

What is malathion?

Malathion is an insecticide in the chemical family known as organophosphates. Products containing malathion are used outdoors to control a wide variety of insects in agricultural settings and around people's homes. Malathion has also been used in public health mosquito control and fruit fly eradication programs. Malathion may also be found in some special shampoos for treating lice. Malathion was first registered for use in the United States in 1956.

What are some products that contain malathion?

Products containing malathion may be liquids, dusts, wettable powders, or emulsions. There are thousands of products containing malathion registered for use in the United States.

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 malathion work?

Malathion kills insects by preventing their nervous system from working properly. When healthy nerves send signals to each other, a special chemical messenger travels from one nerve to another to continue the message. The nerve signal stops when an enzyme is released into the space between the nerves. Malathion binds to the enzyme and prevents the nerve signal from stopping. This causes the nerves to signal each other without stopping. The constant nerve signals make it so the insects can't move or breathe normally and they die.

People, pets and other animals can be affected the same way as insects if they are exposed to enough malathion. About the same amount of malathion will be taken into the body whether you breathe it in or you swallow it. Malathion is also readily taken into the body through skin, though the amount absorbed will depend on where the exposure occurs on the body. Malathion can become more toxic if it has been sitting for a long time, especially in a hot place.



How might I be exposed to malathion?

You could be exposed to malathion if you get it on your skin or breathe it in, or if you use a product and eat, drink, or smoke afterwards without washing your hands. People who apply products containing malathion may be exposed if they do not wear the proper protective equipment. You could also be exposed to residues of malathion if you ate food that had been treated with this pesticide.

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What are some symptoms from a brief exposure to malathion?

People who were exposed to enough malathion to become sick felt nauseated or vomited, had muscle tremors, cramps, weakness, shortness of breath, a slowed heart rate, headache, abdominal pain and diarrhea.

Pets could be exposed to malathion if they get into a product by accident, or touch or eat plants that have just been sprayed. Pets will be affected by malathion like other animals. The nervous system is very similar in people and other animals, so animals poisoned by malathion may show signs similar to those observed in people.



What happens to malathion when it enters the body?

In both humans and animals, malathion travels to the liver and kidneys and affects the nervous system. Generally, the body can break down malathion and remove it quickly. Studies in rats showed that most malathion was gone from their bodies within a day of exposure.

Is malathion likely to contribute to the development of cancer?

Researchers fed malathion to rats for up to two years and to mice for a year and a half. They found no evidence of increased cancer in the treated animals. Other studies using higher doses of malathion in rats and mice found that they developed liver cancer. The United States Environmental Protection Agency (U.S. EPA) has determined that there is "suggestive evidence of carcinogenicity but not sufficient to assess human carcinogenic potential by all routes of exposure," for malathion.

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

Rats fed malathion when they were pregnant had lower levels of the target enzyme than other rats. The fetuses also had less of the target enzyme. Rabbits were more likely to resorb their fetuses if they were fed malathion when pregnant. Rats that were fed malathion for three weeks had less thyroid activity than other rats.

Are children more sensitive to malathion than adults?

There were no studies found showing that children are more sensitive to malathion than adults. While [children may be especially sensitive to pesticides](#) compared to adults, there are currently no data showing that children have increased sensitivity specifically to malathion.

What happens to malathion in the environment?

Bacteria in the soil may break down malathion and sunlight can break down malathion in the air. Malathion will mix with water and can move quickly through soil. Because of these properties, malathion can be found in surface waters such as streams, and sometimes it is found in well water. The time it takes for malathion to break down to half of the original amount in soil is about 17 days, depending on the soil type. This length of time is known as the half-life. In water, malathion has a half-life between 2 and 18 days, depending on conditions like temperature and pH. Malathion vapor may also move long distances in air or fog.

Can malathion affect birds, fish, or other wildlife?

Malathion is highly toxic to bees and other beneficial insects, some fish, and other aquatic life. Malathion is moderately toxic to other fish and birds, and is considered low in toxicity to mammals.



Where can I get more information?

For more detailed information see the [Malathion 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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