



FOR YOUR INFORMATION

Malathion for Mosquito Control

**EPA evaluates and
licenses pesticides**

The Environmental Protection Agency (EPA) evaluates and registers (licenses) pesticides to ensure they can be used safely. These pesticides include products used in the mosquito control programs which states and communities have established. To evaluate any pesticide, EPA assesses a wide variety of tests to determine whether a pesticide has the potential to cause adverse effects on humans, wildlife, fish and plants, including endangered species and non-target organisms.

**mosquito officials
select control
measures that best
suit local conditions**

Officials responsible for mosquito control programs make decisions to use pesticides based on an evaluation of the risks to the general public from diseases transmitted by mosquitoes or on an evaluation of the nuisance level that communities can tolerate from a mosquito infestation. Based on surveillance and monitoring, mosquito control officials select specific pesticides and other control measures that best suit local conditions in order to achieve effective control of mosquitoes with the least impact on human health and the environment. It is especially important to conduct effective mosquito prevention programs by eliminating breeding habitats or applying pesticides to control the early life stages of the mosquito. Prevention programs, such as elimination of any standing water that could serve as a breeding site, help reduce the adult mosquito population and the need to apply other pesticides for adult mosquito control. Since no pesticide can be considered 100% safe, pesticide applicators and the general public should always exercise care and follow specified safety precautions during use to reduce risks. This fact sheet provides basic information on malathion, an insecticide used in mosquito control programs.

What is Malathion?

**malathion is an
organophosphate
(OP)**

Malathion is an organophosphate (OP) insecticide that has been registered for use in the United States since 1956. It is used in agriculture, residential gardens, public recreation areas, and in public health pest control programs. When applied in accordance with the rate of application and safety precautions specified on the label, malathion can be used to kill mosquitoes without posing unreasonable risks to human health or the environment.

How is Malathion Used in Mosquito Control?

tiny ultra-low volume (ULV) droplets kill mosquitoes on contact

The mosquito goes through four distinct stages during its life cycle: egg, larva, pupa, and adult (see box). Malathion is an *adulticide*, used to kill adult mosquitoes. In mosquito control programs conducted by state or local authorities, malathion is applied by truck-mounted or aircraft-mounted sprayers. Malathion is applied as an ultra-low volume (ULV) spray. ULV sprayers dispense very fine aerosol droplets that stay aloft and kill mosquitoes on contact. ULV applications involve small quantities of pesticide active ingredient in relation to the size of the area treated.

For mosquito control, malathion is applied at a maximum rate of 0.23 pounds (or about two and one-half fluid ounces) of active ingredient per acre, which minimizes exposure and risks to people and the environment.

Mosquito Life Cycle

egg - hatch when exposed to water;

larva - (pl. - larvae) lives in the water; molts several times; most species surface to breathe air;

pupa - (pl. - pupae) non-feeding stage just before emerging as adult;

adult - flies short time after emerging and after its body parts have hardened.

Does Malathion Pose Risks to Human Health?

used according to the label, malathion for mosquito control does not pose unreasonable health risks

Malathion can be used for public health mosquito control programs without posing unreasonable risks to the general population when applied according to the label. EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and ground applications of malathion. Because of the very small amount of active ingredient released per acre of ground, the estimates found that for all scenarios considered, exposures were hundreds or even thousands of times below an amount that might pose a health concern. These estimates assumed several spraying events over a period of weeks, and also assumed that a toddler would ingest some soil and grass in addition to skin and inhalation exposure.

high dose poisonings with any OP can overstimulate the nervous system

However, at high doses, malathion like other organophosphates, can overstimulate the nervous system causing nausea, dizziness, or confusion. Severe high-dose poisoning with any organophosphate can cause convulsions, respiratory paralysis and death.

Does Malathion Pose Risks to Wildlife or the Environment?

malathion is toxic to bees

Malathion used in mosquito control programs does not pose unreasonable risks to wildlife or the environment. Malathion degrades rapidly in the environment, especially in moist soil, and it displays low toxicity to birds and mammals. Malathion is highly toxic to insects, including beneficial insects such as honeybees. For that reason, EPA has established specific precautions on the label to reduce such risks.

What is the Current Regulatory Status of Malathion?

EPA is currently reviewing the OPs

As part of its responsibility to reassess all older pesticides registered before 1984, EPA is currently reviewing malathion as part of its reregistration process. The review of malathion is scheduled for completion this calendar year. A preliminary risk assessment covering all uses of malathion is currently available to the public for review. Visit the EPA web site (see address below) for the most current information on malathion assessment.

Where Can I get More Information About Malathion and Mosquito Control?

Centers for Disease Control and Prevention

For more information about mosquito control in your area, contact your state or local health department. The federal Centers for Disease Control and Prevention is also a source of information on disease control, and their Internet web site includes a listing of state health departments. To contact the

Centers for Disease Control and Prevention (CDC):

Call: 970-221-6400

Fax: 970-221-6476

E-mail: dvbid@cdc.gov

web site: <http://www.cdc.gov>

national toll-free pesticide hotline

Information on pesticides used in mosquito control can be obtained from the state agency which regulates pesticides, or from the **National Pesticide Telecommunications Network (NPTN)**. The NPTN web site includes links to all state pesticide regulatory agencies.

Toll-free hotline: 1-800-858-7378 (9:30 a.m. to 7:30 p.m. EST) daily except holidays. Callers outside normal hours can leave a voice mail message, and NPTN returns these calls the next business day.

E-mail: nptn@ace.orst.edu

web site: <http://ace.orst.edu/info/nptn>

**mosquito control
professionals**

Information on mosquito control programs can also be obtained from the **American Mosquito Control Association (AMCA)** web site at:
<http://www.mosquito.org>. This site also lists many county mosquito agencies.

**federal pesticide
program office**

For more information regarding the federal pesticide regulatory programs, contact:
EPA Office of Pesticide Programs (OPP)
Telephone: 703-305-5017
Fax: 703-305-5558
E-mail: opp-web-comments@epa.gov
web site: <http://www.epa.gov/pesticides>

EPA's 10 Regional Offices are also a source of pesticide information, as well as on pesticide program activities in the individual regions.

**10 EPA regional
offices**

EPA Region I - CT, MA, ME, NH, RI, VT
888-372-7341
www.epa.gov/region01

EPA Region II - NJ, NY, PR, VI
732-321-4391
www.epa.gov/region02

EPA Region III - DE, DC, MD, PA, VA, WV
800-438-2474
www.epa.gov/region03

EPA Region IV - AL, FL, GA, KY, MS, NC, SC, TN
800-241-1754
www.epa.gov/region4

EPA Region V - IL, IN, MI, MN, OH, WI
800-621-8431 (Region V only) or 312-353-2000
www.epa.gov/region5

EPA Region VI - AR, LA, NM, OK, TX
800-887-6063 (Region VI only) or 214-665-6444
www.epa.gov/region6

EPA Region VII - IA, KS, MO, NE
800-223-0425 or 913-551-7020
www.epa.gov/region7

EPA Region VIII - CO, MT, ND, SD, UT, WY
800-227-8917 (Region VIII only) or **303-551-7020**
www.epa.gov/region08

EPA Region IX - AZ, CA, HI, NV, AS, GU
415-744-1500
www.epa.gov/region09

EPA Region X - AK, ID, OR, WA
800-424-4372 (Region X only) or **206-553-1200**
www.epa.gov/r10earth

Other Helpful EPA Publications

For Your Information - How to Use Insect Repellents Safely (735-F-93-052R)

For Your Information - Mosquitoes: How to Control Them (735-F-98-003)

For Your Information - Larvicides for Mosquito Control (735-F-00-002)

For Your Information - Naled for Mosquito Control (735-F-00-003)

For Your Information - Synthetic Pyrethroids for Mosquito Control (735-F-00-004)

Questions and Answers - Pesticides and Mosquito Control