United States Environmental Protection Agency | Prevention, Pesticides and Toxic Substances (7508C) | EPA 738-F-01-004 October 2001

EPA *Pirimiphos-methyl* Facts

EPA has assessed the risks of pirimiphos-methyl and reached an Interim Reregistration Eligibility Decision (IRED) for this organophosphate (OP) pesticide. Provided that risk mitigation measures are adopted, pirimiphos-methyl fits into its own "risk cup"-- its individual, aggregate risks are within acceptable levels. Pirimiphos-methyl also is eligible for reregistration, pending a full reassessment of the cumulative risk from all OPs.

Used primarily on stored corn and sorghum grain and seed, in cattle ear tags and for the fogging treatment of iris bulbs, pirimiphos-methyl residues in food alone do not pose risk concerns. With mitigation reducing worker exposure to pirimiphos-methyl by requiring closed system mixing and loading systems for admixture grain and seed treatment, and requiring additional personal protective equipment for workers, risk will not be of concern. Pirimiphos-methyl ecological risks are also below the Agency's level of concern.

EPA's next step under the Food Quality Protection Act (FQPA) is to complete a cumulative risk assessment and risk management decision encompassing all the OP pesticides, which share a common mechanism of toxicity. The interim decision on pirimiphos-methyl cannot be considered final until this cumulative assessment is complete. Further risk mitigation may be warranted at that time.

EPA is reviewing the OP pesticides to determine whether they meet current health and safety standards. Older OPs need decisions about their eligibility for reregistration under FIFRA. OPs with residues in food, drinking water, and other non-occupational exposures also must be reassessed to make sure they meet the new FQPA safety standard.

The OP Pilot Public Participation Process

The organophosphates are a group of related pesticides that affect the functioning of the nervous system. They are among EPA's highest priority for review under the Food Quality Protection Act.

EPA is encouraging the public to participate in the review of the OP pesticides. Through a six-phased pilot public participation process, the Agency is releasing for review and comment its preliminary and revised scientific risk assessments for individual OPs. (Please contact the OP Docket, telephone 703-305-5805, or see EPA's web site, www.epa.gov/pesticides/op .)

EPA is exchanging information with stakeholders and the public about the OPs, their uses, and risks through Technical Briefings, stakeholder meetings, and other fora. USDA is coordinating input from growers and other OP pesticide users.

Based on current information from interested stakeholders and the public, EPA is making interim risk management decisions for individual OP pesticides, and will make final decisions through a cumulative OP assessment.

The pirimiphos-methyl interim decision was made through the OP pilot public participation process, which increases transparency and maximizes stakeholder involvement in EPA's development of risk assessments and risk management decisions. EPA worked extensively with affected parties to reach the decisions presented in this interim decision document, which concludes the OP pilot process for pirimiphos-methyl.

Uses

- Pirimiphos-methyl is a post-harvest insecticide used on stored corn and sorghum grain and seed, incorporated into cattle ear tags, and used for the fogging treatment of iris bulbs. It is used to control various insects such as mealy bugs and mites (on iris bulbs), horn and face flies (on cattle), and cigarette beetle, confused flour beetle; corn sap beetle; flat grain beetle; hairy fungus beetle; red flour beetle; sawtoothed beetle, granary weevil, maize weevil, merchant grain beetle, rice weevil, lesser grain borer, and angoumois grain moth, Indian Meal moth and almond moth (on corn and sorghum grain and seed).

- Annual domestic use is low-- approximately 12,000 pounds of active ingredient per year. Total usage is allocated mainly to stored corn grain (39%) ear tags for cattle/calves (36%), stored sorghum grain (15%), corn seed (5%), and sorghum seed (5%). Regions with significant usage on cattle include the Gulf Coast, Midwest, and West, and states with significant usage on corn grain include Iowa and Texas.

- There are no residential uses for pirimiphos-methyl.

Health Effects

- Pirimiphos-methyl can cause cholinesterase inhibition in humans; that is, it can overstimulate the nervous system causing nausea, dizziness, confusion, and at very high exposures (e.g., accidents or major spills), respiratory paralysis and death.

Risks

- Acute and chronic dietary risks from food alone do not exceed the Agency's level of concern. Drinking water exposure is not of concern because there are no outdoor uses which would result in water contamination. Therefore a drinking water assessment was not completed for this organophosphate.

- Worker risks are of concern for the mixer/loader/applicator when using pirimiphos-methyl as a top dress or admixture treatment for stored corn and sorghum grain and seed; a fogging treatment on iris bulbs, and when applying cattle ear tags.

- Ecological risks are not of concern to the Agency. Although pirimphos-methyl is highly toxic to birds and fish, these risks are not of concern based on the use pattern of pirimiphos-methyl.

Risk Mitigation

In order to support a reregistration eligibility decision for pirimiphos-methyl, the following risk mitigation measures listed below are necessary:

- To mitigate risks to agricultural workers (mixers/loaders) during admixture treatment to corn and sorghum grain and seed:
  - Require the use of engineering controls such as closed mixing and loading systems.
- To mitigate risks to workers (mixers/loaders/applicators) during top dress treatment to corn and sorghum grain and seed:
  - Require all mixers/loaders/applicators to wear coveralls over long sleeve shirt and pants, chemical resistant footwear, socks, and chemical resistant gloves. In addition, mixers and loaders must wear a chemical resistant apron.
- To mitigate worker risks from cattle ear tag use:
  - Handlers must wear chemical resistant gloves in addition to long sleeve shirt, long pants, shoes, and socks.
- To mitigate risks to agricultural workers for the fogging treatment of iris bulbs:
  - Require all mixers and loaders to wear coveralls and chemical resistant gloves.
  - Require applicators to use a stationary or cart-mounted fogging device, which when activated functions automatically without an operator present.
  - Require applicators to have available to them for use in case they must enter the area during treatment before ventilation requirements have been met, coveralls, chemical resistant gloves, chemical resistant headgear and a self-contained breathing apparatus (SCBA) (MSHA/NIOSHA approval number prefix TC-13F).
  - Require that entry by any person into the treatment area, other than a properly trained and equipped handler using the PPE specified, be prohibited until the area has been adequately ventilated.

Next Steps

- Numerous opportunities for public comment were offered as this decision was being developed. The pirimphos-methyl IRED therefore is issued in final (see www.epa.gov/REDs/

or www.epa.gov/pesticides/op), without a formal public comment period. The docket remains open, however, and any comments submitted in the future will be placed in this public docket.

- The pirimiphos-methyl IRED contains a generic and product-specific Data Call-In (DCI) that outline(s) further data requirements for this chemical. A complete DCI, with all pertinent instructions, is being sent to registrants under separate cover.

- The pirimiphos-methyl IRED also describes labeling amendments for end-use products and data requirements necessary to implement the mitigation measures outlined in the document. Instructions for registrants on submitting the revised labeling can be found in the set of instructions for product-specific data that is being sent under separate cover.

- When the cumulative risk assessment for all organophosphate pesticides is completed, EPA will issue its final tolerance reassessment decision for pirimiphos-methyl and may request further risk mitigation measures. The Agency will revoke 14 tolerances and amend 5 tolerances for pirimiphos-mehtyl IRED, now. For all OPs, raising and/or establishing tolerances will be considered once a cumulative assessment is completed.