



Hangzhou Tianlong Biotechnology Co., Ltd.

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MATERIAL SAFETY DATA SHEET

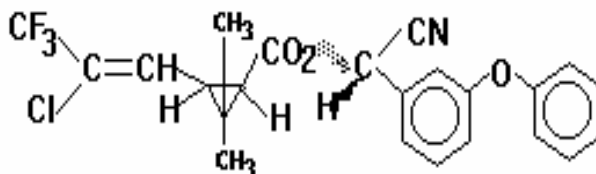
1. Chemical Product and company Identification

Product Name: Lambda-cyhalothrin

Molecular Formula: $C_{23}H_{19}ClF_3NO_3$

Molecular Weight: 449.86

Structural Formula:



Chemical Name:

-cyano-3-phenoxybenzyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate

CAS No.: 91465-08-6

Supplier: HANZHOU TIANLONG BIOTECHNOLOGY CO., LTD

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2. Composition / Information On Ingredients

Composition	CAS No.	Content %
Lambda-cyhalothrin	91465-08-6	95.0
Other ingredients		5.0

3. Hazards Identification

Symptoms of Acute Exposure: Harmful if inhaled or swallowed. Dust, mist or vapor irritating to eyes and respiratory tract. May cause skin irritation. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

Physical Properties Unusual Fire, Explosion and Reactivity Hazards: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. First Aid Measures

If swallowed: Call a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15- 20 minutes. Call a poison control center or doctor for treatment advice.

5. Fire-Fighting Measures

Unusual Fire, Explosion and Reactivity Hazards: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire: Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. Accidental Release Measures

In Case of Spill or Leak: Control the spill at its source. Contain the spill to prevent it from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. If a solid, sweep up material and place in a compatible disposal container. If a liquid, cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. Handling And Storage

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. Exposure Controls/Personal Protection

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Skin Contact: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear. Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc.). Unprotected contact with such translocated material can result in paresthesia effects.

9. Physical and Chemical Properties

Appearance: White powder

Boiling Point: 212°F

Specific Gravity/Density: 1.33 @25°C

PH: 7.3(1% w/w dilution in deionized water)

Water Solubility: 0.005 mg/L @ pH 6.5 and 20°C

Solubility in Other Solvents: acetone v.s, methanol v.s, toluene v.s, hexane v.s.

Melting Point: 49.2 °C

Vapor Pressure: negligible at 20°C

Partition Coefficient:10,000,000

Adsorption Coefficient: 180, 000

10. Stability and Reactivity

Stability: Stable under standard conditions.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: None known.

11. Toxicological Information

Acute Toxicity/Irritation Studies (Finished Product) Ingestion:

Oral (LD50 Rat) : > 5000 mg/kg body weight Dermal:

Dermal (LD50 Rat) : > 2000 mg/kg body weight Inhalation:

Inhalation (LD50 Rat) : > 4.62 mg/l air - 4 hours

Reproductive Effects: In two studies, lambda cyhalothrin caused reduced body weight gain at doses of 15 mg/kg/day in pregnant rats (highest dose tested) and at doses of 30 mg/kg/day in pregnant rabbits (also the highest dose tested), but these doses produced no observable reproductive effects. There were reduced numbers of viable offspring at doses of 50 mg/kg/day in the second and third generations in the three-generational rat study noted

above. It is unlikely that lambda cyhalothrin would cause reproductive effects in humans under normal conditions.

Teratogenic Effects: No teratogenic or fetotoxic effects were observed in teratology studies of lambda cyhalothrin in rats and rabbits at the highest doses tested in both species (15 mg/kg/day and 30 mg/kg/day, respectively). Based on these data, it is unlikely that lambda cyhalothrin causes teratogenic effects.

Mutagenic Effects: Lambda cyhalothrin produced negative results in all Ames mutagenicity assays using five different test strains, both with and without metabolic activation. Results of other in-vitro cytogenetic assays and chromosomal structural aberration tests indicated no mutagenic or genotoxic effects were caused by lambda cyhalothrin. The available evidence suggests that lambda cyhalothrin is non-mutagenic and non-genotoxic.

Carcinogenic Effects: No carcinogenic effects have been noted in studies of lambda cyhalothrin on various test animals (rats, rabbits, dogs). The evidence regarding the carcinogenicity of lambda cyhalothrin is inconclusive, but suggests that it is probably not carcinogenic.

Organ Toxicity: No specific target organs or organ systems have been identified in the available studies of chronic toxicity. The nervous system may be affected after acute exposure.

12. Ecological Information

Effects on Birds: Lambda cyhalothrin's toxicity to birds ranges from slightly toxic to practically non-toxic. In the mallard duck, the reported oral LD50 is greater than 3,950 mg/kg, and the reported dietary LC50 is 3,948 ppm. In bobwhite quail the reported dietary LC50 is greater than 500 ppm. There is evidence that it does not accumulate in the eggs or tissues of birds.

Effects on Aquatic Organisms: Lambda cyhalothrin is very highly toxic to many fish and aquatic invertebrate species. Reported LC50s in these species are as follows: bluegill sunfish, 0.21 ug/L; rainbow trout, 0.24 ug/L; *Daphnia magna*, 0.36 ug/L; mysid shrimp, 4.9 ng/L; sheepshead minnow, 0.807 ng/L. A median effect concentration, EC50 (i.e. the concentration at which the effect occurs in 50% of the test population), for the eastern oyster of 0.59 ng/L has been reported. Bioconcentration is possible in aquatic species, but bioaccumulation is not likely. Bioconcentration in channel catfish has been reported as minimal, with rapid depuration (elimination). A bioconcentration factor of 858 has been reported in fish, species unspecified), but concentration was confined to non-edible tissues and rapid depuration was observed.

Effects on Other Animals (Nontarget species): Lambda cyhalothrin is highly toxic to bees, with a reported oral LD50 of 38 ng/bee and reported contact LD50 of 909 ng/bee (0.9 ug/bee).

13. Disposal Considerations

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local health and environmental regulations.

14. Transport Information

UN NO.: 3017

UN Hazard Class: 6.1

UN Pack Group: III

15. Regulatory Information

Safe phrase: Keep locked up and out of reach children.

Keep away from food, drink and animal feeding stuffs.

Do not breathe vapour/spray.

Avoid contact with skin and eyes.

Wear suitable protective clothing, gloves and eye/face protection.

Avoid release to the environment.

16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.