

Facts:

from the Colorado Department of Public Health and Environment



Mosquito control insecticides: Malathion

Trade names: Atrapa, Celthion, Cythion, Dielathion, El 4049, Emmaton, Exathios, Fyfanon, Hilthion, Karbofos, Maltos

Chemical name: diethyl (dimethoxy thiophosphorylthio) succinate

Mode of action: Malathion interferes with the insect's nervous system, resulting in inability to breathe and death.

Persistence/duration: Malathion breaks down and is almost entirely eliminated from the body within the first day. More than 90 percent of malathion present in soil degrades, or breaks down, after 100 days as a result of soil bacteria and sunlight. In air, malathion will break down rapidly in sunlight, with less than 5 percent of the original concentration remaining after one week. It is soluble in water. In raw river water, about 5 percent of the original concentration remains after one month. On plant surfaces, the time required for 90 percent of the malathion present to degrade is about 4 to 30 days.

Uses: Products containing malathion are registered by the U.S. Environmental Protection Agency and by the Colorado Department of Agriculture for mosquito control and use in controlling agricultural and household insect pests.

Rate of application: For mosquito control, applicators use ultra-low volume technology, which requires very small amounts of insecticide to be used. The maximum rate for ground and aerial application is 8.0 ounces of the active ingredient per acre.

What is malathion?

Malathion is an insecticide (a chemical that kills insects) used for controlling adult mosquitoes. The chemical was first introduced in 1950 and is approved by the U.S. Environmental Protection Agency (EPA). Malathion also is used to control insects on food and feed crops, and on landscaping plants and shrubs.

Is malathion dangerous?

Insecticides are designed to kill the target insect. If mishandled or used incorrectly, these products could cause human illness.

Insecticide applicators are licensed and regulated by the state and EPA, and the products must be applied exactly as instructed on the label, using the recommended safety precautions.

Does this mean malathion is safe?

No insecticide can be considered completely "safe." Federal law prohibits claims that insecticides are "safe."

Any insecticide's safety depends on how it is used. Insecticides that are approved by EPA are considered to present an

"acceptable level of risk" when applied as directed.

When applied properly at very small concentrations to kill mosquitoes, EPA found that malathion poses very little risk to adults, children, wildlife, or the environment.

What is an "acceptable level of risk?"

EPA scientists conduct studies to estimate an insecticide's risk to humans. These studies look at the risk of causing illness when used as directed, and the potential for illness if a person is exposed to much higher levels. From these studies, the amount of chemical that can be applied is determined. These approved application levels are well below the amount that will result in immediate human illness, but are at levels that will still kill mosquitoes. Malathion should be used only when needed, and applied at the lowest rate to do the job, while following all safety recommendations.

What are the health risks of malathion?

The effects of malathion on human

health and the environment depend on how much, how long, and how often malathion is present. The effects also depend on the person's health or the condition of the environment in which malathion is used. At low concentrations, malathion may cause skin irritation.

It is very unlikely that anyone will become ill as a result of contact with the very low concentrations of malathion used in spraying operations.

High-dose exposure usually results from drinking the chemical, either accidentally or intentionally, or from accidents when working with the undiluted chemical. Contact with higher doses of malathion can cause a variety of symptoms, including headaches, nausea, dizziness, weakness, cramps, diarrhea, excessive sweating, blurred vision, and increased heart rate. Short-term exposure to high levels of the solvents used to dilute malathion can cause irritation of the eye, skin, nose, throat, or lungs. High-dose exposure to the general public would not occur in the community

during mosquito spraying.

The EPA has classified malathion as a possible carcinogen (cancer-causing agent) because there is some evidence of cancer in laboratory animals. Malathion has been used widely for almost 55 years in agriculture and mosquito control without any known connection to cancer in people.

Are some people at greater risk for problems from malathion?

Most people will not experience any symptoms, because exposure to the chemical during spraying is so low.

- People who are highly sensitive to chemicals in general could experience short-term effects, such as skin, eye, and nose irritation, or respiratory problems.
- Malathion may worsen conditions such as asthma.

How is malathion used to kill mosquitoes?

Malathion is sprayed using ultra-low volume sprayers mounted on trucks or small aircraft. The sprayers produce very small droplets (5 to 20 microns; several droplets would fit on the tip of a pin) that drift in the air and kill flying adult mosquitoes on contact.

Will malathion harm pets or other animals?

Just as with humans, when pesticides are evaluated, the risk to pets, fish, birds, wildlife, and livestock is considered. No specific risks to animals are expected when used as directed and no special precautions

are required.

If you are concerned, you can reduce pets' exposure by keeping them indoors and covering fishponds during spraying. The risk to birds from malathion use is considered to be low to moderate.

Is malathion harmful to bees?

Malathion is an insecticide and it will kill bees. Mosquito spraying operations should be scheduled after dusk when mosquitoes are most active and when bees would be back in their hives.

Is it safe to swim in the pool after spraying with malathion?

There are no special precautions required for swimming pools. Malathion breaks down in water and in sunlight. If you are concerned, cover your pool before spraying to reduce exposure.

What can I do to reduce exposure to insecticides like malathion during mosquito control spraying?

No special actions are recommended and there is no need to relocate during mosquito control spraying.

If you are concerned, take common-sense steps to reduce exposure to insecticides during spraying:

- Contact your mosquito control district or local health agency to find out about mosquito control programs in your area. A well-run mosquito control program will post spray times and locations several days prior to spraying.
- Persons with chemical sensitivities,

asthma, or other respiratory conditions and pregnant women may want to stay indoors during spraying to limit exposure.

- Protect eyes from spray. If you get insecticide spray in your eyes or on your skin, rinse with water.
- Shut windows and turn off air conditioners during spraying.
- Bring children's toys, pets' dishes, outdoor furniture and equipment, and clothing indoors. Cover outdoor furniture, barbecue grills, and play equipment. Items left outside can be rinsed with water.
- Wash fruits and vegetables from the garden before storing, cooking, or eating them.

If you think you may have a reaction to insecticides, call your doctor or the Rocky Mountain Poison and Drug Center at 1-800-222-1222.

Why are public health agencies using malathion for mosquito control?

The risk of West Nile virus infection is a public health threat. The virus is transmitted by mosquitoes. Malathion is one way to control mosquitoes that is effective, with minimal risk to human health.

Reliable sources of information

Colorado HELP hotline

www.cohelp.us
1-877-462-2911 (toll-free)
M-F 7 a.m. – 11 p.m.; S-S 9:30 a.m. – 8 p.m.

Colorado Agriculture Pesticide Program

www.ag.state.co.us/dpi/pesticides/
303-239-4146

National Pesticide Information Center

npic.orst.edu
1-800-858-7378
7:30 a.m. – 5:30 p.m. MST

U.S. Environmental Protection Agency

www.epa.gov/pesticides/op/malathion/overview.htm
Region VIII: 1-800-227-8917



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