United States Environmental Protection Agency

Chlorpyrifos

Chlorpyrifos is an organophosphate insecticide, acaricide and miticide used primarily to control foliage and soil-borne insect pests on a variety of food and feed crops.

Related Information

- Read the Federal Register notice announcing our denial of a petition to revoke chlorpyrifos tolerances
- Revised chlorpyrifos human health risk assessment

On this page:

Basic Information

Chlorpyrifos has been used as a pesticide since 1965 in both agricultural and non-agricultural areas:

- The largest agricultural market for chlorpyrifos in terms of total pounds of active ingredient is corn.
- It is also used on soybeans, fruit and nut trees, Brussels sprouts, cranberries, broccoli, and cauliflower, as well as other row crops.
- Non-agricultural uses include golf courses, turf, green houses, and on non-structural wood treatments such as utility poles and fence posts. It is also registered for use as a mosquito adulticide, and for use in roach and ant bait stations in child resistant packaging.

Products are sold as liquids, granules, water dispersible granules, wettable powders, and water soluble packets, and may be applied by either ground or aerial equipment.

Using Chlorpyrifos Products Safely

Chlorpyrifos can cause cholinesterase inhibition in humans at high enough doses; 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.

Occupational exposure to chlorpyrifos is of concern to the Agency. The current chlorpyrifos labels require workers handling and applying chlorpyrifos to wear additional personal protective equipment (chemical resistant gloves, coveralls, respirators), and restricting entry into treated fields for 24 hours up to five days.

EPA Actions

To address health and environmental risks from chlorpyrifos exposure, the following restrictions have been placed on pesticide products containing chlorpyrifos:

- In June 2000, we eliminated all homeowner uses, except ant and roach baits in child resistant packaging and fire ant mound treatments. In addition, termiticide uses were phased out.
- In 2000, we required that all uses of chlorpyrifos products in the U.S. be discontinued on tomatoes. Use on apples was restricted to pre-bloom and dormant application. The grape tolerance (maximum residue level) was lowered to reflect the labeled dormant application.

- In 2002, we limited the use of chlorpyrifos on citrus and tree nuts as well other crops.
- In 2012, we further limited the use of chlorpyrifos by significantly lowering pesticide application rates and creating “no-spray” buffer zones around public spaces, including recreational areas and homes.

Over the past several years, we have conducted several risk assessments and taken regulatory action in response to a petition from the Pesticide Action Network of North America and Natural Resources Defense Council. In March 2017, we denied that petition, which asked us to revoke all pesticide tolerances (maximum residue levels in food) for chlorpyrifos and cancel all chlorpyrifos registrations. As a part of the ongoing registration review, we will continue to review the science addressing neurodevelopmental effects of chlorpyrifos. Read the Federal Register notice announcing our response to the petition.

Currently, chlorpyrifos remains registered as it undergoes registration review, a program that re-evaluates all pesticides on a 15-year cycle. Registration review ensures pesticides will not cause unreasonable adverse effects when used according to label directions and precautions and that there is a reasonable certainty of no harm from dietary and residential exposure. All documents related to the registration review can be located in the registration review docket EPA-HQ-OPP-2008-0850 located at www.regulations.gov. We will continue to evaluate the potential risks posed by chlorpyrifos as part of the ongoing registration review and intend to complete our assessment by the statutory deadline of October 1, 2022.

Additional Information

- Chemical Search (EPA risk assessments, decisions, and other documents)
- Registration Review Docket for chlorpyrifos EPA-HQ-OPP-2008-0850 at www.regulations.gov
- Tolerance Rulemaking Docket for chlorpyrifos EPA-HQ-OPP-2015-0653 at www.regulations.gov

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