Safety Data Sheet (MSDS)

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

Lotilaner

SECTION 1: Identification of the Substance/Mixture and of the Company/Undertaking1.1 Product Identifiers

- Product Name: Lotilaner
- Product Number: LOT-20260220
- Brand: SIGALD
- CAS-No.: 874082-80-5
- Synonyms: 3-[(5S)-5-(3,5-Dichlorophenyl)-4,5-dihydro-1,2,4-oxadiazol-3-yl]-N-[2,6-dichloro-4-(trifluoromethyl)phenyl]-1-methyl-1H-pyrazole-5-carboxamide; Isoxazoline acaricide/insecticide

1.2 Details of the supplier of the safety data sheet

- Company: NEWAY SINOPHC TECH. LIMITED
- 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: Veterinary pharmaceutical raw material for acaricidal/insecticidal formulations; treatment of flea and tick infestations in cats and dogs; veterinary R&D reference reagent for parasitology research.
- Uses Advised Against: Not for human use; no agricultural crop application; avoid use in food/feed processing; do not use in unformulated veterinary clinical preparations.

SECTION 2: Hazards Identification | Summary of Emergency Measures | White crystalline powder. Harmful if swallowed or absorbed through skin. Causes serious eye irritation and mild skin irritation. Very toxic to aquatic life with long-lasting effects. After inhalation: Move to fresh air and rest, seek medical advice if cough persists. In case of skin contact: Remove contaminated clothing, rinse with plenty of water and soap for 10 minutes. After eye contact: Rinse with plenty of water for 15 minutes and call a doctor immediately. After swallowing: Rinse mouth, do not induce vomiting, seek medical attention at once. Non-combustible. No explosion risk. | |---|

2.1 GHS Classification

- Acute toxicity, oral (Category 4); Acute toxicity, dermal (Category 4); Skin irritation (Category 2); Serious eye irritation (Category 2A); Aquatic acute toxicity (Category 1); Aquatic chronic toxicity (Category 1)

2.2 GHS Label Elements

- Hazard Pictogram: ,
- Signal Word: **Warning**
- Hazard Statements:
  - H302: Harmful if swallowed
  - H312: Harmful in contact with skin
  - H315: Causes skin irritation
  - H319: Causes serious eye irritation
  - H410: Very toxic to aquatic life with long-lasting effects
- Precautionary Statements:
  - P264: Wash skin thoroughly after handling
  - P270: Do not eat, drink or smoke when using this product
  - P273: Avoid release to the environment
  - P280: Wear protective gloves/eye protection/face protection
  - P301+P312: If swallowed: Call a POISON CENTER or doctor/physician if you feel unwell
  - P302+P352: If on skin: Wash with plenty of water and soap
  - P305+P351+P338+P312: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician if you feel unwell
  - P405: Store locked up
  - P501: Dispose of contents/container to an approved waste disposal plant

2.3 Physical and Chemical HazardsNon-combustible; no explosive or oxidizing properties under normal storage and handling conditions. No hazardous polymerization will occur.

2.4 Health HazardsAcute: Swallowing/skin absorption causes dizziness, nausea, abdominal discomfort; skin contact leads to redness and itching; eye contact causes severe conjunctival redness and corneal irritation; dust inhalation causes cough and nasal irritation. Chronic: Prolonged exposure may cause mild hepatic and renal dysfunction, reversible with standard protective measures.

2.5 Environmental HazardsVery toxic to aquatic organisms; long-lasting chronic toxicity to aquatic life; has bioaccumulative potential in aquatic food chains; no adverse effects on terrestrial plants and animals at recommended use concentrations.

2.6 Other HazardsNo additional hazards identified based on current scientific data.

SECTION 3: Composition/Information on Ingredients

- Substance / Mixture: **Pure Substance**

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3.1 Main Components Lotilaner (100%)

Formula	$C_{27}H_{22}ClF_7N_4O_2S$
Molecular Weight	645.00 g/mol
CAS-No.:	874082-80-5

3.1 Main Components Lotilaner (100%)

EC-No.: 632-888-5

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Component	Classification	Concentration (w/w)
Lotilaner	GHS Category 4/4/2/2A/1/1	100%

SECTION 4: First Aid Measures4.1 Description of First-Aid Measures

- If Inhaled: Move victim to fresh air immediately, keep in a comfortable breathing position. Call a doctor if cough or chest tightness persists.
- In Case of Skin Contact: Remove all contaminated clothing and shoes, rinse skin with plenty of running water and mild soap for at least 10 minutes. Seek medical advice if irritation persists.
- In Case of Eye Contact: **Immediate medical attention required**. Hold eyelids open and rinse thoroughly with running water for at least 15 minutes. Remove contact lenses if present. Do not rub eyes.
- If Swallowed: Rinse mouth with water. Do not induce vomiting unless directed by a doctor. Call a POISON CENTER or doctor immediately for emergency treatment.

4.2 Most Important Symptoms and EffectsAcute: Dizziness, nausea, abdominal pain (swallowed/skin absorption); skin erythema, pruritus (contact); severe eye irritation, blurred vision (contact); cough, nasal irritation (inhalation). Delayed: Mild hepatic/renal dysfunction may occur 24-48 hours after excessive exposure.

4.3 Indication of Immediate Medical AttentionSevere swallowing/skin absorption exposure, severe eye contact, prolonged respiratory irritation, and any hepatic/renal discomfort require immediate professional medical attention.

SECTION 5: Firefighting Measures5.1 Extinguishing MediaSuitable: Water spray, foam, carbon dioxide (CO_2), dry chemical powder. Unsuitable: No limitations of extinguishing agents.

5.2 Special Hazards Arising from the SubstanceNon-combustible; slight decomposition at high temperature (>380℃) produces low-toxic halogen-containing, nitrogen-containing and sulfur-containing fumes; no toxic/explosive gases released under normal fire conditions.

5.3 Advice for FirefightersWear self-contained breathing apparatus (SCBA) and full chemical-resistant fire-fighting gear if decomposition fumes occur. Prevent fire-extinguishing water from entering water bodies to avoid aquatic contamination. Monitor hepatic/renal function of firefighters after exposure to decomposition fumes.

SECTION 6: Accidental Release Measures6.1 Personal PrecautionsWear N95 dust mask, chemical-resistant nitrile gloves, safety goggles and impermeable lab coat. Ensure good ventilation and evacuate non-essential personnel from the spill site. Avoid inhaling dust and skin contact.

6.2 Environmental PrecautionsStrictly prevent spilled powder from entering sewers, rivers, lakes, soil or drainage systems. Cover the spill with inert material (sand/vermiculite) to avoid dust spreading and aquatic contamination.

6.3 Methods and Materials for Containment and Cleaning Up

- Small Spill: Gently sweep up with a clean dry brush, collect into a sealed HDPE plastic container for professional hazardous waste disposal. Do not blow or vacuum the powder.
- Large Spill: Contain with sandbags/dikes, transfer to a sealed HDPE drum with hazard labels, and hand over to a licensed hazardous waste treatment company. Do not wash the spill into drains.

6.4 Reference to Other SectionsFor waste disposal, see Section 13.

SECTION 7: Handling and Storage7.1 Precautions for Safe HandlingOperate in a well-ventilated dust-free negative pressure fume hood; avoid generating dust during weighing and mixing. Wear specified PPE; no eating, drinking or smoking in the work area. Wash hands and exposed skin thoroughly after handling. Avoid contact with strong acids, strong bases and oxidizing agents. Collect all waste for professional disposal, no discharge to the environment.

7.2 Conditions for Safe Storage

- Storage Conditions: Store in a cool, dry, dark and locked veterinary pharmaceutical warehouse (≤25℃, relative humidity ≤60%). Keep container tightly sealed with aluminum foil to prevent hygroscopy, light degradation and contamination.
- Incompatibilities: Strong acids, strong bases, oxidizing agents, heavy metal salts.
- Storage Class (TRGS 510): 6 (Toxic Solids with Irritant Properties) + 9 (Environmental Hazard Solids)
- Shelf Life: 36 months (unopened, under specified storage conditions).
- Segregation: Store separately from food, feed, cosmetics, aquatic products and other veterinary raw materials; place in a dedicated toxic and environmental hazard storage area with double warning signs.

SECTION 8: Exposure Controls/Personal Protection8.1 Control ParametersNo official national/international OEL; internal strict control limit: 0.01 mg/m³ (8-hour TWA, dust) due to toxic/irritant/environmental effects. Biological Limit Value (BLV): N/A.

8.2 Exposure Controls

- Engineering Controls: Local exhaust ventilation (LEV) with HEPA filter for dust-generating operations; closed operation to prevent environmental release.
- Personal Protective Equipment (PPE):
  - Eye/Face Protection: Chemical-resistant safety goggles (mandatory); full face shield for large-scale handling.
  - Skin Protection: Nitrile rubber gloves (thickness ≥0.20 mm), impermeable lab coat, protective shoe covers.
  - Respiratory Protection: N95 dust mask for routine use; powered air-purifying respirator (PAPR) for large-scale operations.

SECTION 9: Physical and Chemical Properties9.1 Information on Basic Physical and Chemical Propertiesa) Physical State: Solid (crystalline powder)b) Color: White to off-whitec) Odor: Practically odorlessd) Melting Point/Freezing Point: 158-163℃e) Boiling Point: Not applicable (decomposes before boiling)f) Flammability: Non-combustibleg) Flammability Limits: Not applicableh) Flash Point: Not applicablei) Autoignition Temperature: >500℃j) Decomposition Temperature: ≥380℃k) pH Value: 6.5-7.8 (1% suspension in DMSO/water, 25℃)l) Viscosity: Not applicable (solid)m) Solubility: Freely soluble in DMSO, acetone; slightly soluble in ethanol, methanol; insoluble in watern) Partition Coefficient (log P): 8.0 (25℃)o) Vapor Pressure (25℃): <0.00001 hPap) Density (25℃): 1.55-1.59 g/cm³ (bulk density)q) Particle Size: 95% passing 100 meshr) Explosive Properties: Not explosives) Oxidizing Properties: Nonet) Hygroscopy: Slightly hygroscopic, sensitive to light

SECTION 10: Stability and Reactivity10.1 Chemical Stability: Stable under recommended storage conditions (≤25℃, dry, dark, sealed); stable under standard veterinary pharmaceutical processing temperature (≤60℃).10.2 Possibility of Hazardous Reactions: No hazardous reactions under normal use and processing conditions; stable in neutral/weakly acidic environment, mild decomposition in strong alkaline environment.10.3 Conditions to Avoid: High temperature (>380℃), direct sunlight, high humidity, contact with incompatible materials, aquatic environment contact.10.4 Incompatible Materials: Strong acids, strong bases, oxidizing agents, heavy metal salts, large amounts of water.10.5 Hazardous Decomposition Products: Carbon dioxide, water vapor, low-toxic halogen-containing, nitrogen-containing and sulfur-containing fumes (at high temperature).

SECTION 11: Toxicological Information11.1 Information on Toxicological Effects

- Acute Toxicity: Oral (Rat, LD_{50}): 300 mg/kg; Dermal (Rabbit, LD_{50}): 350 mg/kg; Inhalation (Rat, LC_{50}): 2.8 mg/m³ (4-hour exposure).
- Skin Corrosion/Irritation: Mild to moderate irritation (Category 2), reversible within 7 days.
- Serious Eye Damage/Irritation: Severe irritation (Category 2A), reversible with treatment within 48 hours.
- Mutagenicity: Ames test, chromosome aberration test - negative; no mutagenic effects.
- Carcinogenicity: IARC Classification - Group 3 (not classifiable as to carcinogenicity to humans).
- Reproductive Toxicity: No adverse reproductive effects in animal tests at clinical relevant doses.
- Specific Target Organ Toxicity: Hepatic and renal systems are the main target organs; mild dysfunction at excessive doses, reversible with protective measures.

SECTION 12: Ecological Information12.1 Toxicity

- Fish (Zebrafish, 96h LC_{50}): 0.0015 mg/L (Very toxic)
- Daphnia (48h EC_{50}): 0.0008 mg/L (Very toxic)
- Freshwater Algae (72h EC_{50}): 0.002 mg/L (Very toxic)

- Terrestrial Plants (Wheat, 7d EC_{50}): >1000 mg/kg (Non-toxic)12.2 Persistence and Degradability: Slightly biodegradable (BOD_5 /COD = 0.20); degraded in soil/aquatic environments within 70-90 days.12.3 Bioaccumulative Potential: High (log P=8.0); high bioaccumulation in aquatic organisms (BCF = 9200).12.4 Mobility in Soil: Low mobility; strong adsorption to soil organic matter (Koc = 18000), no leaching risk to groundwater.12.5 PBT/vPvB Assessment: Classified as PBT/vPvB substance (Persistent, Bioaccumulative, Toxic to aquatic life).

SECTION 13: Disposal Considerations13.1 Waste Treatment Methods

- Product Waste: Classified as toxic and environmental hazard waste; dispose by licensed facilities via high-temperature incineration (≥900℃) with flue gas treatment; no discharge to the environment.
- Packaging Waste: Rinse with organic solvent to remove residual powder, collect rinsing waste for hazardous disposal; dispose packaging as toxic/environmental hazard waste, do not recycle.
- Unused Product: Incinerate with professional waste treatment companies in accordance with local and international regulations.
- Disposal Compliance: Comply with China HW02+HW49, EU EWC 080102+100106, US RCRA Subtitle C.

SECTION 14: Transport Information14.1 UN Number: ADR/RID: 3077; IMDG: 3077; IATA-DGR: 307714.2 UN Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Lotilaner)14.3 Transport Hazard Class: 9 (Miscellaneous dangerous goods)14.4 Packaging Group: III (Minor hazard)14.5 Environmental Hazards: IMDG Marine Pollutant: **Yes**14.6 Special Precautions for TransportTransport in sealed HDPE pharmaceutical-grade drums with aluminum foil inner lining; affix Class 9 and MARINE POLLUTANT labels. Transport temperature ≤30℃; avoid sunlight, rain and collision. Do not transport near water sources or with food/feed/aquatic products. Comply with ADR/RID, IMDG and IATA-DGR regulations for Class 9 goods.

SECTION 15: Regulatory Information15.1 National/International Regulations

- China: Hazardous Chemicals Safety Management Regulation (Class 9); Veterinary Drug Raw Material Registration Requirements; Environmental Protection Law.
- EU: REACH (listed in SVHC Candidate List); CLP (GHS Warning + Environmental Hazard); EMA veterinary drug standards.
- US: TSCA (listed on Inventory); DOT Class 9 (Marine Pollutant); FDA veterinary drug raw material standards; RCRA regulations.15.2 Additional Regulatory RequirementsProvide MSDS, COA and environmental hazard transport approval documents for customs clearance; apply for special storage/handling licenses for on-site use; mark PBT and marine pollutant characteristics on all product documents.

SECTION 16: Other Information

- Further Information: This MSDS complies with GB/T 16483, GB/T 17519 and GHS Rev.9 standards, for professional use only. Key characteristic: Isoxazoline veterinary acaricide/insecticide, mild human toxicity, PBT substance, very toxic to aquatic life.
- Revision Date: 20 FEB 2026
- Disclaimer: The supplier is not liable for damage caused by improper use, storage, transport or disposal beyond specified standards and regulations. All operations must be conducted by trained professional personnel.