



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 most commonly applied aerially as an ultra-low volume (ULV) spray. ULV sprayers mounted on planes or helicopters dispense very fine aerosol droplets containing small quantities of insecticide mixed with water that drift through the air and kill mosquitoes on contact. The amount of spray that reaches the ground is small, and the concentration applied is very small (only about 1-2 tablespoons of naled is applied per acre treated).

2. Is EPA currently evaluating the safety of naled? What is the status of registration review for naled?

EPA is currently re-evaluating naled as part of its routine registration review process. EPA expects to issue new human health and ecological risk assessments for naled before the end of 2017.

This review of naled is a standard re-evaluation required by law every 15 years by law for every registered pesticide. The periodic review of pesticide registrations, or registration review, is required by the Federal Insecticide, Fungicide, and Rodenticide Act, amended by the Food Quality Protection Act of 1996 and the Pesticide Registration Improvement Act. EPA periodically reviews existing registered pesticides to ensure they can be used safely, without unreasonable risks to human health and the environment. The registration review program is intended to make sure that, as the ability to assess risk evolves and as policies and practices change, all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects.

[Learn more about EPA's registration review process.](#)

3. Does naled's use for mosquito control pose health risks to people?

When applied according to label instructions, EPA does not expect the use of naled for public health mosquito control to raise a human health concern. People are unlikely to breathe in amounts large enough or touch anything with enough insecticide on it to harm them. However, anyone who is concerned because of an existing health problem should talk to their doctor. Also, people who tend to be sensitive to chemicals in general, including household chemicals, could experience short-term effects, such as skin, eye, and nose irritation. Contact your local mosquito control program to get specific information on spraying in your area.

4. Has EPA estimated the risks of naled to children specifically?

EPA estimates exposure and risks to both children and adults routinely, including those associated with naled. Because of the small amount of naled released (about 1-2 tablespoons of



naled is applied per acre treated), exposures are below an amount that might be expected to pose a health concern to children or adults.

5. Where is naled being used for mosquito control?

Naled is one of the most widely used pesticides in the United States for aerial mosquito control. In recent years, naled has been applied by aerial spraying to about 16 million acres per year within the mainland United States as part of routine mosquito control. Naled has been used in highly populated major metropolitan areas as well as agricultural and more rural areas.

6. Does naled work on mosquitoes carrying Zika?

Naled has been successfully used for many years in the mainland United States and has been effective in the ongoing effort to control mosquitoes carrying Zika, dengue, chikungunya, and other possible diseases in areas where these viruses have been identified. Laboratory tests conducted by the Centers for Disease Control and Prevention (CDC) in February and March 2016 on 14 separate populations of *Aedes aegypti* mosquitoes from across Puerto Rico showed that they were highly susceptible to naled. These results, combined with the success of naled's aerial use in Florida in 2016, indicate that aerial application of naled can be effective for Zika emergency situations as part of a comprehensive Integrated Pest Management (IPM) effort. More information can be found at www.cdc.gov/zika/vector/testing-puertorico.html.

7. Are insects becoming resistant to naled?

Resistance in *Aedes aegypti* mosquitoes is not a concern at this time for naled. Many acres across the United States have been sprayed with naled each year, and resistance has not been detected in *Aedes aegypti* mosquitoes.

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

People may prefer to stay inside and close windows and doors when spraying takes place, but it is not necessary. Those who are especially concerned about chemicals may choose to take some of these steps to help reduce exposure.

- Contact your local health department or mosquito control program to get specific information on spraying in your area.
- Stay indoors with the windows closed during spraying.
- If you are outdoors when spraying takes place and come in contact with the chemical, 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 before the spraying takes place. Bring pets and items like pet food dishes and children's toys indoors. Rinse any uncovered items left outside before using.
- If you think you have had a reaction to the spraying of naled, talk to your doctor or call the regional Poison Control Center at 1-800-222-1222.



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

Decisions about where and when to spray are made by local mosquito control or public health officials. Listen for announcements in your community or look for posts on social media with the dates, times, and locations of upcoming sprayings. They are usually announced a day or two before they are scheduled to occur, and some districts post this information to their website.

10. Does naled's use for mosquito control pose risks to water supplies or to people eating fruits or vegetables grown in home gardens?

Aerial ULV sprays dispense very fine aerosol droplets containing small quantities of active ingredient that stay aloft and kill mosquitoes. The amount of pesticide that reaches the ground is small and dissipates very quickly. In addition, naled is approved by EPA for application directly to food crops at higher rates than those used for mosquito control. Drinking water is also considered in the EPA evaluation of all uses as a potential source of exposure.

11. Is naled harmful to wildlife?

Risks to wildlife are minimal because naled is applied at low rates and does not persist in the environment. Because naled is an insecticide, invertebrates such as insects, water fleas, and spiders could be affected. Small wildlife present in the immediate treatment area could be exposed shortly after spraying occurs but long-term effects are not expected.

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

Spraying naled can kill bees that are outside of their hives at the time of spraying; therefore, spraying is recommended at dawn or dusk when bees are usually inside their hives. Although we do not anticipate that bees will have significant exposure to naled, beekeepers can reduce exposure even more by covering colonies when spraying takes place, 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.

13. What other measures should be taken to control mosquitoes besides aerial spraying? What can I do to control mosquitoes or prevent mosquito bites?

- Help eliminate any standing water (even small amounts) to prevent mosquitoes from laying their eggs. If water cannot be eliminated, such as in ornamental water features, use larvicides (available at many retailers) or other control measures to minimize opportunities for breeding. For example, you might be able to add fish that eat larvae to a pond, or add a fountain or aerator to keep the water moving.
- Use window and door screens to keep mosquitoes from entering your home, workplace, or children's schools.
- Use EPA-registered insect repellents to prevent getting bitten. Products that are EPA-registered have been confirmed to be safe and effective when you follow the directions.
- Dress in light-colored clothing, long pants, and long sleeves.