxicity (Repeated Exposure): 90-day repeated inhalation test - no target organ damage even at high concentration; no chronic toxic effects.
- Aspiration Hazard: Extremely low (solid powder, low volatility).

SECTION 12: Ecological Information

12.1 Toxicity

- Fish (Zebrafish, 96h LC₅₀): >10000 mg/L
- Daphnia (48h EC₅₀): >10000 mg/L
- Freshwater Algae (72h EC₅₀): >10000 mg/L

12.2 Persistence and Degradability: Fully biodegradable (BOD₅/COD = 0.85); degraded by microbial action in natural environment within 2-4 days; no persistent environmental residues.

12.3 Bioaccumulative Potential: None (log P=-1.83, highly water-soluble); no biomagnification in the food chain.

12.4 Mobility in Soil: High mobility; soluble in soil water, non-toxic to soil microorganisms; can be absorbed by plants as a nitrogen and sulfur nutrient supplement.

12.5 PBT/vPvB Assessment: Not classified as PBT/vPvB substances (no persistence, no bioaccumulation, non-toxic to aquatic organisms).

12.6 Other Adverse Effects: No known adverse effects on aquatic/terrestrial ecosystems; appropriate dosage can promote the growth of beneficial microorganisms in soil and water.

SECTION 13: Disposal Considerations

13.1 Waste Treatment Methods

- Product Waste: Expired/contaminated DL-Methionine is **non-hazardous waste**; can be directly discharged into soil/water (biodegradable) or disposed of by ordinary waste treatment facilities; food/feed/pharm grade waste can be used as feed additive if not contaminated.
- Packaging Waste: Rinse packaging with water (collect rinsing water for normal discharge); dispose of as non-hazardous solid waste or recycle HDPE/paper packaging; no hazardous packaging waste generated.
- Spill Waste: Collected spilled powder is non-hazardous; can be reused if not contaminated, or disposed of as ordinary waste.
- Disposal Compliance: Comply with China General Solid Waste Pollution Control Law, EU Waste Framework Directive, US RCRA Non-Hazardous Waste Regulations.



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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 goods14.3 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: No14.6 Special Precautions for TransportTransport in sealed HDPE paper drums or plastic bags with inner lining; prevent moisture absorption and caking during transport. Avoid direct sunlight, high temperature (>30°C) and heavy rain; the transport vehicle can be ordinary cargo vehicle with dry carriage. Do not transport with strong oxidizing agents in large quantities; no other special transport precautions needed; comply with general cargo transport regulations.

SECTION 15: Regulatory Information

15.1 National/International Regulations

- China: National Food Safety Standard (GB 2760-2021, approved as food additive); Feed Additive Standard (NY/T 391); Pharmaceutical Raw Material Standard (Chinese Pharmacopoeia 2020); Hazardous Chemicals Safety Management Regulation (Non-hazardous classification).
- EU: REACH (Annex XVII compliant, not in SVHC Candidate List); CLP (GHS Classification - Warning only for dust inhalation); Food Additive Regulation (EC 1333/2008, approved); European Pharmacopoeia (EP) compliant; Feed Additive Regulation (EC 1831/2003).
- US: TSCA (listed on the TSCA Inventory); FDA GRAS (Generally Recognized As Safe) for food/feed use; United States Pharmacopeia (USP) compliant; OSHA Hazard Communication Standard (29 CFR 1910.1200).
- International: ISO 9001 (Quality); ISO 14001 (Environment); FAO/WHO Food/Feed Additive Standards; Codex Alimentarius Commission Standards.

15.2 Additional Regulatory RequirementsProvide English MSDS/COA for customs clearance; mark **INDUSTRIAL GRADE/FOOD GRADE/FEED GRADE/PHARM GRADE, NON-HAZARDOUS GOODS, KEEP DRY** on all product documents and packaging; comply with food/feed/pharmaceutical additive dosage limits (GB 2760, EU 1333/2008, FDA); label industrial grade products with dust inhalation warning only.

SECTION 16: Other Information

- Further Information: This MSDS complies with GB/T 16483, GB/T 17519 and GHS Rev.9 standards, and is for professional use only by trained personnel (production, storage, transport and disposal). Key characteristic: **DL-Methionine (≥98.0%) white crystalline powder, non-hazardous solid, mild respiratory irritation from dust inhalation only, slight characteristic odor, soluble in water, for feed additive, food additive, pharmaceutical intermediate and industrial raw material use.**
- Revision Date: 20 FEB 2026