

# **Oriental Mustard Seed; Allyl isothiocyanate (AITC) (014921) Fact Sheet**

## **Summary**

Oriental Mustard Seed containing Allyl isothiocyanate (AITC) is a new active ingredient that comprises 98% of the end use product (EP) CA-1 for Turf and Ornamentals. The end use product is a granular pellet intended for use as a nematocide/fungicide in around turf and ornamentals. When Oriental Mustard Seed is wetted, AITC is released and is absorbed into the soil. No risks to humans or the environment are expected when pesticide products containing Oriental Mustard Seed are used according to the label directions.

## **I. Description of the Active Ingredient**

Oriental Mustard Seed (OMS) (which has been de-oiled) is a new active ingredient. This active ingredient has been grinded such that it contains the natural components of the mustard seed (Oriental Mustard Bran and Oriental Mustard Meal); the enzyme myrosinase and glucosinolate sinigrin less the oil of mustard. The OMS technical product is therefore a pellet. Myrosinase and glucosinolate do not exhibit any pesticidal activity. However, when these components (as part of OMS) are in the presence of water, a catalytic reaction occurs whereby allyl isothiocyanate (AITC) is created. AITC is a federally registered active ingredient and thus is the residue of concern since, as described above, when water is added to the OMS pellet in the field, AITC is released. The toxicity profile of AITC has been well characterized by the Agency (Refer to Reregistration Eligibility Decision Flower and Vegetable Oils). For these reasons and since AITC, as derived from OMS is the residue of concern, this document will focus largely on the risks (if any) as presented by AITC.

## **II. Use Sites, Target Pests, And Application Methods**

CA-1 for Turf and Ornamentals is intended for use around turf and ornamental plants. CA-1 for Turf and Ornamentals will be applied dry and directly incorporated into the soil, or broadcast spread to the soil surface.

## **III. Assessing Risks to Human Health**

Adequate mammalian toxicology data on the technical grade active ingredient (TGAI) are available to support registration of products containing OMS that do not contain oil of mustard. Acceptable acute guideline studies and waivers were submitted, and data for mutagenicity, developmental toxicity, and subchronic study requirements were submitted to Biopesticides and Pollution Prevention Division (BPPD) on the technical material. The Agency considered human exposure to OMS in light of the relevant safety factors in FQPA and FIFRA. A determination has

been made that there are no unreasonable adverse effects to the U.S. population in general, and to infants and children. No significant exposure via drinking water is expected when OMS is used according to the product label directions. The product is not to be applied directly to water or to areas where surface water is present. Aquatic exposure should not occur when the product is applied according to label directions

#### **IV. Assessing Risks to the Environment**

Adequate information from the scientific literature were submitted to address the nontarget data requirements. All of the literature supported the fact that there would be no toxicity or adverse effects to nontarget organisms with the exception of certain insects and honey bees. Data demonstrated that the AITC, the residue of concern is highly toxic to honey bees and mildly toxic to other nontarget insects. The Agency has concluded that the honey bee toxicity issue can be appropriately addressed thru label mitigation.

#### **V. V. Producer Information**

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#### **VI. Additional Contact Information:**

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