



Product Name: Bifenthrin 2.50% EC

Date Approved: 20.04.2017

Revision No. : 00

MATERIAL SAFETY DATA SHEET

BIFLEX TC

(BIFENTHRIN 2.5% EC)

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name : **BIFLEX TC** (Bifenthrin 2.50% w/w EC)
Chemical Name : (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate
IUPAC : 2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate
Recommended Use : Insecticide

Company : **FMC INDIA PRIVATE LIMITED**
Address : Embassy Star, No. 8, Palace Road, High Grounds, Bangalore – 560 052 (INDIA)
Customer care representative: +91-80-22384311,
Email: customer.care@fmc.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

2.1. ACTIVE INGREDIENTS

Bifenthrin

Chemical Family Pyrethroid pesticide
CAS No. 82657-04-3
Molecular Formula C₂₃H₂₂ClF₃O₂

2.2. COMPOSITION:

Component Name	CAS No.	Concentration % w/w
Bifenthrin	82657-04-3	2.50
Other ingredients	NA	QS



3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW IMMEDIATE CONCERNS:

- Light yellow to amber liquid with an aromatic hydrocarbon odor.
- Moderately combustible.
- For large exposures or fire, wear personal protective equipment.
- Keep out of drains and water courses.

INHALATION: This product is toxic if inhaled in excessive quantity and can cause nasal and respiratory irritation.

INGESTION: Harmful if swallowed.

EYE CONTACT: Irritating to eyes.

SKIN CONTACT: Irritating to skin. Skin contact may lead to skin sensation which is reversible within 12 -14 hours.

POTENTIAL HEALTH EFFECTS: Effects from overexposure result from swallowing, inhaling or contact with the skin. Symptoms of overexposure include bleeding from the nose, tremors, and convulsions. Contact with Bifenthrin may occasionally produce skin sensations such as rashes, numbing, burning and tingling. These skin sensations are reversible and usually subside within 12 hours.

MEDICAL CONDITIONS AGGRAVATED: None presently known.

OTHER: Very toxic to aquatic organisms.

Note: Workers exposed to hydrocarbon solvents in high concentrations will typically show signs of Central Nervous System depression. Giddiness and confusion, disorientation, euphoria, progressing to unconsciousness, paralysis, convulsion and death from respiratory or cardiovascular arrest be observed.

4. FIRST AID MEASURES

- 4.1 **GENERAL ADVICE:** Have the product container, label or Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment.
- 4.2 **EYES CONTACT:** Flush with plenty of water at least 15 minutes. Get medical attention if irritation occurs and persists.
- 4.3 **SKIN CONTACT:** Wash with plenty of water at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Get medical attention if irritation occurs and persists.
- 4.4 **INGESTION:** Drink 1 or 2 glasses of water and induce vomiting by touching the back of the throat with a finger or by giving syrup of ipecac. Never induce vomiting or give anything by mouth to an unconscious person. Contact a medical doctor.
- 4.5 **INHALATION:** Remove to fresh air. If breathing difficulty or discomfort occurs and persists, give Artificial respiration, get medical attention immediately.
- 4.6 **SYMPTOMS:** The symptoms are of cholinesterase inhibition. Burning sensations on the skin, irritation Of the mucous membranes, coughing and sneezing may be experienced.



- 4.6 **NOTE TO MEDICAL DOCTOR:** This product has moderate inhalation and oral toxicity. It is mildly irritating to the eyes and non-irritating to the skin. Reversible skin sensations (paresthesia) may occur and ordinary skin salves have been found useful in reducing discomfort. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE-FIGHTING MEASURES

Flash Point: >49°C (CC)

- 5.1. **EXTIGUISHING MEDIA:** Water spray (not jet), Foam, CO₂ or dry chemical. Soft stream water for only if necessary. Contain all runoff.
- 5.2. **FIRE/ EXPLOSION HAZARDOUS:** Slightly combustible. This material may support combustion at elevated temperatures.
- 5.3. **EXTINGUISHING MEDIA WHICH MUST NOT BE USED FOR SAFETY REASON:** Do not use a solid water stream as it may scatter and spread fire.
- 5.3. **FIRE FIGHTING PROCEDURE:** Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated.
- 5.4. **SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS:** Full face mask with combination filter, Respirator with independent air supply.
- 5.5. **HAZARDOUS DECOMPOSITION PRODUCTS:** In the event of fire, product will burn, releasing toxic and irritating gases like Carbon monoxide, carbon dioxide, hydrogen chloride, hydrogen fluoride, and sulfur dioxide.

6. ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURE: Eliminate all sources of ignition in the vicinity of the spill and evacuate the area immediately. Avoid contact with spilled material or contaminated surfaces. If material is spilling from container, attempt to retain as much as possible in the original package. Prevent spillage entering drain or watercourse.

PERSONAL PRECAUTIONS: Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls / Personal Protection". Keep unprotected persons and animals out of the area.

METHODS FOR CLEANING UP: Absorb the spillage material with sand, dirt clay or saw dust. If possible, collect pure material first. This may be re-usable. Scoop the contaminated solid next. Take enough soil to ensure all the material is included. This material should be disposed of at a suitable landfill. Personal protective equipment and clothing should be washed with soapy water before reuse.

ENVIRONMENTAL PRECAUTIONS: Keep material out of lakes, streams, ponds and sewer drains. Large spills should be covered to prevent dispersal. For dry material, use a wet sweeping compound or water to prevent the formation of dust. If water is used, prevent runoff or dispersion of excess liquid by diking and absorbing with a non-combustible absorbent such as clay, sand or soil. Vacuum, shovel or pump all waste material, including absorbent, into a drum and label contents for disposal.

**7. HANDLING AND STORAGE**

HANDLING PRECAUTIONS: KEEP OUT OF REACH OF CHILDREN, Wear suitable personal protective equipment when handling and spraying. Avoid contact with skin and eyes. Avoid breathing dust/mist. Ensure adequate ventilation while using do not eat drink or smoke. Wash hands with soap and water after handling and before eating, drinking or smoking.

STORAGE: Do not store the material near food, feed or drinking water. Store in cool, dry, locked and well-ventilated storeroom. Do not use, pour, or store near heat or open flame. Away from children and unauthorized personnel, and food and animal feed.

CONDITION TO AVOID: Keep away from sources of ignition. Avoid extreme heat, freezing temperature and high temperature. Keep container tightly closed. Avoid cross contamination with other pesticides, fertilizers.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS: No exposure standards have been set for this product or the active ingredients.

ENGINEERING CONTROLS: Use local exhaust at all process locations where vapor or mist may be emitted. Ventilate all transport vehicles prior to unloading.

PERSONAL PROTECTIVE EQUIPMENT

EYE AND FACE: For dust exposure, wear chemical protective goggles or a face shield.

RESPIRATORY: For 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.

PROTECTIVE 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 PVC 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).

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

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

COMMENTS: Personal protective recommendations for mixing or applying this product are prescribed on the product label. Information stated above provides useful, additional guidance for individuals whose use or handling of this product is not guided by the product label.

9. PHYSICAL AND CHEMICAL PROPERTIES

- | | | |
|-----|------------------|-----------------------|
| 9.1 | APPEARANCE..... | Liquid |
| 9.2 | COLOUR..... | Light yellow to amber |
| 9.3 | ODOR..... | Aromatic hydrocarbon |
| 9.4 | FLASH POINT..... | >49°C |



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9.5	MOLECULAR WEIGHT	422.88 (Bifenthrin)
9.6	WATER SOLUBILITY	Emulsifiable
9.7	DENSITY	870 to 890 g/L
9.8	VAPOUR PRESSURE	0.024 mPa at 25°C (Bifenthrin)

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal handling and recommended warehouse and light conditions.

CONDITIONS TO AVOID: Avoid high temperature, open flame, Spark, static electricity and source of ignition.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: On decomposition may releasing toxic and irritating gases. Release of oxides of carbon, nitrogen, Sulphur along with chlorine and compounds are expected.

11. TOXICOLOGICAL INFORMATION

(Bifenthrin Technical)

ACUTE LD50 ORAL WISTER RATS: 1657 mg/kg

ACUTE LD50 DERMAL WISTER RABBITS: >2000 mg/kg

ACUTE LC50 INHALATION RATS (4 HRS): 5.5 mg/l exposure.

NOEL: (1 y), dog: 1.5mg/kg daily. Non teratogenic in rats and rabbits (≤ 2 and 8 mg/kg daily)

TOXICITY CLASS: WHO (a.i.) II, EPA (formulation) II

12. ECOLOGICAL INFORMATION

(Bifenthrin Technical)

ENVIRONMENTAL DATA:

Bifenthrin has moderate stability in the soil under aerobic conditions (half-life range from 65 - 125 days depending on soil type) and is stable at a wide range of pH values. Bifenthrin has a high Log Pow (>6.0), a high affinity for organic matter, and is not mobile in soil. Therefore, there is little potential for movement into ground water. There is the potential for bifenthrin to bioconcentrate ($BCF = 11,750$).

ECOTOXICOLOGICAL INFORMATION:.

For Birds

For bobwhite quail LD₅₀ 1800mg/kg , LC₅₀(8h) 4450 mg/kg diet.

For mallard ducks LD₅₀..... 2150 mg/kg , LC₅₀(8h) 1280 mg/kg diet.

For Fish

For bluegill sunfish LC₅₀ (96 h) 0.00035 mg/l.

For rainbow trout LC₅₀ (96 h) 0.00015 mg/l

Daphnia LC_{50v} (48 h) 0.00016 mg/l

Bees LD₅₀(Oral)..... 0.1 µg/ Bee, (contact) : 0.01462 1 µg/ Bee.

**13. DISPOSAL CONSIDERATIONS**

PRODUCT DISPOSAL: Whenever possible, product should be used for its intended purpose, even if reclaimed from spillage (reclaimed product must be uncontaminated)

DISPOSAL METHOD: Open dumping or burning of this material or its packaging is prohibited. If spilled material cannot be disposed of by use according to label instructions, an acceptable method of disposal is to incinerate in accordance with local, state and national environmental laws, rules, standards and regulations. However, because acceptable methods of disposal may vary by location and regulatory requirements may change, the appropriate agencies should be contacted prior to disposal.

CONTAINER DISPOSAL: Empty containers may contain hazardous residues. Containers should be handled as instructed by following all container disposal directions. Break, crush or puncture and bury empty containers in a local authority landfill. Empty packaging should be packaged and sealed, labeled and transferred to a suitable incinerator in accordance with the local regulations. Do not disposal of product or rinsing into sewage system or septic tanks.

14. TRANSPORT INFORMATION

Proper shipping name: PYRETHROID PESTICIDE, LIQUID, TOXIC, N.O.S., CONTAINS BIFENTHRIN 2.5%

Technical shipping name: Bifenthrin 2.50% EC

Freight Class Bulk: Insecticide, Acaricide

Freight Class package: Insecticide, Acaricide

UN No.: UN3352

Class: 6.1

Packaging group: III

Marine pollutant: Yes

Special precautions: Do not store near foodstuffs.

15. REGULATORY INFORMATION**UNITED STATES****SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355): Not listed

SECTION 311 HAZARD CATEGORIES (40 CFR 370): Immediate, Delayed

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370): The threshold planning quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs. This product contains the following ingredients with a TPQ of less than 10,000 lbs.: None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372): This product contains the following ingredients subject to Section 313 reporting requirements: (bifenthrin)

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA REGULATORY (40 CFR 302.4): Not listed



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COMMENTS: Australian Hazard Code: 3XE

U.S. EPA Signal Word: WARNING

16. OTHER INFORMATION

The information contained in this safety data sheet is given in good faith. It is accurate to the best of our knowledge and belief and represents the most up to date information. The information given in this data sheet does not constitute or replace the user's own assessment or work risk as required by other health and safety legislation. This material should only be used by persons who have been instructed in all safety precautions required and otherwise are familiar with content of data sheet.

Customer care telephone number : 08022384311

Address :

Head Office : FMC INDIA PRIVATE LIMITED.
Embassy Star, No. 8,
Palace Road, High Grounds,
Banglore – 560 052

Factory Address: M/S FMC India Private Limited
At 146, Kilavalam Village,
Madurantakam Taluk
Kanchipuram (dist.)
Tamil Nadu.-603 303