

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Product Name : Bifenthrin 98% TC
Chemical Name : 2-methylbiphenyl-3-ylmethyl(1RS,3RS)-3-[(Z)-2-chloro-3,3,3-trifluoroprop-1-enyl]-2,2-dimethylcyclopropane carboxylate.
Type : Insecticide
Molecular formula : C₂₃H₂₂ClF₃O₂

2. Composition/Information on ingredients

Chemical Name	CAS#	Percent or content(w/w)
Bifenthrin a.i.	82657-04-3	98 % Min.
Inert ingredients	-	2.0%

3. Health Hazards Identification

Emergency Overview:

- May be harmful if swallowed.
- May be irritating to the eyes and skin.
- Avoid breathing dust
- Avoid contact with eyes, skin or clothing.
- Keep out of reach of children.

Overexposure by the ingestion of large quantities may result in bleeding from the nose, convulsions, and tremors.

Potential Health Effects:

EYE: Mildly irritating to the eye

SKIN: Prolonged or repeated skin contact may cause rashes, numbing, burning, or tingling effects (paresthesia). Not a sensitizer.

INHALATION: May cause irritation to the nasal region and respiratory tract.

INGESTION: Harmful if swallowed.

Potential Physical Hazards: Can decompose at high temperatures forming toxic gases.

Environmental Hazards: Extremely toxic to fish, other water organisms and bees. Keep out of waterways.

4. First Aid Measures

General: Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given

Skin contact: If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

Eye contact: If skin contact occurs, remove contaminated clothing and wash skin thoroughly. If irritation occurs seek medical advice.

Ingestion: Rinse mouth with water. If swallowed, DO NOT induce vomiting. Give a glass of water. Seek medical advice.

Inhalation: Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. Seek medical advice if effects persist.

Note to physician: No specific antidote. Treat symptomatically.

5. Fire Fighting Measures

Flash point: Not highly flammable.

Flammable limits: Not determined.

Autoignition temperature: Not determined.

Hazardous combustion products: Carbon monoxide, carbon dioxide, chlorine, fluorine, hydrogen chloride and hydrogen fluoride.

Extinguishing media: Water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder).

Media to be avoided: None known.

Fire-fighting instructions: If a significant quantity of this product is involved in a fire, call the fire brigade. There is little danger of a violent reaction or explosion if significant quantities of this product are involved in a fire.

Protective equipment for firefighters: On burning will emit toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapor or products of combustion.

6. Accidental Release Measures

Clean up spills immediately, observing precautions in Section 8 of this document. Isolate hazard area. Keep unnecessary personnel from entering.

SMALL SPILL: Sweep up small spills and place material in appropriate recovery drums for disposal.

LARGE SPILL: Contain large spills and recover for disposal. After removal, neutralize the spill area, tools, and equipment with a dilute alkaline solution (soda ash or lime) followed by an appropriate alcohol (methanol, ethanol or isopropanol). Wash the spill area, tools, and equipment with a strong soap and water solution. Absorb any excess liquid and add to the recovery drums of waste already collected.

7. Handling and Storage

KEEP OUT OF REACH OF CHILDREN

HANDLING: Use only in a well ventilated area.

STORAGE: Keep in original containers, tightly closed, out of reach of children. Keep away from food, drink and animal feeding stuffs. Containers should be stored in a cool, dry, well-ventilate area away from flammable materials and sources of heat or flame.

8. Exposure Controls/Personal Protection

EXPOSURE LIMITS: None established.

ENGINEERING CONTROLS: Proper ventilation is required when handling or using this product to keep exposure to airborne contaminants below the exposure limit. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

PERSONAL PROTECTIVE EQUIPMENT (PPE):

EYE PROTECTION: Safety goggles or full face shield.

CLOTHING: Wear coveralls or long-sleeved uniform, head covering, socks, and chemical resistant shoes.

GLOVES: Chemical resistant gloves such as barrier laminate, nitrile rubber.

RESPIRATOR: When handling in enclosed areas where exposure limits may be exceeded, use a respirator with either an organic vaporremoving cartridge with a prefilter approved for pesticides. Discard clothing and other absorbent materials that have been heavily contaminated with this product. Do not reuse them. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS:

- Wash hands before eating, drinking, chewing, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. Wash thoroughly and change into clean clothing.

9. Physical and Chemical Properties

Color	:	Off-White
Physical State	:	Waxy solid
Odor	:	Light sweet Odour
Molecular Weight	:	422.9
Melting Point	:	69.4~70.0 °C
Relative Density	:	1.02 g/ml
Solubility	:	In Water: 0.1 mg/l at 25°C In Organic Solvents: Bifenthrin is soluble in methylene chloride, acetone, chloroform, ether and toluene. It is slightly soluble in heptane and methanol.

10. Stability and Reactivity

CHEMICAL STABILITY:	Stable, however may decompose if heated.
CONDITIONS TO AVOID:	Avoid excessive heat and fire.
INCOMPATIBILITY:	None known.
HAZARDOUS DECOMPOSITION PRODUCTS:	CO ₂ , CO, HCl, & HF.
HAZARDOUS POLYMERIZATION:	Product will not undergo polymerization.

11. Toxicological Information

TOXICOLOGICAL INFORMATION:

Acute Oral Toxicity : Rat:	LD ₅₀ : 54 mg/kg
Acute Dermal Toxicity :	Rabbit: LD ₅₀ : >2000mg/kg
Acute Inhalation Toxicity :	Rat: LC ₅₀ : ND
Skin Irritation :	Rabbit: Moderate to nil irritation
Skin sensitization :	Guinea pig: Non-sensitizer.
Eye Irritation :	Rabbit: Mild irritation

12. Ecological Information

ENVIRONMENTAL SUMMARY:

Extremely toxic to fish and aquatic invertebrates. Do not contaminate water by cleaning of equipment or disposal of equipment wash waters.

AQUATIC TOXICITY: LC₅₀ (96h) for *rainbow trout*: 0.15 µg/l
LC₅₀ (48h) for *Daphnia*: 0.16 µg/l
AVIAN TOXICITY: LD₅₀ *Bobwhite quail*: 1,800 mg/kg
LD₅₀ *Mallard duck*: > 2,150 mg/kg

ENVIRONMENTAL FATE:

Moderately stable in soil under aerobic conditions (half-life ranging from 65 to 125 days) and at a wide range of pH values. Bifenthrin is readily bound to organic matter, is not mobile in soils, and has a very low potential to contaminate groundwater.

13. Disposal Considerations

WASTE: Pesticide wastes are toxic. Dispose of in accordance with applicable Federal, state, and local laws and regulations.

CONTAINER: Refer to product label. Completely empty container into formulation equipment. Then dispose of empty container in a sanitary landfill or by incineration, if allowed by State and local authorities, by burning. If burned stay out of smoke.

14. Transport Information

Product Name	:	PYPETHROID PESTICIDE, SOLID, TOXIC - (Bifenthrin TC)
UN No.	:	3349
UN Hazard Class	:	6.1
UN Packing Group	:	III
Marine Pollutant status	:	YES
EMS	:	F-A, S-A

15. Regulatory Information

Regulations under FIFRA (Federal insecticide, Fungicide, and Rodenticide Act)

OSHA HAZARD

•Communication Standard Status :	Regulated
•Cercla Reportable Quantity :	Not Listed
SARA TITLE III STATUS:	
•302 Extremely Hazardous Substance :	Not Listed
•311/312 Hazard Categories :	Immediate health hazard

DELAYED HEALTH HAZARD

•313 Toxic Chemicals :	Bifenthrin 98.00%
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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 resented 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 produces formulations containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.