

What is deltamethrin?

Deltamethrin is an insecticide belonging to the pyrethroid family. Pyrethroids are the man-made versions of pyrethrins, natural insecticides from chrysanthemum flowers. Deltamethrin is used outdoors on lawns, ornamental gardens, golf courses, and indoors as a spot or crack and crevice treatment. In its purest form, deltamethrin is colorless or white to light beige crystals that have no odor.

Deltamethrin was first described in 1974 and entered the marketplace in 1978.



What are some products that contain deltamethrin?

Deltamethrin is in a variety of products used to kill a wide range of insects. Deltamethrin can be formulated in insecticide products as aerosols, sprays, dusts, granules and wettable powders. The illegal, unregistered product known as "Chinese Chalk" or "Miraculous Chalk" often contains deltamethrin as the active ingredient. "Chinese Chalk", "Miraculous Chalk", and products like them are not registered for use in the United States and illegal products such as these should be avoided at all times.

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 a pesticide problem, please call 1-800-858-7378.



How does deltamethrin work?

Deltamethrin can kill insects by direct contact or if they eat it. It disrupts their normal nervous system function. It is less toxic to mammals due to their higher body temperature, larger body size, and decreased sensitivity to the chemical.

How might I be exposed to deltamethrin?

You can be exposed to deltamethrin if you touch, eat, or breathe it in. As an example, it could be breathed in if a fine mist or dust containing deltamethrin gets in the air you breathe. Exposure to deltamethrin can be limited by reading and following label 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 deltamethrin?

When deltamethrin gets on the skin, it can cause skin sensations like tingling, itching, burning, or numbness at that spot. These sensations usually go away within 48 hours. Deltamethrin can be mildly irritating if it gets in the eye. If enough deltamethrin is breathed in, it can cause headaches and dizziness. Although not common, individuals who have ingested large amounts of deltamethrin have experienced nausea, vomiting, abdominal pain, and muscle twitches. Deltamethrin is low in toxicity when it is touched or breathed in and is low to moderately toxic if eaten.

Deltamethrin can affect dogs and cats if they eat, breathe, or touch it. It can cause vomiting, drooling, in-coordination, and muscle tremors if they eat enough of it. If deltamethrin gets on their skin, it can sometimes cause skin sensations that result in biting, scratching, or licking of the exposed area.



What happens to deltamethrin when it enters the body?

In animal studies, deltamethrin was readily absorbed when it was eaten. Some of the chemical was broken down into other chemicals before they were excreted within 2 days. In a rat study, deltamethrin was poorly absorbed through the skin. The small amount that was absorbed through the skin left the body within 24 hours.

Is deltamethrin likely to contribute to the development of cancer?

The evidence from animal studies indicates that deltamethrin does not cause cancer. The U.S. EPA classifies deltamethrin as Not Likely to Be a Human Carcinogen by all routes of exposure.

Has anyone studied non-cancer effects from long-term exposure to deltamethrin?

Yes, studies have been done using laboratory animals. In multiple studies with mice and dogs, no effects were observed at the highest doses tested, over a 2 year period. Deltamethrin did not cause birth defects in laboratory animals that ate deltamethrin during their pregnancy.

Are children more sensitive to deltamethrin than adults?

While [children may be especially sensitive to pesticides](#) compared to adults, it is currently unknown whether children have increased sensitivity specifically to deltamethrin. However, studies in rats showed that young rats were more sensitive than older rats when they were both fed deltamethrin.

What happens to deltamethrin in the environment?

When deltamethrin gets in the soil, it has a tendency to bind tightly to soil particles. It has a half-life ranging from 5.7-209 days. Half-life is the measure of time it takes for half of the applied amount to break down. The half-life can change based on soil chemistry, temperature, water content and the amount of organic matter in the soil. Deltamethrin does not break down as quickly in soil with a high clay or organic matter content. Deltamethrin is broken down by microbes, light, and water. Its two major breakdown products move more easily in the soil than deltamethrin itself.

Deltamethrin is not likely to evaporate into the air or dissolve easily into water.

Deltamethrin has a half-life of 5.9-17 days on plant surfaces. It is unlikely to be taken up by plants, since it binds to soil particles so tightly.

Can deltamethrin affect birds, fish, or other wildlife?

Deltamethrin is moderately to highly toxic to fish under laboratory conditions. However, when products are used according to the label, deltamethrin is less likely to affect fish. This is because it is more likely to be bound to the sediment.

Deltamethrin is practically non-toxic to birds when they eat it.

Deltamethrin is highly toxic to honeybees under laboratory conditions. It did not harm bees in field studies, and formulated products actually had a repellent effect that lasted for 2-3 hours.

Earthworms were not affected when soil was treated with deltamethrin.



Where can I get more information?

For more detailed information see the [Deltamethrin Technical Fact Sheet](#) or call the National Pesticide Information Center, Monday - Friday, between 7:30 AM and 3:30 PM Pacific Time (10:30 AM to 6:30 PM Eastern Time) at 1-800-858-7378 or visit us on the web at <http://npic.orst.edu>. NPIC provides objective, science-based answers to questions about pesticides.

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