

Frequently Asked Questions:

MOSQUITO CONTROL INSECTICIDES: NALED

Trade names: Bromex, Dibrom® Concentrate, Dibrom®-8, Fly Killer-D and Trumpet® EC

Chemical name: dimethyl phosphate (1,2-dibromo-2,2-dichloroethyl dimethyl phosphate)

Mode of Action: Naled interferes with cholinesterase, a compound in the insect's body that directs nerve cell activity. This causes the insect's nervous system to be overstimulated, resulting in respiratory paralysis (inability to breathe) and death.

Persistence/duration: Naled degrades, or breaks down, fairly quickly. More than 90 percent of the chemical breaks down within 30 hours.

Uses: Naled is registered by the U.S. Environmental Protection Agency for use in controlling agricultural insect pests and for mosquito control.

Rate of application: For mosquito control, the pesticide application uses ultra-low volume technology, which requires very small amounts of pesticide to be used. The maximum rate for ground and aerial application is 1.6 oz. of active ingredient per acre.

What is Naled?

Naled is an organophosphate (OP) insecticide that has been registered since 1959 for use in the United States. It is used primarily for controlling adult mosquitoes, but naled is also used on food and feed crops, and in greenhouses.

How is Naled Used in Mosquito Control?

Naled is an *adulticide* used to kill adult mosquitoes. In mosquito control programs conducted by state or local authorities, naled is applied by truck-mounted or aircraft-mounted sprayers. Naled 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, the maximum rate for

ground and aerial application is 0.1 lb of active ingredient per acre which minimizes exposure and risks to people and the environment.

Is Naled dangerous?

When applied in accordance with the rate of application and the safety precautions specified on the label, **naled can be used to kill mosquitoes without posing unreasonable risks to human health or the environment.** State and local authorities apply naled by truck-mounted or aircraft-mounted sprayers.

Does Naled Pose Risks to Human Health?

EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and ground applications of naled. 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. However, at high doses, naled 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.

What is the potential for exposure?

EPA has estimated the exposure and risks to both adults and children posed by ULV aerial and ground applications of naled. 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 they assumed a toddler would ingest some soil and grass in addition to experiencing skin and inhalation exposure (EPA 2002).

What are signs and symptoms of naled poisoning?

Signs and symptoms of acute naled poisoning are as follows:

- **Common early signs or mild symptoms** of acute cholinergic poisoning include miosis (pinpoint pupils), headache, nausea/vomiting, dizziness, muscle weakness, drowsiness, lethargy, agitation and anxiety.
- **Moderate or severe poisoning** can result in chest tightness, difficulty breathing, bradycardia, tachycardia, hypertension, pallor, abdominal pain, incontinence, diarrhea, anorexia, tremor/ataxia, fasciculation, lacrimation, heavy salivation, profuse sweating, blurred vision, poor concentration, confusion, and memory loss.
- **Life-threatening or very severe signs and symptoms**, such as coma, seizures, respiratory arrest, pulmonary

edema, loss of reflexes, and flaccid paralysis, can occur at high doses, such as in the cases of attempted suicide.

What steps can I take to reduce exposure to pesticides during mosquito-control spraying?

Although mosquito-control pesticides pose low risks, common sense steps to help reduce possible exposure to pesticides include:

- Pay attention to the local media for announcements about spraying and remain indoors during applications in the immediate area.
- People who suffer from chemical sensitivities or feel spraying may aggravate a preexisting health condition, may consult their physician or local health department and take special measures to avoid exposure.

- Close windows and turn off window-unit air conditioners when spraying is taking place in the immediate area.
- Do not let children play near or behind truck-mounted applicators when spraying is taking place.

Does Naled Pose Risks to Wildlife or the Environment?

Naled used in mosquito control programs does not pose unreasonable risks to wildlife or the environment. Naled degrades rapidly in the environment, and it displays low toxicity to birds and mammals. Acute and chronic risk to fish is not expected, but there is potential for risks to invertebrates from the repeated use of naled. Naled 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 risk.

SOURCES OF INFORMATION

National Pesticide Information Center (NPIC)

Tel: (800) 858-7378

E-mail: npic@ace.orst.edu

Web site: <http://npic.orst.edu/>

West Nile Virus Resource Guide: <http://npic.orst.edu/wnv/>

U.S. Environmental Protection Agency

<http://www.epa.gov/pesticides/health/mosquitoes/naled4mosquitoes.htm>

Region 10: (800) 424-4EPA or (206) 553-1200

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