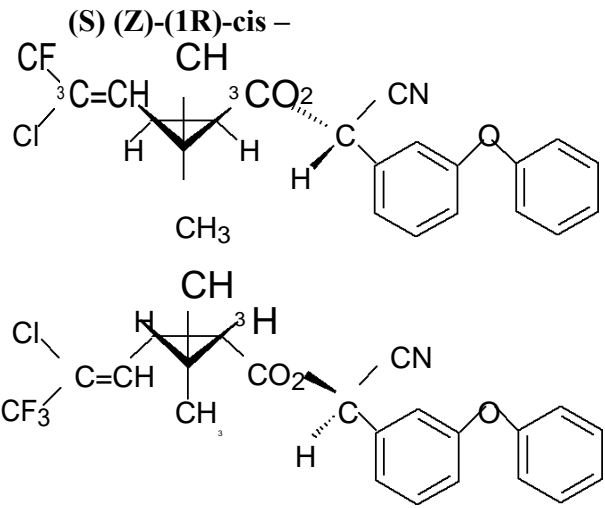


MATERIAL SAFETY DATA SHEET

LAMBDA-CYHALOTHRIN 15% WP

1. PRODUCT IDENTIFICATION

COMPANY: M/s TARA IMPERIAL INDUSTRIES PVT LTD	COMMERCIAL NAME: LAMBDA-CYHALOTHRIN 15 % WP COMMON NAME: MARSHAL CHEMICAL NAME: α -cyano-3-phenoxybenzyl 3-(2-chloro-3,3,3-trifluoropropenyl)-2,2-dimethyl-cyclopropanecarboxylate, a 1:1 mixture of the (Z)-(1R,3R), S-ester and (Z)-(1S,3S), R-ester. (IUPAC)
ADDRESS: Chunnia Bypass Road, Lahore, PAKISTAN	STRUCTURAL FORMULA : 
TEL: 0092-42-111 223 388	SYNONYMS: CHEMICAL FAMILY : Synthetic pyrethroid
	MOLECULAR FORMULA: C ₂₃ H ₁₉ ClF ₃ NO ₃
	CAS No : 91465-08-6
	UN Number : 2588

2. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL RANGE

LAMBDA-CYHALOTHRIN A.I.
 INERT INGREDIENTS

15.0% w/w (min.)
 85.0% w/w (max.)

3. HAZARD IDENTIFICATION

Lambda-cyhalothrin is a pyrethroid insecticide. It is a moderately toxic material. Lambda-cyhalothrin is a non-systemic insecticide with contact and stomach action and repellent properties. Gives rapid knockdown and long residual activity.

WHO Classification : II (Moderately Hazardous)

Lambda-cyhalothrin is toxic if ingested or breathed, it is mildly irritating to eyes and slight irritant to skin. It is not a skin sensitizer.

4. FIRST AID MEASURES

If poisoning is suspected, do not wait for symptoms to develop. Call a doctor, clinic or hospital immediately. Explain that the victim has been exposed to **Lambda-cyhalothrin**, a Synthetic pyrethroid, and describe his/her condition. Move victim immediately from the area where Lambda-cyhalothrin is present.

INGESTION: Call for medical attention urgently. Do not induce vomiting or give liquids. Vomiting should be induced only under professional supervision. Never give anything by mouth to an unconscious person. Make the exposed lie down and keep him warm and calm. Gastric lavage is to be applied and medical grade activated carbon given to the patient. Keep respiratory and heart functions under observation and control .

INHALATION: Remove the victim to fresh air. If breathing stops, apply artificial respiration. Call for medical attention.

EYES: Flush eyes immediately with plenty of water for at least 15 minutes, lifting the upper and lower eyelids intermittently. Get medical attention immediately.

CONTACT/SKIN AND EYES: In case of contact with product, wash immediately skin area with plenty of water and soap. Speed in removing material from skin is extremely important. In contact with eyes flush with plenty of water for at least 20 minutes. Remove and isolate contaminated clothing and shoes. Call medical attention.

5. FIRE - FIGHTING MEASURES

FIRE EXTINGUISHING MEDIA: Dry chemical, CO₂, Alcohol foam.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to decomposition it emits very toxic fumes of CO, CO₂, HCl, NO₂, and CN⁻.

SPECIAL FIRE FIGHTING PROCEDURES: Wear protective equipment and breathing apparatus. Direct water onto intact containers to keep them cool. Call fire brigade immediately.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Keep unnecessary people away. Isolate hazard area and deny entry. Do not smoke. Avoid contact and inhalation of closed spaces before entering.

CLEANUP METHODS:

Wear protective equipment. **Small spillages:** absorb on inert absorbing material. shovel up into covered containers for disposal. **Large spillages:** should be dammed-off and pumped into containers; soak up remainder with absorbent material and dispose of in accordance with local regulations as per method outlined in section 13, "Disposal considerations".

PERSONAL PROTECTION:

Wear suitable chemical protective clothing, boots, natural rubber gloves, goggles and respiratory protective mask.

PRECAUTIONS FOR THE ENVIRONMENT

Avoid dispersion. Isolate discharged material and keep material out of water sources. Prevent product from entering drains. Do not graze or feed clippings from treated areas to livestock.

NEUTRALIZATION PROCEDURE:

To clean and neutralize spill area, tools and equipment, wash a suitable solution of caustic/soda ash and an appropriate alcohol (methanol, ethanol or isopropanol). Follow this by washing with a strong soap and water solution. Shovel all waste material into a drum and label contents for disposal. Dispose of drummed waste according to the method outlined in section 13, "Disposal considerations".

7. HANDLING AND STORAGE

HANDLING:

General precautions: Do not smoke, drink, or eat during handling. Wash hands using liquid detergent. Wear protective clothing to avoid contact and/or inhalation with the product. Eliminate all sources of ignition from areas where the material is handled or used. Good personal hygiene procedures must be practised.

Specific conditions: Good local exhaust ventilation. Full face protective mask.

STORAGE:

The packages containing the insecticide shall be stored in separate room or premises away from the rooms or premises used for storage of the food articles or shall be kept in separate almarhas under lock and key depending on the quantity and the nature of the insecticide.

Incompatible materials: -

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

PERSONAL PROTECTION:

VENTILATION :

General air replacement or dilution ventilation is sufficient for material handling and storage, but local ventilation should be used when removing this product from containers. Ventilate all transport vehicles prior to unloading.

WORK CLOTHING:

Depending upon concentrations encountered, wear coveralls or long-sleeved uniform and head covering. For larger exposures as in the case of spills, wear full body cover barrier suit, such as a rubber rain suit. Leather items- such as shoes, belts and watchbands that become contaminated should be removed and destroyed. Launder all work clothing before reuse (separately from household laundry).

EYE PROTECTION :

For splash, mist vapor or dust exposure wear chemical protective goggles or a face shield.

PERSONAL HYGIENE

Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking or using tobacco. Shower at the end of the workday.

RESPIRATORY PROTECTION

For splash, mist, vapor or dust exposure wear, as a minimum, a properly fitted half -face or full-face air-purifying respirator which is approved for pesticides (U.S. NIOSH/MSHA, EU CEN or comparable certification organization). Respirator use and selection must be based on airborne concentrations.

GLOVES :

Wear chemical protective gloves made of materials such as rubber, neoprene, or PVC. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

EXPOSURE LIMITS:

OSHA PEL: TWA. N.A. ACGIH TLV: TWA. N.A. Others: 0.04 mg/m³ TWA

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Off white to light brown	Odour	: Mild characteristic .
Boiling point	: Not applicable	Melting point	: . Not Applicable
Vapour pressure	: 2x10 ⁻⁴ mpa (20 ^o C)	Density	: 0.33 to 0.35g/ml (25 ^o C)
Water Solubility	: 0.005 mg/l (pH 6.5)		

10. STABILITY AND REACTIVITY

STABILITY : Stable.

CONDITIONS TO AVOID: Exposure to flames may emit toxic fumes upon decomposition

MATERIALS TO AVOID: Alkaline conditions, avoid strong oxidants.

HAZARDOUS DECOMPOSITION PRODUCTS:

COMBUSTION PRODUCTS: Thermal decomposition products may be hazardous CO₂, CN⁻, NO_x, CL⁻

11. TOXICOLOGICAL INFORMATION

ROUTES OF EXPOSURE: Contact with skin, eyes and inhalation. Ingestion is easy to prevent and not frequent, if it occurs, it may be dangerous.
Synthetic pyrethroid. **MODERATELY HAZARDOUS.**

ACUTE TOXICITY:

LD₅₀ Oral-rat (male) : Variable
(female) : Variable

LD₅₀ Oral-mice : Variable

LD₅₀ dermal-rat : > 3000 mg/kg bw

LC₅₀ Inhalation –rat : 0.59 mg/L air (4 hours)

Eye irritation : Slightly irritant (rabbits)

Skin irritation : Mildly irritating (rabbits)

Skin sensitisation : Not a skin sensitiser.
(guinea pig)

Chronic effects from overexposure : In two-year studies with rats, lambda-cyhalothrin did not cause reproductive toxicity or teratogenicity. There were no observable changes in the function or structure of the liver or nervous system. In a cytogenetic assays and chromosomal structural aberration tests, the results indicated no mutagenic or genotoxic effects by lambda-cyhalothrin.

Carcinogenicity : IARC : No NTP : No Others (OSHA) : No

12. ECOLOGICAL INFORMATION

In soil, Leaching of lambda-cyhalothrin (technical) and its degradation products through a range of soil types is negligible.

Effect On Aquatic Organisms:

Toxic

Effect On Birds:

Acute oral LD₅₀ for

Chicken	: > 3000 mg/kg (tech.)
Pigeons	: >3000 mg/kg (tech.)
Mallard ducks	: > 2000 mg/kg (a.i.)
Quail	: > 2000 mg/kg 9a.i.)

13. DISPOSAL CONSIDERATIONS

Open dumping or burning of this pesticide kor its packaging is prohibited. If spilled material cannot be disposed of by use according to lable instructions, an acceptable method of disposed of disposal is to incinerate in accordance with local, state and national laws and regulations. However, because acceptable methods of disposal may vary by location, and regulatory requirements may change, the appropriate regulatory agenices should be contacted prior to disposal. Non-returnable containers which held these pesticides should be cleaned, prior to disposal, by triple-rinsing. Containers which held this material may be cleaned by being triple-rinised, and recycled, with the rinsate being incinerated. Do not cut or weld metal containers. Vapors that form may create an explosion hazard.

14. TRANSPORT INFORMATION

Pesticides, solid, toxic, n.o.s., UN Class 6.1, ERG Guide55

MARPOL Designation: Severe Marine pollutant (lambda-cyhalothrin 15 %) Reportable Quantity : Not listed.

Insecticides, NOI, Poison other than class A poison.

NMFC Item 102100. Lambda-cyhalothrin.

SPECIAL PRECAUTIONS: Stable at room temperature and during transport. Transport in properly sealed and labelled containers.

15. REGULATORY INFORMATION

Australian Hazard Code : 3 X E
U.S.CERCLA Resportable Quantity (RQ) : Not listed
U.S. EPA Signal word : WARNING

CLASSIFICATION:

LABELLING:

SYMBOLS: T, Xn, Xi

PHRASES R:

R10 : Flammable

R22 : Harmful if swallowed

R23 : Toxic by inhalation

R36/38 : Irritating to the eyes and skin

R50: Very toxic to aquatic organisms

PHRASES S:

S1/2 : Keep locked up and out of the reach of children. S13 : Keep away from food, drink and animal feeding staffs.

S20/21 : When using do not eat, drink or smoke.

S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S28 : After contact with skin, wash immediately with plenty of water and soap.

S36/37/39 : wear suitable protective clothing, gloves and eye/ face protection.

S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible).

16. OTHER INFORMATION

USE: Lambda-cyhalothrin is a synthetic pyrethroid insecticide used to control a wide range insects (agricultural and public health.) Lambda-cyhalothrin is non-systemic with contact and stomach action and repellent properties. Gives rapid knockdown and long residual activity.

The information provided in this safety data sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification.

The information relates only to the specific material designated and may not be valid for such material used in combination with other materials.