Chemical Factsheet

Emamectin Benzoate

General Information

- Product Names:
  Denim (Syngenta)
  Emamectin (Syngenta)
  Optigard (Syngenta)
  Proclaim (Syngenta)
- Chemical Class: Avermectin insecticide
- Uses: Agriculture
- Alternatives: Organic Agriculture
- Beyond Pesticides rating: Toxic

Health and Environmental Effects

See citations at end of document.

- Cancer: Not documented
- Endocrine Disruption: Not documented
- Reproductive Effects: Not documented
- Neurotoxicity: Yes (**1**)
- Kidney/Liver Damage: Not documented
- Sensitizer/ Irritant: Not documented
- Birth/Developmental: Yes (**1**)
- Detected in Groundwater: Not documented
- Potential Leacher: Not documented
- Toxic to Birds: Not documented
- Toxic to Fish/Aquatic Organisms: Yes (**2**)
- Toxic to Bees: Yes (**2**)

Residential Uses as Found in the ManageSafe™ Database

- Emerald Ash Borer

Additional Information

- Supporting information:
  - PAN Pesticides Database: (Pesticide Action Network)
- Studies [compiled from the Pesticide-Induced Diseases Database]
  - The potential immunotoxicity of emamectin benzoate on the human THP-1 macrophages. Wei, Z., Wang, W., Fu, W., Zhang, P., Feng, H., Xu, W., Tao, L., Li, Z., Zhang, Y. and Shao, X., 2022. Environmental Toxicology.
  - Insecticide Mixtures Could Enhance the Toxicity of Insecticides in a Resistant Dairy Population of Musca domestica L. Khan HAA, Akram W, Shad SA, Lee JJ (2013) Insecticide Mixtures Could Enhance the Toxicity of Insecticides in a Resistant Dairy Population of Musca domestica L. PLOS ONE 8(4): e60929.

https://doi.org/10.1371/journal.pone.0060929
- Contrasting Toxicity Classes Differentially Affect Gut Microbiota Composition in Honey Bees. Kan, Y. et al. (2026) Contrasting Toxicity Classes Differentially Affect Gut Microbiota Composition in Honey Bees, Insects. Available at: https://www.mdpi.com/2075-4450/17/4/437.

Gateway Health and Environmental Effects Citations

1. The Pesticide Management Education Program at Cornell University. Pesticide Active Ingredient Information. http://pmep.cce.cornell.edu/profiles/index.html.

2. Pesticide Action Network Pesticide Database. http://www.pesticideinfo.org/Search_Chemicals.jsp.

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