COUNTY OF MORRIS
DEPARTMENT OF PUBLIC WORKS
MOSQUITO CONTROL DIVISION

P.O. Box 900
Morristown, New Jersey 07963-0900

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Municipalities are encouraged to share this information with all residents in their community

THE MORRIS COUNTY DIVISION OF MOSQUITO CONTROL

The Morris County Division of Mosquito Control, founded in 1928 as the Morris County Mosquito Commission, has the goal of reducing the number of nuisance and disease transmitting mosquitoes within the County. The Division employs a number of techniques to provide this service to residents with minimal impact on the environment. The program can be summarized as follows:

1) Water Management - The Division carries out extensive efforts to remove blockages from Morris County waterways, and to maintain drainage systems as needed. Such work is done carefully, with environmental impacts kept clearly in mind. This program helps reduce the use of insecticides needed to control mosquitoes.

2) Larval Control - Mosquitoes all start out in water as larvae, or "wrigglers". In areas where water management is not feasible, larval control is necessary. Some locations are suitable for stocking with mosquitofish, which provide continuous, biological control of mosquitoes. In other areas, larvicides may be used to eliminate mosquitoes. We choose products that are specific for mosquitoes and have minimal or no effect on other organisms in the aquatic environment for this purpose, and these are applied by trained staff licensed by the NJDEP. All products are registered with both the USEPA and the NJDEP which mean they are legal to use in NJ and are reviewed and recommended by the New Jersey Agricultural Experiment Station, Cook College/Rutgers University. Locations receive treatment only when surveys show that large numbers of mosquitoes are a threat to populated regions. These products applied by hand crews, by all terrain vehicles, or by helicopter. Larval habitats are treated only when larvae are present.

3) Adult Control - Although this is the most visible aspect of mosquito control, we consider this to be a last resort. We try to stop mosquitoes before they are out and flying around. When adult control is needed because of a severe mosquito infestation, we generally use truck mounted sprayers that apply 1/2 – 1 ounce of material per acre. Sometimes, small hand sprayers are used to treat remote locations and possibly a helicopter might be used to treat large areas in time of public health emergencies.

Homeowners can help control mosquitoes by making sure they do no have containers around the home that hold water. Buckets, gutters, bird baths, toys, tarpaulins and anything else than can contain water should be emptied or removed from the yard. Do not dispose of leaves and grass clippings in ditches, streams or catch basins. Make sure your screens are in good repair, and consider moving inside during periods of high mosquito activity

(early evening and early morning).
The Morris County Division of Mosquito Control is constantly striving to improve our operations. These efforts include employing new products that are more specific for mosquitoes, using new equipment that gets us into problem areas more easily, and trying new methods for controlling mosquitoes. The employees of the Division take their service to the public seriously, and will work to serve Morris County residents with the best possible mosquito control efforts.

Where can I find more specific information on mosquito spraying in Morris County, and how will I be notified of the spraying?

Call the Morris County Division of Mosquito Control at 973-285-6450. Attached is an example of a newspaper notice placed in the Daily Record and Star-Ledger by the Morris County Division of Mosquito Control throughout the mosquito control treatment season. A citizen has the right to ask the Morris County Division of Mosquito Control for specific information about a planned application in the county prior to that application.

If you have any questions about the Morris County Division of Mosquito Control, please let us know, or visit our web site at www.morrismosquito.org.

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"Anvil®"

This sheet answers some basic questions about a mosquito control product in use in Morris County. Morris County Division of Mosquito Control, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is Anvil® and how is it used?
Anvil® is an imitation mimic of a naturally occurring insecticide that is produced by certain chrysanthemum flowers. It is an adulticide that is recommended for mosquito control in New Jersey by the Agricultural Experiment Station of Rutgers University. It contains the active ingredients of "**sumithrin** and **piperonyl butoxide**." The U.S. Environmental Protection Agency's (EPA) current evaluation considers **sumithrin and piperonyl butoxide**- containing products to be slightly toxic with minimal potential risk to people when used properly as part of a complete mosquito control program.

Anvil® applications are made with Ultra Low Volume (ULV) equipment, which put out very small drops of the material at very low levels. While habitat management and measures to control immature mosquitoes in water are the preferred routine approaches, the spraying of adult mosquitoes is called for when biting populations reach critical levels or when a disease organism is present in adult mosquitoes. The application of **Anvil®** will only be conducted if deemed absolutely necessary. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective. **Anvil®**is not residual and breaks down rapidly in sunlight, minimizing the buildup of this product in the environment.

How can I avoid exposure to Anvil®?
Risk to the general public from the use of **Anvil®** is minimal. Avoiding exposure is always the safest course of action, particularly for populations that may be at higher risk such as pregnant women, children, the elderly and those with chronic illness. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspaper, websites, automated telephone messages or distributed by municipal, county or state agencies.
- Plan your activities to limit time spent outside during times of possible pesticide treatments.
- Move children's toys out of application areas.
- Move animals and their food and water dishes out of application areas.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and with window air conditioners on non-vent

(closed to the outside air) and window fans turned off during spraying.

- Avoid direct contact with surfaces that are still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour).
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.

What are the symptoms of exposure to Anvil®?
Irritation or sensitization sometimes occurs after exposure, causing an asthmatic condition or skin rash. The chance of experiencing these symptoms of exposure with proper use is low. You should contact your physician, other medical providers or the New Jersey Poison Information and Education System (**NJPIES**) at **1-800-222-1222** if you experience these symptoms following a pesticide spraying. Bring this sheet with you if you visit a physician or other medical provider.

How long will Anvil® last in the environment?
The **Anvil®** spray stays in the air for a short time until it lands on surfaces. **Sumithrin** has a low persistence and lasts no longer than 25 days in water and soil. **Sumithrin** breaks down faster in sunlight.

Where can I get more information on Anvil®?
The following are resources for more information regarding **Anvil®** and mosquito control in your area (unless otherwise noted, available during normal business hours):

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center **800-858-7378**
http://npic.orst.edu

For pesticide health informat6ion & possible exposures – 24 hours:
New Jersey Poison Information & Education System **800-222-1222**
http://www.njpies.org

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**
http://www.state.nj.us/dep/enforcement/pcp/index.html

For Federal pesticide regulations:
USEPA Region 2 Office of Pesticide Programs **877-251-4575**
http://www.epa.gov/ebtpages/pesticides.html

For state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination **609-777-3666**
http://www.state.nj.us/dep/mosquito

For local mosquito control information:
Morris County Division of Mosquito Control **973-285-6450**
http:// www.morrismosquito.org

For mosquito control recommendations:

Rutgers University, Department of Entomology **848-932-9774**
http://www-rci.rutgers.edu/~insects/indexentonj.htm

EPA: **732-321-4391**
http://www.epa.gov/pesticides/factsheets/pyrethroids4mosquitos.htm

Clarke Mosquito Control (Manufacturer): **800-323-5727**
http://www.cmosquito.com/product_detail.cfm?productid=5&searchbox=anvil

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Malathion Fact Sheet

("Atrapa®" "Fyfanon®" "Microflo®")

What is malathion?

The above products all contain the pesticide malathion, a slightly toxic compound that is used in very small amounts to control adult mosquitoes. Malathion is not residual (does not last long) and is applied with specialized equipment in a manner that maximizes mosquito control but minimizes the impact on other organisms. The product is included in the insecticides recommended for adult mosquito control list produced by Rutgers, the State University of New Jersey.

How does malathion work?

Malathion disrupts the nervous system of target organisms. In mammals, the product is broken down quickly, while in insects it is broken down into other products that are fatal to them.

Is there danger to humans from this chemical?

Malathion is an organophosphate insecticide with very low toxicity for mammals. During mosquito control operations, the product is applied at ½ to 1ounce per acre.

How is malathion applied?

Malathion is put out using Ultra Low Volume (ULV) equipment that produces droplets that are about 5 – 25 microns in size. There are 24,000 microns in an inch. In Morris County, we have found that the lowest application rate, ½ ounce per acre, is adequate for mosquito control. Malathion is broken down rapidly after application, and must contact flying mosquitoes directly to kill them.

Is malathion harmful to other insects?

Other insects may be harmed by malathion, so care must be taken to avoid beneficial insects, such as honeybees.

Malathion/2

How can I avoid exposure to malathion?

Exposure to malathion, even during spray operations, is minimal for the general public because of the small quantities used. There are, however, steps that can reduce this exposure even further:

- Note contact information regarding spraying in newspapers, published every 23 days during the mosquito season. Local municipalities may also be contacted, since spray activities are coordinated with them.
- Plan your activities to limit time spent outside during times of possible pesticide treatments (when mosquitoes are very high in number, and usually in the evening).
- Move your pets, their food, water dishes inside during a ULV application.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and with window air conditioners on non-vent (closed to the outside air) and window fans turned off during spraying.
- Avoid direct contact with surfaces that are still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour). Very little settling of a ULV spray takes place, however, so the chances of contacting malathion this way is minimal.
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.
- Move children's toys out of application areas.

What are symptoms of exposure to malathion?

Symptoms of exposure can include headache, nausea, dizziness, excessive sweating, salivation, excessive tearing and a runny nose. The chance of experiencing these symptoms of over-exposure with proper use is extremely low. You should contact your physician, other medical providers or the New Jersey Poison Information and Education System (**NJPIES**) at **1-800-222-1222** if you experience these symptoms following a pesticide spraying.

Where can I get more information on malathion?

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center: 800-858-7378

For pesticide health information & possible exposures – 24 hours:
New Jersey Poison Information & Education System: 800-222-1222

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program : 609-984-6507

For Federal insecticide regulation:
USEPA Region 2 Office of Pesticide Programs: 877-251-4575
Malathion/3

Where can I get more information about local mosquito control?
The Morris County Division of Mosquito Control: 973-285-6450 or www.morrismosquito.org

For state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination: 609-777-3666

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and products to control immature mosquitoes in the water where they begin their life cycle. Controlling adult mosquitoes is more difficult because they are spread out and moving.

If you have questions about malathion or any other mosquito control related products or practices, please feel free to call the Morris County Division of Mosquito Control at (973) 285-6450, or visit our web site at www.morrismosquito.org

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"Duet Dual-Action® Adulticide" ®

This sheet answers some basic questions about a mosquito control product in use in Morris County. Morris County Division of Mosquito Control, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is *Duet Dual-Action®* adulticide and how is it used?

Duet Dual-Action® contains two pesticides called ***Prallethrin*** *and* ***Sumithrin***, and a synergistic compound called ***piperonyl butoxide*** which increases the effectiveness of the pesticides. Prallethrin and Sumithrin are members of a category of pesticides called ***pyrethroids***, which in turn are synthetic versions of pesticides produced by plants called *pyrethrins.* Pyrethroid/piperonyl butoxide mixtures have been recommended for Ultra-Low-Volume (ULV) mosquito control in New Jersey by Rutgers, The State University of New Jersey. The U.S. Environmental Protection Agency's (EPA) current evaluation considers pyrethroid-containing products to be slightly toxic with minimal potential risk to people when used properly as part of an integrated mosquito control program.

This pyrethroid-containing product is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in water are preferred and most used, the spraying of adult mosquitoes is called for when biting populations reach critical levels or when a disease organism is present in adult mosquitoes. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective. The combination of the two pesticides has been shown to produce what the manufacturer calls 'benign agitation'. In other words mosquitoes are agitated from a resting state to a non-biting flying state where they are more vulnerable to pesticide exposure. This makes *Duet Dual-Action®* adulticide more effective against hard-to-control species like *Aedes albopictus* which typically rest during the evening hours when adulticiding usually takes place.

How can I reduce my exposure to *Duet Dual-Action®*?

Because of the very small amounts of active ingredients released per acre, the risk to the general public from the use of pyrethroid-containing products is minimal. Avoiding exposure is always the safest course of action. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspapers, websites, automated telephone messages or distributed by municipal, county or state agencies.
- Plan your activities to limit time spent outside during times of possible pesticide treatments.

- Move your pets, their food, and water dishes inside during ULV application. Also bring clothing and children's toys inside.
- Stay away from application equipment, whether in use or not.
- Whenever possible, remain indoors with windows closed and with window air conditioners on non-vent (closed to the outside air) and window fans turned off during spraying.
- Avoid direct contact with surfaces that are still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour).
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.

What are the symptoms of exposure to *Duet Dual-Action*® ?

Symptoms of over-exposure can include irritation to skin and eyes, respiratory and nasal irritation, irritability to sound or touch, abnormal facial sensation, sensation of prickling, tingling or creeping of skin, numbness, headache, dizziness, nausaea, vomiting, diarrhea, excessive salivation, and fatigue. The chance of experiencing these symptoms of over-exposure with proper use is low. You should contact your physician, other medical providers, or the New Jersey Poison Information and Education System (**NJPIES**) at **1-800-222-1222** if you experience these symptoms following a pesticide spraying.

How long will *Duet Dual-Action*® last in the environment?

Pyrethroids have a soil half-life of 12 days. They have an extremely low pesticide movement rating because they bind tightly to the soil. Pyrethroids are unstable in light and air. They rapidly degrade in sunlight at the soil surface and in water. Piperonyl butoxide has a soil half-life of approximately 4 days.

Where can I get more information on this adulticide?

The following are resources for more information regarding *Duet Dual-Action*® and mosquito control in your area (unless otherwise noted, available during normal business hours):

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center **800-858-7378**
http://npic.orst.edu

For pesticide health information & possible exposures – 24 hours:
New Jersey Poison Information & Education System **800-222-1222**
http://www.njpies.org

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**
http://www.state.nj.us/dep/enforcement/pcp/

For Federal pesticide regulations:

USEPA Region 2 Office of Pesticide Programs **877-251-4575**
http://www.epa.gov/ebtpages/pesticides.html

For state-wide mosquito control information:
NJDEP Office of Mosquito Control Coordination **609-777-3666**
http://www.state.nj.us/dep/mosquito

For local mosquito control information:
Morris County Division of Mosquito Control **973-285-6450**
http://morrismosquito.org

For mosquito control recommendations:
Rutgers University, Department of Entomology **848-932-9774**
http://www-rci.rutgers.edu/~insects

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and products to control immature mosquitoes in the water where they begin their life cycle. Controlling adult mosquitoes is more difficult because they are spread out and moving.

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Etofenprox Adulticide Fact Sheet
"Zenivex"

Municipalities are encouraged to share this information with all residents in their community

This Fact Sheet answers some basic questions about mosquito control products in use in your County. The Morris County Division of Mosquito Control, along with several other resources (listed at the end of this sheet), can provide more detailed information.

What is *Etofenprox* and how is it used?

Zenivex^{TM} contains a pesticide called Etofenprox, a member of the category of pesticides called *non-ester pyrethroids*, which are synthetic versions of pesticides produced by plants called pyrethrins. Traditional pyrethroid/piperonyl butoxide mixtures are recommended for Ultra-Low-Volume (ULV) mosquito control in New Jersey by Rutgers, The State University of New Jersey. *Zenivex*^{TM} is a non-ester pyrethroid, and therefore does not require a synergist such as piperonyl butoxide. The U.S. Environmental Protection Agency (EPA) has classified Etofenprox as a reduced risk molecule. It poses a low risk to human health and the environment when used properly as part of an integrated mosquito control program. As formulated in *Zenivex*^{TM} adulticide, Etofenprox is considered a non-carcinogen, non-teratogen and non-mutagen.

This non-ester pyrethroid-containing product is used for the control of adult mosquitoes. While habitat management and measures to control immature mosquitoes in water are preferred and most used, the spraying of adult mosquitoes is necessary when biting populations reach critical levels or when a disease organism is present in adult mosquitoes. A very fine mist is sprayed into the air since flying mosquitoes must directly contact the pesticide in order for it to be effective.

How can I reduce my exposure to Etofenprox?

Because of the very small amounts of active ingredients released per acre, the risk to the general public from the use of non-ester pyrethroid-containing products is minimal. Avoiding exposure is always the safest course of action. Any possible exposure risk can be reduced by following some common sense actions:

- Pay attention to notices about spraying found through newspapers, websites, automated telephone messages, or distributed by municipal, county or state agencies.
- Plan your activities to limit time spent outside during times of possible pesticide treatments.

- Move your pets, their food, and water dishes inside during ULV applications. Also bring clothing and children's toys inside.
- Stay away from application equipment, whether or not it is in use.
- Whenever possible, remain indoors with windows closed, window air conditioners on non-vent (closed to the outside air), and window fans turned off during spraying.
- Avoid direct contact with surfaces still wet from pesticide spraying. Do not allow children to play in areas that have been sprayed until they have completely dried (approximately one hour).
- If you must remain outdoors, avoid eye and skin contact with the spray. If you get spray in your eyes or on your skin, immediately flush and rinse with water.

What are the symptoms of exposure to Etofenprox?

Symptoms of over-exposure can include irritation to skin and eyes. The chance of experiencing these symptoms of over-exposure with proper use is low. You should contact your physician, other medical providers, or the New Jersey Poison Information and Education System (NJPIES) at 1-800-222-1222 if you experience these symptoms following a pesticide spraying.

How long will Etofenprox last in the environment?

The non-ester pyrethroid in Etofenprox has a half-life of 1.7 days in water and 4.4 days in soil. The Etofenprox molecule rapidly degrades in sunlight at the soil and water surface into its constituent elements Carbon, Hydrogen, and Oxygen.

Where can I get more information on this adulticide?

The following are resources for more information regarding Etofenprox and mosquito control in your area (unless otherwise noted, available during normal business hours):

For overall pesticide-specific information – 9:30am to 7:30pm:
National Pesticide Information Center **800-858-7378**

For pesticide health information & possible exposures – 24 hours:
New Jersey Poison Information & Education System **800-222-1222**

For New Jersey pesticide regulation & misuse complaints:
NJDEP Pesticide Control Program **609-984-6507**

For Federal pesticide regulation:
USEPA Region 2 Office of Pesticide Programs **877-251-4575**

For statewide mosquito control information:
NJDEP Office of Mosquito Control Coordination **609-777-3666**

For local mosquito control information:
Morris County Division of Mosquito Control **973-285-6450**

For mosquito control recommendations:
Rutgers University, Department of Entomology **848-932-9774**

Spraying for adult mosquitoes is a last resort. Most mosquito control work goes on "behind the scenes", using water management, fish, and products to control immature mosquitoes in the water where they begin their life cycle. Controlling adult mosquitoes is more difficult because they are spread out and moving.

If you have questions about Zenivex or any other mosquito control related products or practices, please feel free to call the Morris County Division of Mosquito Control at (973) 285-6450, or visit our web site at www.morrismosquito.org