

## **MATERIAL SAFETY DATA SHEET**

### **Moscarin (Lambda Cyhalothrin 2.5% EC)**

#### **SECTION 1. IDENTIFICATION OF THE SUBSTANCE**

-Trade Name : Moscarin  
 -Common Name : Lambda-cyhalothrin  
 Form : EC

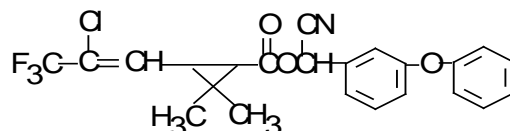
-Chemical Name:

A reaction product comprising equal quantities of  
 (S)- $\alpha$ -cyano-3-phenoxybenzyl  
 (Z)-(1R,3R)-3-(2-chloro-3,3,3-trifluoropropenyl)-2,2,- di-methyl cyclopropane  
 carboxylate and (R)- $\alpha$ -cyano-3-phenoxybenzyl (Z)- (1S,3S)-  
 3-(2-chloro-3,3,3-trifluoropropenyl)-2,2,-dimethylcyclopropanecarboxylate.

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

-Mol. wt: 449.9

-Structure:



#### **SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance	Conc.	Uses
<b>Inert ingredient</b>		
Lambda-Cyhalothrin	2.5%	To control of Crawling insects 10 Cm/10Lt.
<b>Inert ingredient</b>		
Surfactant	12%	
Solvent	Up to 100%	
TOTAL	100%	

## **SECTION 3. HAZARDS IDENTIFICATION**

---

### **General:**

Toxicity data are available on this specific product; this health hazard assessment is based on the results of screening tests.

### **Ingestion:**

The acute oral toxicity in rat is greater than 300 mg/kg. This material is classified as "moderately toxic" by ingestion.

### **Eye contact:**

A 2% v/v spray strength dilution was tested using three rabbits. No corneal or iridial effects. Mild irritation may occur following exposure to this material.

### **Skin Contact:**

This material is moderately irritating in rabbit dermal irritation studies. Short contact periods with human skin will probably not produce irritation. This material was determined not to be a skin sensitizer.

### **Skin absorption:**

The acute dermal toxicity is >5000 mg/kg for this material. Systemically toxic concentrations of this product will not be absorbed through human skin.

### **Inhalation:**

The inhalation toxicity in rat is >2.02 mg/1. Particulates of this material will probably irritate respiratory passages.

### **Effects of Overexposure**

Cough, Headache, Dizziness, Nausea, etc.

Skin and eye: redness and pain. Irritating to eyes and skin.

Keep locked up out of reach of children and other unauthorized persons.

Harmful if swallowed.

Can absorbed through skin, Avoid contact with skin or eye, Do not inhale spray mist.

### **Symptoms:**

Cause blurred vision, breathing difficulty, nausea, vomiting, headache or numbness of tongue or lips.

## SECTION 4.FIRST AID MEASURES

---

### **Inhalation :**

Remove to fresh air.

If breathing is irregular or stopped, administer artificial respiration.

Keep patient warm and at rest.

Call a physician or Poison Control Centre immediately.

### **Skin contact :**

Take off contaminated clothing and shoes immediately.

Wash off immediately with plenty of water.

If skin irritation persists, call a physician.

Wash contaminated clothing before re-use.

### **Eye contact :**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Remove contact lenses.

Immediate medical attention is required.

### **Medical advice :**

Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours.

Treat symptomatically.

Do not induce vomiting

## SECTION 5.FIRE FIGHTING MEASURES

---

**Flash point:** >90°C

### **Suitable extinguishing media :**

Extinguishing media - small fires

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires

Alcohol-resistant foam

Water spray

### **Extinguishing media**

which must not be used for safety reasons :

Do not use a solid water stream as it may scatter and spread fire.

### **Specific hazards during fire fighting :**

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion Exposure to decomposition products may be a hazard to health.

### **Special protective equipment for fire fighters:**

Wear full protective clothing and self-contained breathing apparatus.

### **Further information :**

Do not allow run-off from fire fighting to enter drains or water

## **SECTION 6.ACIDENTAL RELEASE MEASURES**

---

Use appropriate protective equipment. Spills should be cleaned up immediately. Large spill: dike and pump as much as possible to a salvage container. Absorb the remaining liquid and any small spills with clay granules, sand or other absorbent material and sweep to a waste container. Cover the spill area with water and absorb. Minimize runoff into waterways or drains.

### **Environmental precautions :**

Prevent further leakage or spillage if safe to do so.  
Do not flush into surface water or sanitary sewer system.

### **Methods for cleaning up :**

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations.

**Additional advice:** If the product contaminates rivers and lakes or drains inform Respective authorities.

## **SECTION 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, drink in areas where they may become contaminated with this material. Keep container tightly closed

### **HANDLING**

#### **Advice on safe handling :**

No special protective measures against fire required.  
Avoid contact with skin and eyes.  
When using, do not eat, drink or smoke.

### **STORAGE**

#### **Requirements for storage areas and containers :**

No special storage conditions required.  
Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep out of the reach of children.  
Keep away from food, drink and animal feeding stuffs.

#### **Other data :**

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

## **SECTION 8.EXPOSURE CONTROL/PERSONAL PROTECTION**

---

### **Applicators and other handlers must wear:**

Coveralls over short-sleeved shirt and short pants.

Chemical-resistant footwear plus socks.

Chemical-resistant gloves, such as barrier laminate or butyl rubber.

### **ENGINEERING MEASURES**

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

If airborne mists or vapors are generated, use local exhaust ventilation controls.

Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.

Where necessary, seek additional occupational hygiene advice.

### **PERSONAL PROTECTIVE EQUIPMENT**

#### **Protective measures :**

The use of technical measures should always have priority over the use of personal protective equipment.

When selecting personal protective equipment, seek appropriate professional advice.

Personal protective equipment should be certified to appropriate standards.

#### **Respiratory protection :**

A combination gas, vapor and particulate respirator may be necessary until effective technical measures are installed.

Protection provided by air-purifying respirators is limited.

Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

#### **Hand protection :**

Chemical resistant gloves should be used.

Gloves should be certified to an appropriate standard.

Gloves should have a minimum breakthrough time that is appropriate to the duration of exposure.

The breakthrough time of gloves varies according to the thickness, material and manufacturer.

Gloves should be changed when breakthrough is suspected. Suitable material  
Nitrile rubber

#### **Eye protection :**

Eye protection is not usually required.

Follow any site specific eye protection policies.

### **Skin and body protection :**

Assess the exposure and select chemical resistant clothing based on the potential for contact and the permeation / penetration characteristics of the clothing material.

Wash with soap and water after removing protective clothing.

Decontaminate clothing before re-use, or use disposable equipment (suits, aprons, sleeves, boots, etc.)

## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

---

-Appearance:	Clear liquid with characteristic odor
-Melting point:	49.2°C (99.0% purity); 47.5 to 48.5°C (purity 96.5%)
-PH:	5.0-7.0
-Density	0.89
-Corrosion:	Non-corrosive
-Flash point	>90°C
-Content : Lambda-Cyhalothrin :	2.5 %

## **SECTION 10. STABILITY AND REACTIVITY**

---

**Chemical Stability:** Stable at normal temperatures and storage conditions.

**Stability:** Stable under normal conditions.

**Incompatibility:** Oxidizing agents, alkalies, calcium hypochlorite.

### **Hazardous decomposition products:**

Combustion products: Carbon dioxide, carbon monoxide. Nitrogen oxides, ammonia, cyanuric acid, biuret. Halogen, halogen acids, possible trace amounts of carbonyl halide.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

---

Ingestion:	Acute Oral LD50 for rats about 500 mg/kg
Dermal:	Acute Dermal LD50 for rabbits >2000mg/kg
Skin contact:	Irritating to skin (rabbits)
Eye contact:	Irritating to eye (rabbits)
Skin sensitization:	Not a skin sensitizer (Guinea pig)
Other:	Non-mutagenic, non-teratogenic; no adverse effect on reproductive performance. Not neuro-toxic.
Toxicity class:	WHO (A.I.) II

## **SECTION 12. ECOLOGICAL INFORMATION**

---

### **Summary of Effects**

**Bioaccumulation** : Lambda-cyhalothrin bioaccumulates.

**Stability in water** : Lambda-cyhalothrin is not persistent in water.

**Stability in soil** : Lambda-cyhalothrin is not persistent in soil.

**Mobility** : Lambda-cyhalothrin is immobile in soil and will not leach.

### **ECOTOXICITY EFFECTS**

#### **Toxicity to fish :**

LC50 *Oncorhynchus mykiss* (rainbow trout), 4 Gg/l Derived from components.

#### **Toxicity to aquatic invertebrates**

EC50 *Daphnia magna* (Water flea), 4 Gg/l , 48 h Derived from components.

#### **Toxicity to algae :**

ErC50 *Pseudokirchneriella subcapitata* (green algae), > 10 mg/l , 96 h  
Derived from components.

#### **Soil/Environment:**

Rapidly degraded in soil; DT50 for microbial degradation 23-82 d. for field soil 6-40 d. Strongly adsorbed to soil and sediment organic matter. Koc 330000. Negligible potential for leaching of lambda-cyhalothrin and its degradation products through soil. Rapid dissipation from water in aquatic systems. DT50 for dissipation from surface waters in lab water-sediment systems 5-11 h; in a microcosm DT50 <3 h. Rapid and extensive degradation of parent compound in aquatic systems; DT50 for degradation in lab water-sediment systems 7-15 d; in a microcosm DT50 <3 h, DT90 <3 d.

### **SECTION 13. DISPOSAL INSTRUCTION**

Do not contaminate water, food, or feed by storage or disposal. Pesticide wastes are acutely hazardous.

#### **Steps to be taken in case material is released or spilled:**

This material is harmful to aquatic organisms.

Releases to natural waters should be reported to appropriate water pollution control authorities. Releases of untreated effluent to the sewer should be immediately reported to the public treatment works.

Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices.

A small spill can be handled routinely.

Use adequate ventilation to prevent inhalation.

Wear suitable protective clothing and eye protection to prevent skin and eye contact.

#### **Use the following procedures:**

1. Do not allow material to enter streams, sewers or other waterways.

2. Spread absorbent on the liquid such as clay, sand, sawdust, or dirt. Sweep up and place in a suitable container for disposal and label the contents.
3. Rinse with a small amount of water and use absorbent to collect the wash solution. Absorb any excess liquid as indicated above, and add to the disposal container.
4. Seal drum and dispose of contaminated material in a facility permitted for hazardous waste. Large spills should be handled according to a spill plan.

**Disposal method:**

This material is toxic to fish. Do not contaminate waterways by cleaning of equipment or by disposal of wastes. Untreated effluent should not be discharged where it will drain into lakes, streams, or ponds. Discarded product is not a hazardous waste under RCRA,40 CFR 261.

**Container disposal:**

Observe all hazard precautions. Do not distribute, make available, furnish or reuse empty containers. Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**SECTION 14. TRANSPORT INFORMATION**

---

Transport Classification: Road & Rail (ADG), Sea (IMDG)

UN NO.: 3351

Shipping Name: Pyrethroid Pesticide, liquid, Flammable, toxic, N.O.S.  
(contains Lambda-cyhalothrin)

UN class: 6.1

Packing Group: III

**SECTION 15. REGULATORY INFORMATION**

---

Chronic: No

Fire: Yes

Reactivity: No

Read and follow all label directions.

**SECTION 16. OTHER INFORMATION**

---

The data given here is based on current knowledge and experience. The purpose of this safety data sheet is to describe the products in terms of their safety requirements.

Use according to label instructions.