Safety Data Sheet (MSDS)

According to GB/T 16483 and GB/T 17519; Adapts to GHS, IMDG, IATA Standards

Product Name: Copper Peptide (GHK-Cu)**CAS-No.**: 49557-75-7**Product Number**: CP-20260220**Brand**: SIGALD**Revision Date**: 20 FEB 2026

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

1.1 **Product Identifiers**

- Synonyms: GHK-Cu; Glycyl-L-histidyl-L-lysine Copper; Copper Tripeptide-1
- 1.2 **Supplier Details**
- 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**: +86-021-50350029 (CHEMTREC)
- 1.4 **Identified Uses & Uses Advised Against**
- Identified Uses: Cosmetic raw material (anti-aging, skin repair); biomedical research reagent; cell culture supplement; industrial biocatalyst.
- Uses Advised Against: Not for direct oral consumption; no unapproved pharmaceutical injection; avoid use in copper-allergic individuals.

SECTION 2: Hazards Identification

2.1 **GHS Classification**: Eye irritation, Category 2 (H319); Skin sensitization, Category 1 (H317)2.2 **GHS Label Elements**

- Hazard Pictogram: (Warning)
- Signal Word: **Warning**
- Hazard Statements: H317 - May cause an allergic skin reaction; H319 - Causes serious eye irritation
- Precautionary Statements: P261, P280, P305+P351+P338, P333+P3132.3 **Physical and Chemical Hazards**: No physical/chemical hazards; non-combustible; slightly hygroscopic2.4 **Health Hazards**: May cause allergic skin reactions in copper-sensitive individuals; causes serious eye irritation; low systemic toxicity via oral/dermal exposure; no acute toxic effects.2.5 **Environmental Hazards**: Low toxicity to aquatic organisms; fully biodegradable via enzymatic hydrolysis; no environmental pollution risk.2.6 **Other Hazards**: Slight hygroscopy (degrades on moisture absorption); no additional hazards identified.

SECTION 3: Composition/Information on Ingredients

- **Substance / Mixture**: Pure peptide-copper complex
- **Active Component**: Copper Peptide (GHK-Cu) (CAS:49557-75-7) | Concentration: ≥98.0% | Classification: Eye irritation Cat.2; Skin sensitization Cat.1

SECTION 4: First Aid Measures

4.1 **First-Aid Measures**

- Inhaled: Move to fresh air; rest in comfortable breathing position; consult a doctor if cough/irritation persists.
- Skin Contact: Rinse skin with running water and mild soap for 10 mins; remove contaminated clothing; consult a doctor if redness/itching occurs.
- Eye Contact: Rinse eyes thoroughly with sterile water for 15-20 mins (hold eyelids open); remove contact lenses; **immediately consult an ophthalmologist**.
- Swallowed: Rinse mouth with water; do not induce vomiting; consult a doctor if gastrointestinal discomfort occurs (no severe toxic effects expected).4.2 **Symptoms**: Eye burning/tearing/blurred vision; skin redness/urticaria (allergic reaction); mild cough (inhalation); no systemic toxic symptoms.4.3 **Medical Attention**: Symptomatic treatment; antihistamines for allergic reactions; ophthalmic care for eye irritation; no specific antidote.4.4 **Notes to Physician**: Inform of product composition (copper peptide complex) and exposure route/amount; assess for copper/peptide allergy.

SECTION 5: Firefighting Measures

5.1 **Extinguishing Media**: Water spray, foam, CO_2, dry powder (all suitable)5.2 **Special Hazards**: Non-combustible; decomposes at >200℃ into non-toxic amino acids and copper oxide; no toxic combustion/decomposition fumes generated.5.3 **Firefighter Advice**: Wear standard fire-fighting gear; cool containers with water spray to prevent moisture absorption/peptide degradation; no toxic fume inhalation risk.

SECTION 6: Accidental Release Measures

6.1 **Personal Precautions**: Wear N95 dust mask, chemical safety goggles, nitrile gloves and clean lab coat; operate in well-ventilated area.6.2 **Environmental Precautions**: No special measures needed; spilled powder is biodegradable by soil/water microorganisms; avoid direct discharge into large water bodies (trace copper content).6.3 **Clean Up Methods**

- Small Spill: Sweep up with dry clean spatula; transfer to sealed moisture-proof container for reprocessing/disposal.
- Large Spill: Contain with anhydrous inert material (anhydrous silica gel); collect into sealed container; rinse the area with a small amount of water (collect rinse for biological treatment).6.4 **Reference**: See Section 13 for disposal details.

SECTION 7: Handling and Storage

7.1 **Safe Handling**

- Operate in well-ventilated area; avoid dust generation/inhalation and skin/eye contact.
- Do not eat/drink/smoke in the work area; wash hands thoroughly with water after handling; identify copper-allergic personnel before operation.7.2 **Safe Storage**
- Storage Conditions: **2-8℃ (refrigerated)**, dry, dark, sealed; store in original packaging; avoid temperature fluctuation.
- Incompatibilities: Water/moisture, strong acids/bases, oxidizing agents, chelating agents (EDTA), proteolytic enzymes.

- Storage Class (TRGS 510): 10 (Non-combustible Solids)
- Shelf Life: 24 months (unopened, 2-8℃ storage); 1 month (4℃ refrigerated, after opening)
- Storage Segregation: Store separately from food/feed, cosmetics (other raw materials), strong acids/bases; store in dedicated peptide storage area.

SECTION 8: Exposure Controls/Personal Protection

8.1 **Control Parameters**

- Occupational Exposure Limit (OEL): No official national limit; recommended TWA: 0.5 mg/m³ (inhalable dust)8.2 **Exposure Controls**
- Engineering Controls: Local exhaust ventilation (LEV) for dust-generating operations; general room ventilation.
- Personal Protective Equipment (PPE)
  - Eye/Face: Chemical safety goggles (mandatory)
  - Skin: Powder-free nitrile rubber gloves (≥0.18mm); disposable clean lab coat
  - Respiratory: N95/P95 dust mask for routine handling; PAPR for large-scale powder handling
  - Hand: Powder-free nitrile gloves (no latex)
- Hygiene: Change contaminated lab coat immediately; wash hands with water after handling; no direct skin contact with dry powder.

SECTION 9: Physical and Chemical Properties

- Physical State: Lyophilized powder
- Color: White to pale blue
- Odor: Odorless
- Melting Point: Decomposes (>200℃)
- Boiling Point: N/A (decomposes before boiling)
- Flammability: Non-combustible
- Flash Point: N/A
- Autoignition Temperature: >300℃
- Solubility: Soluble in water, dilute phosphate buffer; insoluble in organic solvents (ethanol/ether/hexane)
- Density (25℃): 1.42 g/cm³
- Particle Size: 200-300 mesh (industrial/cosmetic grade)
- Explosive Properties: Non-explosive
- Oxidizing Properties: None
- pH Value: 5.0-7.0 (1mg/mL aqueous solution, 25℃)
- Hygroscopy: Slight (absorbs moisture at RH >60%)
- Vapor Pressure (25℃): < 0.1 hPa

SECTION 10: Stability and Reactivity

10.1 **Chemical Stability**: Stable at 2-8℃ sealed storage; stable for 1 month at 4℃ (after opening); degrades at high temperature (>40℃) or high humidity.10.2 **Hazardous Reactions**:

No hazardous reactions; hydrolyzes in strong acids/bases to amino acids and copper ions; degrades via enzymatic breakdown/chelation.10.3 **Conditions to Avoid**: High temperature (>40℃), direct sunlight, moisture (RH >60%), strong acids/bases, oxidizing agents, chelating agents.10.4 **Incompatible Materials**: Concentrated HCl/H_2SO_4, NaOH/KOH, hydrogen peroxide, EDTA, trypsin/pepsin, citric acid.10.5 **Decomposition Products**: Non-toxic amino acids, copper oxide; no hazardous decomposition products.

SECTION 11: Toxicological Information

11.1 **Toxicological Effects**

- Acute Toxicity: Oral (Rat, LD_{50}) >5000 mg/kg; Dermal (Rabbit, LD_{50}) >5000 mg/kg; Inhalation (Rat, LC_{50}) >1 mg/m³ (4h)
- Skin Irritation/Corrosion: No irritation (Rabbit, 24h exposure); may cause allergic sensitization in copper-sensitive individuals.
- Eye Irritation/Damage: Moderate to severe irritation (Rabbit, 24h exposure); reversible with treatment.
- Skin Sensitization: Positive (copper-allergic population); no peptide-related sensitization.
- Mutagenicity: No mutagenic effects (Ames test, chromosome aberration test).
- Carcinogenicity: Not classified as carcinogenic by IARC/EPA/NTP.
- Reproductive Toxicity: No adverse reproductive effects at normal use levels; avoid high-dose exposure during pregnancy/lactation.
- Target Organ Toxicity: Eyes, skin (direct contact); no chronic target organ toxicity.

SECTION 12: Ecological Information

12.1 **Toxicity**: Fish (Zebrafish, LC_{50}) = 200 mg/L (96h); Daphnia (EC_{50}) = 150 mg/L (48h); Algae (EC_{50}) = 250 mg/L (72h); low toxicity to aquatic life.12.2 **Persistence and Degradability**: Fully biodegradable (90%+ degradation in 7 days) by aquatic/soil microorganisms; copper ions are biogenic and non-accumulative.12.3 **Bioaccumulative Potential**: Low (log Koc = 1.5); no significant bioaccumulation in food chains.12.4 **Mobility in Soil**: Moderate mobility (soluble in soil water); copper ions bind to soil organic matter; no leaching risk.12.5 **PBT/vPvB**: Not classified as PBT/vPvB; non-persistent, low bioaccumulation, low toxicity.12.6 **Other Effects**: No adverse ecological impacts; copper ions act as essential micronutrient for microorganisms/plants.

SECTION 13: Disposal Considerations

13.1 **Waste Treatment**: Cosmetic/industrial grade waste: dilute 1:100 with water and discharge to biological wastewater treatment system; Research grade waste: incinerate at >800℃ via licensed facilities.13.2 **Packaging Waste**: Rinse with water/anhydrous ethanol; dry thoroughly; dispose as non-hazardous plastic/glass waste; recycle dedicated peptide packaging.

SECTION 14: Transport Information

14.1 **UN Number**: ADR/RID/IMDG/IATA: -14.2 **UN Proper Shipping Name**: Non-hazardous goods14.3 **Transport Hazard Class**: -14.4 **Packaging Group**: -14.5 **Environmental Hazards**: IMDG:

Marine pollutant (No)14.6 **Special Precautions**: **Refrigerated transport (2-8℃)**; sealed packaging with moisture-proof liner; avoid temperature fluctuation, collision, moisture; mark **"Keep Refrigerated"**; no transport with food/feed/strong acids/bases.14.7 **Incompatible Materials**: Avoid transport with chelating agents, strong acids/bases, oxidizing agents.

SECTION 15: Regulatory Information

15.1 **National & International Regulations**

- China: Cosmetic Raw Material Standard Compliant; Hazardous Chemical Safety Management Regulation (Non-hazardous); Environmental Protection Law.
- International: GHS (Rev.9) Cat.2 Eye irritation; REACH (EU) Registered; TSCA (US) Listed; FDA compliant for cosmetic use.15.2 **Other**: Comply with local cosmetic raw material import/export and refrigerated transport regulations; mark for copper allergy risk.

SECTION 16: Other Information

- This MSDS is based on current scientific research and complies with GB/T 16483, GB/T 17519 and GHS international standards.
- Supplier is not liable for damage caused by improper use, non-refrigerated storage/transport or non-compliance with safety precautions.
- Cosmetic/industrial grade Copper Peptide meets global raw material standards; for formulated products only (non-direct use).
- For further technical/safety information, contact the supplier's peptide R&D/EHS department.