

What is Resmethrin?

Resmethrin belongs to a group of insecticides called pyrethroids. Pyrethroids are man-made chemicals that are similar to pyrethrins, a natural insecticide made from chrysanthemum flowers. Resmethrin is generally used in and around homes and industrial and food-handling facilities, and on pets or livestock to control flying or crawling insects. Resmethrin is also used by professional pesticide applicators in mosquito control programs. Resmethrin is a colorless to yellow-brown liquid that has an odor similar to chrysanthemum flowers. Resmethrin was first registered for use in the United States in 1967.

What are Some Products that Contain Resmethrin?

Resmethrin is used in a wide variety of pesticide products, including ready to use sprays, concentrated liquids, and aerosol solutions. There are currently more than 200 registered products that contain resmethrin. Always follow label instructions and take steps to avoid exposure. If any exposures occur, be sure to follow the First Aid instructions on the product label carefully. For additional treatment advice, contact the Poison Control Center at 1-800-222-1222. If you wish to report an incident, please call 1-800-858-7378.



How does Resmethrin work?

Resmethrin kills insects by direct contact. Resmethrin works by interfering with the normal function of the nervous system. Resmethrin is more toxic to insects than mammals due to the lower body temperature of insects.



How Might I Be Exposed to Resmethrin?

There are four ways that people can be exposed to chemicals: contacting their skin, contacting their eyes, breathing them in, or eating them. Resmethrin can be breathed in when sprays or foggers are used in indoor spaces. Direct contact to the skin or eyes can happen while spraying resmethrin, or if direct exposure occurs during mosquito control efforts. It may also be possible to swallow resmethrin if the hands are not washed after a skin exposure. Exposure to resmethrin can be limited by reading the product label and following all of the directions.

NPIC General Fact Sheets are designed to provide scientific information to the general public. This document is intended to promote informed decision-making. Please refer to the Technical Fact Sheet for more information.

What are Some Symptoms from a Brief Exposure to Resmethrin?

Health effects from resmethrin depend on how someone is exposed to the chemical. Resmethrin is low in toxicity through all routes of exposure. Direct contact with the skin can cause stinging, burning, itching, tingling, and numbness. Health effects from absorbing resmethrin through the skin or breathing it in are less common, but may include: abnormal sensations on the face, dizziness, nausea, fatigue, and irritability to sound and touch. In more severe cases of poisoning signs may include drooling, vomiting, diarrhea, muscle twitching and lung effects. Seizures have also been reported in severe cases, but are more common with exposure to type II pyrethroids.

What Happens to Resmethrin When it Enters the Body?

Pyrethroids are effectively taken into the body when eaten or breathed in. Pyrethroids in general are poorly absorbed into the body when they get on the skin. However, some pesticide formulations known as “emulsifiable concentrates” may increase absorption through the skin.

Pyrethroids are not expected to build up and remain in the body. When researchers fed resmethrin to rats it was broken down in the body and excreted within 2-3 days. Breakdown products from resmethrin are less toxic than resmethrin itself.

Is Resmethrin Likely to Contribute to the Development of Cancer?

Resmethrin is classified by the US Environmental Protection Agency (US EPA) as “likely to be carcinogenic to humans.” This classification is based on tests that showed increased liver tumors among female rats and male mice when they were fed resmethrin in their diet for two years.

Additional long-term studies with mice and rats that were fed resmethrin in their diet showed no evidence of resmethrin causing cancer.

Has Anyone Studied Non-cancer Effects from Long-term Exposure to Resmethrin?

In long-term feeding studies with rats, the liver was the organ most sensitive to the effects of resmethrin. Researchers also fed resmethrin to rats and rabbits during pregnancy and observed effects only at the highest doses tested. Effects included decreased maternal and offspring weight gain in rats, and increased abortion and stillborn offspring, and skeletal abnormalities in rabbits.

Are Children More Sensitive to Resmethrin than Adults?

While [children may be especially sensitive to pesticides](#) compared to adults, there are currently no data to conclude that children have increased sensitivity specifically to resmethrin.



What Happens to Resmethrin in the Environment ?

In the soil, resmethrin has a half-life of 30 days and is primarily broken down by sunlight. Resmethrin does not mix well with water and binds tightly to the soil, so resmethrin will not be likely to move through the soil. These characteristics make it unlikely for resmethrin to get into groundwater. Resmethrin does not significantly evaporate into the air from the surface of soil or water.

Researchers applied resmethrin to surfaces exposed to sunlight and observed a half-life of 20-90 minutes. When researchers studied resmethrin indoors, resmethrin broke down within a few hours from exposure to natural sunlight.

Resmethrin is not toxic to plants. Researchers applied resmethrin to tomato and lettuce plants and found that 55 to 82% of resmethrin was broken down within 2 hours. No resmethrin remained on the plants after 5 days.



Can Resmethrin Affect Birds, Fish, or Other Wildlife ?

Resmethrin is considered highly toxic to honeybees. Resmethrin is very highly toxic to fish and water creatures that do not have backbones (invertebrates), such as pink shrimp and water fleas. The way that resmethrin behaves in the environment, including failure to mix well with water and rapid break down when exposed to sunlight, reduces the possible impact to fish and water invertebrates. Resmethrin is low to moderately toxic to birds depending on the amount and length of time of exposure.

Where can I get more information ?

For more detailed information see the [Resmethrin Technical Fact Sheet](#) or call the National Pesticide Information Center 7 days a week, between 6:30 AM and 4:30 PM Pacific Time (9:30 AM to 7:30 PM Eastern Time) at 1-800-858-7378 or visit us on the web at www.npic.orst.edu. NPIC provides objective, science-based answers to questions about pesticides.

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