Naled for Mosquito Control

1. What is naled?

Naled is an insecticide that has been registered since 1959 for use in the United States. It is used primarily for controlling adult mosquitoes, but is also used on food and feed crops, and in greenhouses. For mosquito control, naled is applied as an ultra-low volume (ULV) spray. ULV sprayers dispense very fine aerosol droplets containing small quantities of active ingredient insecticide that drift through the air and kill mosquitoes on contact. The amount that reaches the ground is small. For mosquito control, the maximum rate for ground and aerial application is very small.

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2. Does naled pose health risks to humans?

When applied according to label instructions, naled can be used for public health mosquito control programs without posing risks to people. People aren't likely to breathe or touch anything that has enough insecticide on it to harm them. Direct exposure to naled during or immediately after application should not occur. However, anyone who has a particular concern because of an existing health problem should talk to their doctor. Also, those who tend to be sensitive to chemicals in general, including household chemicals, could experience short-term effects such as skin, eye and nose irritation.

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3. Has EPA estimated risks to children specifically?

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, exposures were 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 consume some soil and grass in addition to skin and inhalation exposure.

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4. Where has naled been used for mosquito control?

Naled is currently being applied by aerial spraying to about 16 million acres within the mainland United States, as part of routine mosquito control, but it can also be used following natural disasters such as hurricanes and floods:

- In 2004, it was used extensively to treat eight million acres across Florida as part of the emergency responses to hurricanes.
- In 2005 after Hurricane Katrina, five million acres of Louisiana, Mississippi, and Texas were treated with naled to kill mosquitoes.

Naled has been used in highly populated major metropolitan areas as well as other areas. Historically, naled has been used in Puerto Rico in attempts to control dengue. In 1987, the CDC carried out aerial spraying of naled across 177,000 acres of metropolitan San Juan.

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5. Does naled work to on mosquitos carrying Zika?

Naled has been successfully used for many years in the mainland United States and would be effective in the ongoing effort to control mosquitos carrying Zika, dengue, and chikungunya in Puerto Rico and other areas where

these diseases have been identified. Tests carried out in February and March 2016 by the CDC on 14 separate populations of *Aedes aegypti* from across Puerto Rico showed that the chemical was highly effective. In each test, 100% mortality of female *Aedes aegypti* was achieved. These results, combined with the success of aerial trials with naled in Florida, are compelling reasons to use aerial application of naled for the current Zika emergency situation.

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6. Are insects becoming resistant to naled?

Resistance is not an issue at this time for naled. Despite many acres across Florida being sprayed with naled each year, no resistance issues have been detected.

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7. Are there special precautions to be taken during naled spraying?

For the majority of people, no special precautions need to be taken during spraying. You do not have to leave the area when spraying takes place. However, as a general matter it is a good idea to reduce unnecessary exposure to pesticides whenever possible.

Some people who are especially concerned may choose to take some of these steps to help reduce exposure even more. This may include people who are sensitive to chemicals and those with pre-existing respiratory problems.

- Stay indoors with the windows closed during spraying.
- If you are outdoors during spraying operations and you can see the spray, avoid contact with it. If you can't avoid contact, rinse your skin and eyes with water.
- Wash fruits and vegetables from your garden before storing, cooking or eating.
- Cover outside items like furniture and grills while the spraying is occurring. Bring pets and items like pet food dishes and children's toys indoors. Rinse any items left uncovered outside before using.
- If you think you have had a reaction to the mosquito spray, talk to your doctor or call the regional Poison Control Center at 1-800-222-1222.

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8. How will I know if aerial spraying is going to take place?

Decisions about where and when to spray will be made by local officials. Listen for announcements in your community with the dates, times and locations of upcoming sprayings. They are usually announced a day or two before they are scheduled to occur.

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9. Does naled pose risk to crops or water supplies?

No. Naled is approved for use on many crops and EPA has established safe residue levels for all crops. Aerial ULV sprays dispense very fine aerosol droplets containing small quantities of active ingredient that stay aloft and kill mosquitoes on contact. The amount that reaches the ground is tiny and it dissipates very quickly.

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10. Is naled harmful to wildlife including honey bees?

Although naled does pose some risk to aquatic invertebrates (such as shrimp and water fleas) and terrestrial wildlife, it dissipates rapidly and does not persist in the environment. Therefore, risks to aquatic and terrestrial wildlife exist for only a short time, and long term exposure from its use for mosquito control is unlikely.

Applications made between dusk and dawn, while bees are not typically foraging, can reduce exposure to honey bees.

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11. How can beekeepers reduce the risk of bee exposure to naled?

Although we do not anticipate significant exposure to bees, beekeepers can reduce exposure to bee colonies even more by covering colonies and preventing bees from exiting colonies during designated treatment periods, or if possible, relocating colonies to an untreated site. Providing clean sources of food (supplemental sugar water and protein diets) and clean drinking water to honey bee colonies during application can further reduce exposure.

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12. Is there a medical test to show whether I've been exposed to naled?

If you are exposed to naled, it can be detected in your blood and its breakdown products can be detected in your urine, but only within a few hours after your last exposure. If exposure is known or suspected, a test can be done that measures cholinesterase levels in your blood. Low levels of cholinesterase may be a result of naled exposure or may be caused by other factors. These tests are not usually available at your doctor's office, but your doctor can send the samples to a laboratory that can perform the tests. None of these tests, however, will predict whether you will experience any health effects.

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13. What other measures should be taken to control mosquitoes besides aerial spraying?

- Help eliminate any standing water (even tiny amounts) to prevent infected mosquitoes from laying their eggs (breeding) in standing water.
- Use window and door screens to block infected mosquitoes from entering your home, workplace or children’s schools.
- Use EPA-registered insect repellents to prevent getting bitten. EPA-registered means the product works and is safe when you follow the directions.
- Dress in light-colored clothing, long pants, and long sleeves and try to avoid areas where mosquitoes are present.