

Methyl Eugenol (ME) (203900) Fact Sheet

Summary

Methyl eugenol will be used in insect traps and lure products to attract certain fruit flies such as the Oriental fruit fly on affected food crops. It is naturally occurring in many plants and essential oils, and is a common flavoring ingredient added to foods, candy and gum. No harm is expected from use of this substance in pesticide products as long as users follow label instructions.

I. Description of the Proposed Active Ingredient

Methyl eugenol is a natural constituent in many types of plants and fruits consumed by humans and animals, (e.g., anise, nutmeg, mace, pixuri seeds, basil, blackberry essence, bananas, walnuts, citrus, black pepper). Methyl eugenol is also used as a flavoring added to ice cream, cookies, pies, puddings, candy, cola soft drinks, chewing and bubble gum, etc. For example, clove oil contains approximately 15% ME, and clove oil and its derivatives are affirmed as GRAS (generally recognized as safe) by the Food and Drug Administration as a food additive under 21 CFR §172.515.

II. Use Sites, Target Pests, And Application Methods

- **Use Sites:** Major use sites are expected to be agricultural fields and orchards where the pests are prevalent
- **Target pests:** Tephritidae flies of the Order Diptera, including Oriental fruit fly, Mediterranean fruit fly, and solenaceous fly.
- **Use Methods:** ME will be incorporated into traps for control of fruit flies.

III. Assessing Risks to Human Health

Whether a substance poses a risk to humans or other organisms depends on two factors: how toxic the substance is, and how much of it an organism is exposed to. Therefore, the EPA considers toxicity data and exposure data in deciding whether to approve a pesticide for use.

In acute studies using laboratory animals, ME showed few adverse effects indicating it is "slightly toxic" (Toxicity Category III) for acute oral and dermal routes of exposure. ME was not toxic for acute inhalation toxicity, primary eye irritation, and primary skin irritation studies (Toxicity Category IV). However, published literature suggests ME is a dermal sensitizer. Therefore, precautionary statements were put on the label to warn users that, "Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals exposed to this product," and "Workers and Applicators must wear chemical resistant gloves while mixing and/or when handling this product." in order to reduce potential exposures." As the use of ME for control of fruit flies is in traps, no human

contact is expected, except for anyone loading ME taps. These individuals should be mindful of the potential for allergenicity.

IV. Assessing Risks to the Environment

Environmental exposure to ME is expected to be limited because the product is to be used only in the manufacture of bait-trap and lures; and therefore most of the requirements for non-targeted test species and other ecological testing were waived. On May 9, 2006, however, in 71 FR 26835-26852, the Fish and Wildlife Service (FWS) of the Department of the Interior (DOI), placed 12 species of picture-wing fruit flies from the Hawaiian islands on the endangered or threatened list, and as ME is an attractant for fruit flies, manufacturers of end-use products must make sure products are not used in areas where these flies may be impacted.

V. Regulatory Information

In March, 1982, an exemption from the requirement of a tolerance was established by the Agency for a methyl eugenol-malathion (3:1 ratio) combination impregnated on a carrier and used in United States Department of Agriculture (USDA) Oriental Fruit Fly Eradication Programs. This exemption was modified in April, 2004 to further define the carrier. An Experimental Use Permit (EUP) was granted in June, 1990 to the Tropical Fruit and Vegetable Research Laboratory, USDA Agricultural Research Station in Honolulu, HI to use methyl eugenol and malathion in plastic traps placed on the periphery of fruit orchards to mitigate Oriental Fruit Fly populations. This EUP expired in October, 1992. In February, 2005 EPA published a Tolerance Reassessment Eligibility Document for methyl eugenol and concluded "...there is a reasonable certainty that no harm to any population or subgroup will result from the dietary and water exposure to methyl eugenol from uses specified in the existing exemption for the requirements for tolerance for methyl eugenol under 40 CFR §180.1067." Occupational and residential exposure risks were not evaluated in this tolerance reassessment.

Year registered (licensed for use) as a pesticide active ingredient: 2006

Number of products, April 2006: 1

VI. Registrant Information

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VII. Additional Contact Information

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