

US EPA ARCHIVE DOCUMENT

EPA Temephos Facts

EPA has assessed the risks of temephos and reached a Reregistration Eligibility Decision (RED) for this organophosphate (OP) pesticide. Provided that risk mitigation measures are adopted, temephos is eligible for reregistration. A cumulative assessment is not warranted.

Temephos is one of a few organophosphates registered to control mosquito larvae, and is the only organophosphate with any appreciable larvicidal use. It is an important resistance management tool for mosquito abatement programs. Temephos residues in food and drinking water do not pose risk concerns since temephos has no food uses and, because of its limited use pattern, is not expected to be found in drinking water. Residential risk is not of concern since temephos has no residential use and its use in mosquito abatement programs does not result in residential exposure. With mitigation measures, temephos' worker and ecological risks will be eligible for reregistration.

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. Because temephos has no food uses, or other uses that would result in exposure to children, it will not be included in the cumulative assessment of OPs.

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 temephos decision was made through the OP pilot public participation process, which

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, <http://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 most individual OP pesticides, and will make final decisions through a cumulative OP assessment.

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 decision document, which concludes the OP pilot process for temephos.

Uses

- Temephos is used to control mosquito, midge, gnat, punkie, and sandfly larvae in non-potable water (stagnant, saline, brackish and temporary water bodies), waters high in organic content, highly polluted water, including moist areas, woodland pools, shallow ponds, edges of lakes, swamps, marshes, tidal waters, intertidal zones, catch basins, and tire piles. It is an important resistance management tool for mosquito abatement programs.
- Annual usage is approximately 25,000 to 40,000 pounds of active ingredient per year. Temephos' use has declined in recent years due to deletion of the use on citrus.

Health Effects

- Temephos 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

- Dietary risks from food and drinking water are not of concern since temephos has no food uses. Because of its limited use pattern, it is not expected to be found in drinking water.
- Residential risk is not of concern since temephos has no residential use, and its use in mosquito abatement programs does not result in residential exposure.
- EPA has risk concerns for workers who can be exposed both dermally and through inhalation while mixing, loading, and/or applying temephos.
- Because temephos is applied directly to non-potable water, it is not expected to have a direct impact on terrestrial animals. Risk quotients for freshwater fish exceed levels of concern only for endangered species and restricted use. No acute toxicity data are available for marine fish species. Risk quotients exceed levels of concern for aquatic invertebrates.

Risk Mitigation

In order to support a reregistration eligibility decision for temephos the following risk mitigation measures are necessary:

- To mitigate risks to mixers, loaders, applicators and other handlers, either closed mixing and loading systems or additional personal protective equipment (PPE) will be needed.

Where closed systems are not feasible or are not used, handlers will need to wear:

- Cloth coveralls over long-sleeved shirt and long pants;
- Chemical-resistant gloves;
- Chemical-resistant footwear plus socks;
- Chemical-resistant headgear (if overhead exposure).

See the temephos RED for application specific measures.

Temephos must be applied only by public health officials, personnel of mosquito abatement districts and other similar government agencies or personnel under contract to these entities.

- To mitigate ecological risks, temephos:
 - May be applied only to non-potable water (stagnant, saline, brackish and temporary water bodies), waters high in organic content, highly polluted water, including moist areas, woodland pools, shallow ponds, edges of lakes, swamps, marshes, tidal waters, intertidal zones, catch basins, and tire piles;
 - May not be reapplied within 7 days of initial application unless monitoring indicates that larval populations have reestablished, or weather conditions have rendered initial treatments ineffective;
 - Limit use of high application rates to non-potable water (stagnant, saline, brackish and temporary water bodies), high in organic matter content, highly polluted water, and tire piles and where monitoring has confirmed a lack of control at typical rates.

Next Steps

- The temephos RED contains a generic and a product-specific Data Call-In(s) (DCI) that outline further data requirements for this chemical. A complete DCI, with all pertinent instructions, is being sent to registrants under separate cover.
- The temephos RED 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.
- Registrants are developing route-specific dermal toxicity data. If these data indicate lower risk to workers than currently estimated, PPE requirements may be revised.

For More Information

To obtain a copy of the RED document, please contact the OPP Public Regulatory Docket (7502C), US EPA, Ariel Rios Building, 1200 Pennsylvania Avenue NW, Washington, DC 20460, telephone 703-305-5805. Electronic copies of the RED, the fact sheet, and supporting documents are available on the Internet. See

<http://www.epa.gov/pesticides/reregistration/status.htm> or <http://www.epa.gov/pesticides/>.

Printed copies of the RED and fact sheet can be obtained from EPA's National Service Center for Environmental Publications (EPA/NSCEP), PO Box 42419, Cincinnati, OH 45242-2419, telephone 1-800-490-9198; fax 513-489-8695.

The temephos RED document also will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 1-800-553-6847, or 703-605-6000.

For more information about EPA's pesticide reregistration program, the temephos RED, or reregistration of individual products containing temephos, please contact the Special Review and Reregistration Division (7508C), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000.

For information about the health effects of pesticides, or for assistance in recognizing and managing pesticide poisoning symptoms, please contact the National Pesticide Telecommunications Network (NPTN). Call toll-free 1-800-858-7378, from 6:30 am to 4:30 pm Pacific Time, or 9:30 am to 7:30 pm Eastern Standard Time, seven days a week. Their Internet address is <http://ace.orst.edu/info/nptn/>.