

3,7,11-Trimethyl-2,6,10-dodecatriene-1-ol (Farnesol) (128910) 3,7,11-Trimethyl-1,6,10-dodecatriene-3-ol (Nerolidol) (128911) Fact Sheet

Summary

Farnesol and Nerolidol are specific chemicals that female mites use to attract males for mating. The chemicals are also common in various flower and plant oils, and in foods we eat. Farnesol and nerolidol are considered safe for humans and the environment when used according to directions on the product label. The two chemicals are sprayed on crops at the same time as a miticide, and enhance the killing effect of the miticide by modifying the behavior of male mites.

I. Description of the Active Ingredient

Active Ingredient: 3,7,11-Trimethyl-2,6,10-dodecatriene-1-ol (Also known as Farnesol)

OPP Chemical Code: 128910 (CAS # 4602-84-0)

Active Ingredient: 3,7,11-Trimethyl-1,6,10-dodecatriene-3-ol (Also known as Nerolidol)

OPP Chemical Code: 128911 (CAS # 7212-44-4)

Farnesol and nerolidol were originally isolated from oils found in plants such as rose, citronella, and lemon grass. By 1960, chemists had learned how to manufacture the chemicals and no longer needed to isolate them from natural sources. More recently, the identical chemicals were isolated from female mites, where the chemicals serve as sex pheromones to attract male mites for mating. [A [*pheromone*](#) is a specific chemical produced by individuals of a given species to modify the behavior of other individuals of the *same* species.]

II. Use Sites, Target Pests, And Application Methods

For use in controlling spider mites, a major crop pest, farnesol and nerolidol are applied to the plants in a spray mixture that also contains a miticide. The pheromones cause the male mites to become more active as they vainly try to locate the presumed nearby female. This extra activity also increases the male's contact with the miticide, thus boosting the miticide's killing effect.

Farnesol and nerolidol can be used with any miticide product that is registered with EPA.

- **Use Sites:** All raw agricultural commodities (e.g., fruits, vegetables, nuts, cotton)

- **Target pests:** Spider mites (tetranychid mites)
- **Application Methods:** A pesticide product that contains farnesol and nerolidol is added to a spray tank mix containing a registered miticide. The farnesol and nerolidol are then applied to crops using the same spray equipment and at the same time as the miticide.

III. Assessing Risks to Human Health

No adverse effects are expected in humans from pesticidal use of these active ingredients. They are naturally present in many foods we eat, and approved as food flavorings by the Food and Drug Administration (FDA). The chemicals also showed no toxicity in animal tests.

IV. Assessing Risks to the Environment

No risks are expected to the environment because 1) toxicity tests showed no harmful effects to organisms, including mammals, birds, fish, and invertebrates, and 2) farnesol and nerolidol are found in many plant oils, decompose quickly into harmless substances, and are used as pesticide ingredients in tiny amounts.

V. Regulatory Information

These pesticide active ingredients were registered (licensed for sale and distribution) in 1987. As of September 2000, there was one end-use product, containing close to equal amounts of each active ingredient in addition to other substances.

VI. Producer Information

Troy Biosciences, Inc.

113 S. 47th Avenue
Phoenix, AZ 85043.

VII. Additional Contact Information

[Ombudsman, Biopesticides and Pollution Prevention Division](#) (7511P)
Office of Pesticide Programs
Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460