Safety Data Sheet (MSDS)

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

Product Name: Piperaquine Phosphate**CAS-No.**: 85547-56-4**Product Number**: PIP-20260226**Brand**: SIGALD**Revision Date**: 26 FEB 2026

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

1.1 Product Identifiers

- Synonyms: 1,3-Bis[4-(7-chloroquinolin-4-yl)piperazin-1-yl]propane tetraphosphate; Piperaquine tetraphosphate1.2 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
- Emergency Phone #: +86-021-50350029 (CHEMTREC)
- 1.4 Identified Uses & Uses Advised Against
- Identified Uses: Pharmaceutical raw material (anti-malarial); core ingredient of artemisinin-based combination therapies (ACTs); biomedical research reagent; veterinary anti-parasitic drug synthesis.
- Uses Advised Against: Not for direct oral/parenteral use (unformulated); no unapproved industrial/cosmetic/food use.

SECTION 2: Hazards Identification

2.1 GHS Classification: Acute oral toxicity, Category 4 (H302); Eye irritation, Category 2 (H319); Skin irritation, Category 2 (H315); Specific target organ toxicity (single exposure), Category 3 (Gastrointestinal tract) (H335)2.2 GHS Label Elements

- Hazard Pictogram: (Warning)
- Signal Word: **Warning**
- Hazard Statements: H302 - Harmful if swallowed; H315 - Causes skin irritation; H319 - Causes serious eye irritation; H335 - May cause respiratory irritation
- Precautionary Statements: P264, P270, P280, P305+P351+P338, P312, P332+P3132.3 Physical and Chemical Hazards: No physical/chemical hazards; non-combustible2.4 Health Hazards: Harmful if swallowed; causes skin/serious eye irritation; may cause respiratory and gastrointestinal irritation upon high exposure; mild nausea/diarrhea upon accidental ingestion.2.5 Environmental Hazards: Slightly toxic to aquatic organisms; fully biodegradable in natural environment; avoid direct release to water bodies.2.6 Other Hazards: No additional hazards identified.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: Pure substance

- Active Component: Piperaquine Phosphate (CAS:85547-56-4) | Concentration: ≥98.0% | Classification: Acute oral toxicity Cat.4; Skin/Eye irritation Cat.2

SECTION 4: First Aid Measures

4.1 First-Aid Measures

- Inhaled: Move to fresh air; rest in a comfortable breathing position; consult a doctor if coughing/chest discomfort persists.
- Skin Contact: Rinse skin with running water and mild soap for 10-15 mins; remove contaminated clothing; wash clothing before reuse; consult a doctor if redness/blistering occurs.
- Eye Contact: Rinse eyes thoroughly with running water for 15-20 mins (hold eyelids open); remove contact lenses; **immediately consult a doctor**.
- Swallowed: Rinse mouth with water; **do not induce vomiting**; immediately call a poison control center or consult a doctor.4.2 Symptoms: Nausea/vomiting/abdominal pain (ingestion); skin redness/itching; eye burning/tearing/blurred vision; mild respiratory irritation at high exposure.4.3 Medical Attention: Symptomatic treatment; no specific antidote; gastric lavage under medical supervision if large amount is ingested; monitor gastrointestinal function.4.4 Notes to Physician: Inform of product composition and exposure/ingestion amount; provide supportive care for gastrointestinal irritation.

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 >240℃ to release toxic nitrogen oxides, hydrogen chloride and phosphoric acid fumes.5.3 Firefighter Advice: Wear self-contained breathing apparatus (SCBA) and full fire-fighting gear; avoid inhalation of decomposition fumes; cool containers with water spray to prevent decomposition.

SECTION 6: Accidental Release Measures

6.1 Personal Precautions: Wear N95 dust mask, chemical safety goggles, nitrile gloves and impermeable protective clothing; ensure good ventilation.6.2 Environmental Precautions: Prevent spillage from entering drains, sewers, rivers or other water bodies; contain spilled material to avoid soil contamination.6.3 Clean Up Methods

- Small Spill: Sweep up with a dry clean spatula; transfer to a sealed plastic container for disposal; wipe the area with damp cloth (avoid dust).
- Large Spill: Contain with inert material (sand/vermiculite); collect into sealed drum; rinse the area with small amount of water (collect rinse water for disposal).6.4 Reference: See Section 13 for disposal.

SECTION 7: Handling and Storage

7.1 Safe Handling

- Operate in a well-ventilated fume hood/area; avoid dust generation/inhalation (fine powder may be airborne).

- Do not eat/drink/smoke in the work area; wash hands thoroughly with soap and water after handling.
- Avoid contact with eyes, skin and mucous membranes; wear full PPE during handling.7.2 Safe Storage
- Storage Conditions: Cool, dry, dark warehouse; ≤25℃, relative humidity ≤60%; airtight sealed container.
- Incompatibilities: Strong bases, strong oxidizing agents, alkaline carbonates, heavy metal salts.
- Storage Class (TRGS 510): 10 (Toxic Solids, Non-combustible)
- Shelf Life: 24 months (unopened, under specified conditions)
- Storage Segregation: Store separately from food, feed, cosmetic raw materials and strong alkaline substances.

SECTION 8: Exposure Controls/Personal Protection

8.1 Control Parameters

- Occupational Exposure Limit (OEL): No official national limit; recommended TWA: 1.0 mg/m³ (inhalable dust)8.2 Exposure Controls
- Engineering Controls: Local exhaust ventilation (LEV) for dust-generating operations; dust collection system.
- Personal Protective Equipment (PPE)
  - Eye/Face: Chemical safety goggles (mandatory)
  - Skin: Nitrile rubber gloves (≥0.18mm); impermeable protective clothing
  - Respiratory: N95/P95 dust mask for routine handling; powered air-purifying respirator (PAPR) for large-scale operations
  - Hand: Nitrile gloves (no latex)
- Hygiene: Change contaminated clothing immediately; shower after handling; avoid touching eyes/face before hand washing.

SECTION 9: Physical and Chemical Properties

- Physical State: Crystalline powder
- Color: White to pale yellow
- Odor: Almost odorless
- Melting Point: 235-240℃ (decomposition)
- Boiling Point: N/A (decomposes before boiling)
- Flammability: Non-combustible
- Flash Point: N/A
- Autoignition Temperature: >350℃
- Solubility: Freely soluble in water; slightly soluble in ethanol; insoluble in chloroform/ether/benzene
- Density (25℃): 1.56 g/cm³
- Particle Size: 100-200 mesh (pharmaceutical grade, customizable)

- Explosive Properties: Non-explosive
- Oxidizing Properties: None
- pH Value: 3.5-4.5 (1% aqueous solution, 25℃)
- Viscosity: N/A (solid)
- Light Sensitivity: Stable in dark; slight degradation under strong UV light

SECTION 10: Stability and Reactivity

10.1 Chemical Stability: Stable under recommended storage conditions (≤25℃, dry, sealed).10.2 Hazardous Reactions: No hazardous reactions under normal use/handling; reacts with strong bases to form insoluble piperaquine base.10.3 Conditions to Avoid: High temperature (>240℃), direct UV light, high humidity, contact with strong bases/oxidizers.10.4 Incompatible Materials: Sodium hydroxide, potassium hydroxide, hydrogen peroxide, potassium permanganate, sodium carbonate.10.5 Decomposition Products: Nitrogen oxides (NO_x), hydrogen chloride (HCl), phosphoric acid fumes, carbon monoxide (CO), aromatic compounds.

SECTION 11: Toxicological Information

11.1 Toxicological Effects

- Acute Toxicity: Oral (Rat, LD_{50}) = 350 mg/kg; Dermal (Rabbit, LD_{50}) >2000 mg/kg; Inhalation (Rat, LC_{50}) >6 mg/m³ (4h)
- Skin Irritation: Moderate irritation (Rabbit, 4h exposure); redness/edema (reversible).
- Eye Irritation: Severe irritation (Rabbit, 24h exposure); corneal edema (reversible with treatment).
- Sensitization: No skin/respiratory sensitization (human/animal tests).
- Mutagenicity: No mutagenic effects (Ames test/in vitro cell tests).
- Carcinogenicity: Not classified by IARC/EPA/NTP.
- Reproductive Toxicity: No adverse reproductive/teratogenic effects at therapeutic dosages (animal/human tests).
- Target Organ Toxicity: Eyes, skin, gastrointestinal tract; no chronic target organ toxicity at therapeutic dosages.

SECTION 12: Ecological Information

12.1 Toxicity: Fish (Zebrafish, LC_{50}) = 160 mg/L (96h); Daphnia (EC_{50}) = 130 mg/L (48h); Algae (EC_{50}) = 190 mg/L (72h)12.2 Persistence and Degradability: Fully biodegradable (BOD_5/COD = 0.65) in aquatic environments; degradation half-life = 10-20 days.12.3 Bioaccumulative Potential: Low (log Kow = 2.5); no biomagnification in aquatic food chains.12.4 Mobility in Soil: Moderate mobility; soluble in soil water; binds to soil organic matter (slight leaching to groundwater).12.5 PBT/vPvB: Not classified as PBT/vPvB.12.6 Other Effects: Slightly toxic to aquatic invertebrates at high concentrations; no adverse effects on soil microorganisms.

SECTION 13: Disposal Considerations

13.1 Waste Treatment: Dispose via licensed hazardous chemical waste treatment facilities; incinerate at high temperature (>800℃) with gas scrubbing to remove toxic fumes; **do not dispose of with ordinary waste**.13.2 Packaging Waste: Rinse packaging with water then dilute acid; dispose as hazardous plastic/metal waste; do not recycle with food/cosmetic packaging.

SECTION 14: Transport Information

14.1 UN Number: ADR/RID/IMDG/IATA: 281114.2 UN Proper Shipping Name: Toxic solids, organic, n.o.s. (Piperaquine Phosphate)14.3 Transport Hazard Class: 6.1 (Toxic substances)14.4 Packaging Group: III14.5 Environmental Hazards: IMDG: Marine pollutant (No)14.6 Special Precautions: Transport at ≤25℃; avoid direct sunlight, moisture, collision and breakage of containers; store separately from food/feed/strong bases.14.7 Incompatible Materials: Avoid transport with strong alkaline substances, oxidizing agents and food/feed raw materials.

SECTION 15: Regulatory Information

15.1 National & International Regulations

- China: Chinese Pharmacopoeia (CP) compliant; Hazardous Chemical Safety Management Regulation (Class 6.1 toxic substance); Pharmaceutical Raw Material Management Regulation; listed in national essential medicine list.
- International: GHS (Rev.9) Cat.4 Acute oral toxicity; REACH (EU) - Registered; TSCA (US) - Listed on Inventory; USP/EP/BP compliant (pharmaceutical grade); WHO essential medicine list (for ACTs).15.2 Other: Comply with local pharmaceutical import/export, hazardous chemical transport and environmental protection regulations; record sales/purchase for anti-malarial drug management.

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, storage or non-compliance with safety precautions.
- Pharmaceutical grade Piperaquine Phosphate meets CP/USP/EP/WHO quality standards; use only for formulated pharmaceutical/veterinary products (especially artemisinin-based combination therapies).
- For further technical/safety information, contact the supplier's R&D/EHS department.