

Aerial Spraying for Mosquitoes

Naled - Frequently Asked Questions (FAQs)

Tulare Mosquito Abatement District has consulted with the [U.S. Centers for Disease Control and Prevention](#), the [Environmental Protection Agency](#), and the [California Department of Public Health](#) to determine the best way for reducing the risk of mosquito-borne disease transmission. This response plan is designed to follow Integrated Pest Management practices that are commonly performed by public health agencies throughout the United States. The risk of mosquito-borne disease transmission currently being seen in Tulare County warrants aerial application of both larval and adult mosquito control products to reduce the mosquito populations and thus reduce risk of disease transmission to humans and wildlife. These spray events will be performed in areas that are unable to be accessed via conventional ground-based equipment and take place between July 1, 2023 and October 31, 2023. Throughout the United States, ultra-low volume (ULV) technologies are used during such aerial applications and the primary chemical used during these spray events is Dibrom.

Q. What is Dibrom?

Dibrom is an insecticide that has been registered by the US Environmental Protection Agency (EPA) since 1959 for use in the United States. It is used primarily for controlling adult mosquitoes. It is used on food and feed crops, livestock pastures, and also in greenhouses for controlling black flies, houseflies, gnats, and certain other nuisance insects. When applied in accordance with the recommended safety precautions, Dibrom can be used to kill mosquitoes without endangering the environment or human activities. Dibrom has been used to control mosquito populations following natural disaster events like floods and hurricanes, such as Charley, Jeanne, Frances, and Katrina. In 2022, it was used for emergency response activities across many areas in Florida as they recovered from damages associated with Hurricane Ian. In 2017, it was used to treat 2.7 million acres post Hurricane Harvey throughout many counties in Texas with no deleterious effects to people or wildlife in the treated areas. Aerial treatment with Dibrom also helped successfully break the transmission cycle of Zika virus in Miami-Dade in 2016. These are just a few examples of large-scale operations but its also used by many agencies for routine preventative mosquito control operations.

Q. How is Dibrom used in mosquito control operations?

In mosquito control programs, Dibrom is commonly applied as an ultra-low volume (ULV) spray by aircraft-mounted spray systems. ULV sprayers dispense very fine aerosol droplets that stay aloft and kill mosquitoes on contact. ULV applications involve small quantities of the pesticide in relation to the size of the area to be treated. Depending upon the commercial formulation, the rate of application for Dibrom in mosquito control typically ranges between 0.5-0.75 ounces per acre. At this rate, exposure and risks to humans, animals, and the environment are minimal. In particular, naled and its degradate DDVP degrade extremely rapidly on surfaces, and therefore residues decline to a level that does not pose any potential concern very quickly after an aerial application.

Q. Does Dibrom pose risks to human health?

Dibrom can be used for controlling mosquitoes without endangering human health when applied in the amounts recommended on the label. During aerial spraying, a small amount of insecticide is sprayed over an area, about two-thirds of an ounce (1.5 tablespoons) per acre or roughly the size of a football field. Since the amount of Dibrom released per acre is very small, any potential human exposure to Dibrom would be several hundreds or thousands of times below an amount that might pose a health concern. Studies conducted in the workplace have not shown any harmful effects to workers who were exposed by breathing low levels of Dibrom.

Q. Does Dibrom cause cancer, birth defects, or reproductive effects?

At the rates applied for mosquito control, studies in experimental animals have not shown Dibrom to cause cancer, birth defects, or adverse effects on reproduction. The EPA has classified Dibrom in Group E “Evidence of non-carcinogenicity for humans.

Q. What happens to Dibrom when it enters the environment?

Dibrom immediately begins to breakdown upon release of the spray droplets in the open air. Dibrom breaks down rapidly in water and in sunlight. A breakdown product of Dibrom is called Dichlorovos (DDVP) which is very short-lived and does not persist in the environments. In small amounts, DDVP is short-lived, does not pose any risk to humans, and does not persist in the environment. DDVP breaks down within hours after an application, depending on different factors related to how the product is applied, including application rate, release height, droplet size, and wind speed at the time of application

Q. Does Dibrom pose risks to pets, fish, birds, and livestock?

If used properly in accordance with the label, Dibrom is not harmful to pets, fish, birds, or livestock. Residents may elect to bring pets indoors or cover fishponds during spraying events to minimize exposure. Please note to remove the covers following spraying to prevent oxygen depletion in fishponds.

Q. Is Dibrom harmful to bees?

All application operations will be conducted during nighttime hours as they target nocturnal *Culex* mosquitoes, the primary vectors for West Nile virus. Exposure to bees or other pollinators should not occur as the spraying happens after the bees have returned to their hives. Though the amount applied is formulated to target much smaller insects than bees, beekeepers may elect to cover hives during the spraying operations to reduce exposure. Please note to remove any covers over beehives following spraying to prevent the hives from over heating.

Q. Should I cover my vegetable garden during spraying?

Although not necessary, residents may elect to cover their gardens while spraying takes place. It is always a good practice to wash any fruits or vegetables before consumption.

Q. Is it safe to swim in the swimming pool after spraying?

Dibrom breaks down quickly in water and in sunlight, so no special waiting period is required. Residents may elect to cover pools and jacuzzi during spraying events.

Q. What can I do to reduce exposure to Dibrom?

Although no specific precautions are required during an application, individuals with known chemical sensitivities or a heightened sense of concern can take the following steps to help reduce possible exposure to Dibrom during spraying:

1. Contact your local health department or the county's mosquito control program to get specific information on spraying in your area.
2. Stay indoors with the windows closed during application times.
3. Do not allow children to play outdoors for four hours following spraying.
4. If you are outdoors when spraying takes place and come in direct contact with the chemical, rinse your skin and eyes with water.
5. 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 during spraying.