MATERIAL SAFETY DATA SHEET OF
LAMBDA CYHALOTHRIN 2.5% EC

1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: SHANGHAI MINGDOU AGROCHEMICAL CO., LTD
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Product name: Lambda cyhalothrin 2.5% EC

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Emulsifiable concentrate
Active Ingredients: Lambda cyhalothrin

Chemical Abstracts name: [1α(S*),3α(Z)]-δ-cyano(3-phenoxyphenyl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate
CAS NO. 91465-08-6

Molecular Formula: C_{23}H_{19}ClF_{3}NO_{3}
Molecular Weight: 449.9
Structural Formula:

Other ingredients determined not to be hazardous

<table>
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<tr>
<th>INGREDIENT</th>
<th>CAS NO</th>
<th>PROPORTION</th>
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<tbody>
<tr>
<td>Lambda cyhalothrin</td>
<td>91465-08-6</td>
<td>≥2.5%</td>
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3. HAZARDS IDENTIFICATION

Harmful if swallowed.
This material causes irritation following skin contact and can cause serious damage to the eyes.
May cause tingling/numbness in exposed areas (paraesthesia).
Flammable.
Very toxic to aquatic organisms.

4. FIRST AID MEASURES

If you feel unwell, seek medical advice (show the label where possible).

Eye contact: Immediately irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 15 minutes. Obtain immediate medical attention.

Skin contact: Take off immediately all contaminated clothing. Wash skin immediately with water, followed by soap and water. Such action is essential to minimise contact with skin. Contaminated clothing should be laundered before re-issue.

Inhalation: Remove patient from exposure, keep warm and at rest. Obtain medical attention as a precaution.

Ingestion: If swallowed seek medical advice immediately and show the container, label or this MSDS, if possible. Do not induce vomiting.

Medical advice: Gastric lavage may be effective when performed within 4 hours of ingestion. Aspiration of this material into the lungs should be avoided. Symptomatic treatment and supportive therapy as indicated.

5. FIRE FIGHTING MEASURES

Flammable. Keep fire exposed containers cool by spraying with water.

Extinguishing media: For small fires, use foam, carbon dioxide or dry powder extinguishant. For large fires, use polar-resistant foam or water-fog; avoid use of water jet. Contain run-off water with, for example, temporary earth barriers.

Protective Equipment: A self contained breathing apparatus and suitable protective clothing should be worn in fire conditions.

6. ACCIDENT RELEASE MEASURES

Personal precautions: Ensure suitable personal protection during removal of spillages. This means
wearing a face mask that gives protection against organic vapours, eye protection, chemically resistant gloves, boots and coveralls.

**Clean up methods:** Adsorb spillages onto sand, earth or any suitable adsorbent material. Transfer to a container for disposal. Wash the spillage area with water. Washings must be prevented from entering surface water drains. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

**7. HANDLING AND STORAGE**

**HANDLING**

Read the label before use.

Safe handling advice: Avoid contact with skin and eyes. Do not breathe spray. Avoid inhalation of high concentrations of vapours. When using do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking.

**STORAGE**

Safe storage advice: Keep only in the original container. Keep container tightly closed. Keep out of the reach of children. Keep away from food, drink and animal feeding stuffs.

Storage life: Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Engineering controls:**

Ensure ventilation is adequate and that air concentrations of components are controlled below recommended hygiene standard. Use with local exhaust ventilation or while wearing dust mask.

Keep containers closed when not in use. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety.

**Personal protection:**

Wear overalls, safety boots, safety goggles, gloves and NIOSH approved half mask respirator with organic vapour cartridge + dust/mist prefilter. Wash protective clothing before storage or reuse. Wash thoroughly after handling and before eating, drinking or smoking.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Form: liquid.

Color: green.

Odor: aromatic.

Flash point: >38°C.
Density: 0.9 g/ml.
Solubility: miscible in water.

10. STABILITY AND REACTIVITY
Stability: Stable under room condition.
Reactivity: In common with many organic chemicals, may form flammable dust clouds in air. May react with oxidizing agents. Product is stable for at least 2 years under ambient storage condition.

11. TOXICOLOGICAL INFORMATION
The following information is for the active ingredient, lambde-cyhalothrin.
Acute Oral Toxicity: LD_{50}: for male rats 79, female rats 56 mg/kg.
Acute Dermal Toxicity: LD_{50}: for rats 632-696 mg/kg.
Acute Inhalation Toxicity: LC_{50}: for rats 0.06 mg/l air (total particulate).
Eye Irritation: mild irritant (rabbit).
Skin Irritation: not irritant (rabbit).
Skin Sensitization: not a skin sensitizer (guinea pig).
NOEL (1 y) for dogs 0.5 mg/kg daily.
ADI 0.005 mg/kg.

12. ECOLOGICAL INFORMATION
The following information is for the active ingredient, lambde-cyhalothrin.
Birds Acute oral LC_{50} (8 d) for mallard ducks >3950 mg/kg. Dietary LC_{50} for quail >5300 mg/kg.
Fish LC_{50} (96 h): for bluegill sunfish 0.21, rainbow trout 0.36 μg/l.
Daphnia EC_{50} (48 h): 0.36 μg/l.
Algae ErC_{50} (96 h) for Selenastrum capricornutum >1000 μg/l.
Bees LD_{50} (oral) 38 ng/bee; (contact) 909 ng/bee.
Worms LC_{50} for Eisenia foetida >1000 mg/kg soil.

13. DISPOSAL CONSIDERATION
Do not contaminate ponds, waterways or ditches with chemical or used containers.
Empty containers should be washed and discarded.
Empty containers should not be used for other purposes.
Disposal should be in accordance with local, state or national legislation.

14. TRANSPORT INFORMATION
UN No.: 1993
Package group: III.
Description: Flammable liquid, n.o.s., (contains substituted benzenoid hydrocarbons and lambde-cyhalothrin 2.5%)
Marine pollutant: Yes.

15. REGULATORY INFORMATION
Harmful if swallowed.
Risk of serious damage to eyes.
Irritating to skin.
Keep out of the reach of children.
Keep away from food, drink and animal feeding stuffs.
When using, do not eat, drink or smoke.
Avoid contact with eyes.
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
If swallowed, seek medical advice immediately and show this container or label.
Do not re-use container, keep tightly closed in safe place.

16. OTHER INFORMATION
This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.
If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.
END OF MSDS