



MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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1. Chemical Product Identification

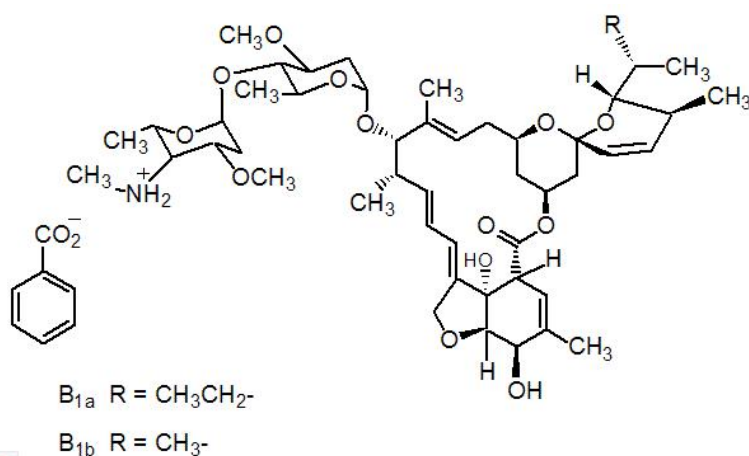
Product Name: Emamectin Benzoate 90% TC

Molecular Formula: Emamectin B1a benzoate: $C_{56}H_{81}NO_{15}$;

Emamectin B1b benzoate: $C_{55}H_{79}NO_{15}$

Molecular Weight: Emamectin B1a benzoate: 1008.3; Emamectin B1b benzoate: 994.2

Structural Formula:



Chemical Name:

Emamectin B1a benzoate:

(10E,14E,16E,22Z)-(1R,4S,5'S,6S,6'R,8R,12S,13S,20R,21R,24S)-6'-[(S)-sec-butyl]-21,24-dihydroxy-5',11,13,22-tetramethyl-2-oxo-(3,7,19-trioxatetracyclo[15.6.1.14,8.020,24]pentacosan-10,14,16,22-tetraene)-6-spiro-2'-(5',6'-dihydro-2'H-pyran)-12-yl-2,6-dideoxy-3-O-methyl-4-O-(2,4,6-trideoxy-3-O-methyl-4-methylamino- α -L-lyxo-hexapyranosyl)- α -L-arabino-hexapyranoside benzoate



emamectin B1b benzoate:

(10E,14E,16E,22Z)-(1R,4S,5'S,6S,6'R,8R,12S,13S,20R,21R,24S)-21,24-dihydroxy-6'-isopropyl-5',11,13,22-tetramethyl-2-oxo-(3,7,19-trioxatetracyclo[15.6.1.14,8.020,24] pentacos-10,14,16,22-tetraene)-6-spiro-2'-(5',6'-dihydro-2'H-pyran)-12-yl2,6-dideoxy-3-O-methyl-4-O-(2,4,6-trideoxy-3-O-methyl-4-methylamino- α -L-lyxo-hexapyranosyl)- α -L-arabino-hexapyranoside benzoate

Form: Solid

Color: White to yellow

Odor: Not determined

CAS No.: 155569-91-8

2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Emamectin Benzoate	155569-91-8	90.0
Other ingredients		10.0

3. Hazards Identification

Symptoms of Acute Exposure: Causes eye and skin irritation. Inhalation can cause irritation to the respiratory tract and can result in chemical pneumonitis if aspirated. Ingestion results in central nervous system effects such as muscle tremors, decreased activity, ataxia (unsteadiness or incoordination), and dilated pupils (mydriasis).

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

4. First Aid Measures

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of



water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

If inhaled: Move person to fresh air. If person is not breathing, call an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

5. Fire-Fighting Measures

Unusual Fire, Explosion and Reactivity Hazards: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire: Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. Accidental Release Measures

In Case of Spill or Leak: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Sweep up material and place in a compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

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, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. Exposure Controls/Personal Protection

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.



Eye Contact: Where eye contact is likely, use chemical splash goggles.

Skin Contact: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a NIOSH approved respirator with any HE filter.

9. Physical and Chemical Properties

Melting point: 141-146°C

Vapor pressure: 4×10^{-3} mPa @25°C

Density: 1.534 @ 20°C

Solubility in water and organic solvents (at stated temperature):

In water: 0.51g/L @20°C;

In organic solvent: Dichloromethane 50-100 g/L, isopropanol 1-2 g/L, toluene 0.5-1 g/L, n-hexane 0.1 g/L@20°C

10. Stability and Reactivity

Stability: Stable under normal use and storage conditions.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: Heat and light.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

Materials to Avoid: None known.

11. Toxicological Information

Acute oral LD₅₀ for rats is 781.5 mg/kg.

Acute percutaneous LD₅₀ for rabbits is >439 mg/kg.

Acute inhalation toxicity LC₅₀ (4 h) for rats is 0.582 mg/l.

Skin irritation: Non-irritating to skin (rabbits).

Eye irritation: Slightly irritating to eyes (rabbits).

Skin sensitization for guinea pig: Not a skin sensitiser.



12. Ecological And Ecotoxicological Information

Effect on birds: Acute oral LD₅₀ for Mallard ducks is 76 mg/kg.

Effect on fish: Acute LC₅₀ (96 h) for Rainbow trout is 0.174 mg/l.

Effects on aquatic invertebrates: Acute EC₅₀ (48 h) for Daphnia magna is 0.08 mg/l.

Effects on algae: Acute EC₅₀ (72 h) for Pseudokirchneriella subcapitata is 0.0072 mg/l.

Effects on bees: Contact acute (48 h) LD₅₀ is 0.035 µg/bee.

Effects on earthworms: Acute 14 day LC₅₀ is >1000 mg/kg.

13. Disposal Considerations

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local health and environmental regulations.

14. Transport Information

Not applicable

15. Regulatory Information

Not applicable

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 presented 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 produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.