STATE OF HAWAII
Department of Agriculture
ACCEPTED
LICENSE NO. 9426.423

Altosid®

ZOËCON®

LIQUID LARVICIDE
MOSQUITO GROWTH REGULATOR

PREVENTS EMERGENCE OF ADULT FLOODWATER MOSQUITOES
For control of mosquito larvae using ULV application

ACTIVE INGREDIENT:
(S)-Methoprene (CAS #65733-16-6) 5%
OTHER INGREDIENTS: 95%
TOTAL: 100%

Formulation contains 0.43 lb/gal (51.3 g/liter) active ingredient

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

BECAUSE OF THE UNIQUE MODE OF ACTION OF A.L.L., SUCCESSFUL USE REQUIRES FAMILIARITY WITH SPECIAL TECHNIQUES FOR APPLICATION TIMING AND TREATMENT EVALUATION. SEE **GUIDE TO PRODUCT APPLICATION** OR CONSULT LOCAL MOSQUITO ABATEMENT AGENCY.

NET CONTENTS: 1 GAL (128 FL OZ) 3.8 L

PRECAUTIONARY STATEMENTS – HAZARDS TO HUMANS – CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

CENTRAL Garden & Pet

FIRST AID
If in eyes • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-248-7763 for emergency medical treatment information.

ENVIRONMENTAL HAZARDS – Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE – It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

CHEMIGATION – Refer to supplemental labeling entitled "**Guide to Product Application**" for use directions for chemigation. Do not apply this product through any irrigation system unless the supplemental labeling on chemigation is followed.

MIXING AND HANDLING INSTRUCTIONS – 1. SHAKE WELL BEFORE USING. Zoëcon® Altosid® Liquid Larvicide Mosquito Growth Regulator (A.L.L.) may separate on standing and must be thoroughly agitated prior to dilution. **2.** Do not mix with oil; use clean equipment. **3.** Partially fill spray tank with water; then add the labeled amount of **A.L.L.**, agitate and complete filling. Mild agitation during application is desirable. **4.** Use spray solution within 48 hours; always agitate before spraying.

APPLICATION INSTRUCTIONS – Introduction: A.L.L. must be applied to 2nd, 3rd, or 4th larval instars of floodwater mosquitoes to prevent adult emergence. Treated larvae continue normal development to the pupal stage where they die. This insect growth regulator **has no effect when applied to pupae or adult mosquitoes. A.L.L.** has sufficient field life to be effective at appropriate rates when applied to larval stages under varying field conditions. For further information, see **Guide to Product Application**.

METHODS OF APPLICATION – Aerial: Use the prescribed amount of **A.L.L.** listed below in sufficient water to give complete coverage. One-half to 5 gallons of spray solution per acre is usually satisfactory. Do not apply when weather conditions favor drift from areas treated. **Ground:** Determine the average spray volume used per acre by individual operators and/or specific equipment. Mix **A.L.L.** in the appropriate volume of water to give the rate per acre as indicated below. **For Control of Mosquito Larvae Using ULV Application:** For ground application to terrestrial sites, apply at the rate of 3-4 ounces of product per acre to water-holding containers and other small bodies of water that breed mosquitoes. Use equipment capable of applying a fine mist or ULV. Follow equipment manufacturer's recommendations when making applications. Direct spray applications to sites where mosquitoes breed. These sites include: tires and tire piles, potted plants, tree holes, garbage bins, cans, birdbaths, rain barrels, and other water-holding containers and small bodies of water.

APPLICATION RATE – Apply 3 to 4 fl oz of **A.L.L.** per acre (219 to 293 ml/hectare) in water as directed. **For Control of Mosquito Larvae Using ULV Application:** Apply at 3-4 ounces per acre. Reapply as breeding sites become reinfested or when monitoring indicates an increase in adult populations.

APPLICATION SITES – Pastures: A.L.L. may be applied after each flooding without removal of grazing livestock. **Rice: A.L.L.** must be applied to 2nd, 3rd, and/or 4th instar larvae of mosquitoes found in rice, usually within 4 days after flooding. **A.L.L.** treatment may be repeated with each flooding. **Intermittently Flooded Noncrop Areas: A.L.L.** may be applied as directed above when flooding may result in floodwater mosquito hatch. Typical sites include: freshwater swamps and marshes, salt marshes, woodland pools and meadows, dredging spoil sites, drainage areas, waste treatment and settling ponds, ditches and other natural and manmade depressions. **Crop Areas: A.L.L.** may be applied to irrigated croplands after flooding to control mosquito emergence. Examples of such sites are: vineyards, rice fields (including wild rice), date palm orchards, fruit and nut orchards, and berry fields and bogs. Irrigated pastures may be treated after each flooding **without** the removal of grazing livestock. **In dense vegetation or canopy areas:** Apply an **A.L.L.** sand or BIODAC® mixture using standard granular dispersal equipment. For detailed preparation instructions, refer to **Guide to Product Application**.

TANK MIXING INSTRUCTIONS – A.L.L. may be tank mixed with liquid *Bacillus thuringienses,* variety *israeliensis (B.t.i.)* formulations. The ratio of *B.t.i.* to **A.L.L.** ranges from 6:1 to 12.5:1 (volume/volume). For example, to prepare a 12.5:1 tank mix, add 1 gallon of **A.L.L.** to 12.5 gallons of *B.t.i.* This tank mix can be applied to sites listed above at rates of 2–16 fluid ounces/acre (0.15-1.2 liters/hectare).

STORAGE & DISPOSAL – Do not contaminate water, food, or feed by storage or disposal. **Storage:** Store in cool place. Store product away from other pesticides, food, and feed. In case of leakage or spill, soak up with sand or another absorbent material. **Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. **Container Disposal:** Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows. Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For information, call **1-800-248-7763**.

Wellmark International
1501 East Woodfield Road 200W
Schaumburg, Illinois 60173

www.altosid.com

EPA Reg. No. 2724-392
EPA Est No. 2724-TX-1

Made in USA

300509086

CENTRAL
Garden & Pet

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our Web site: **www.altosid.com**

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LIQUID LARVICIDE
MOSQUITO GROWTH REGULATOR

PREVENTS EMERGENCE OF ADULT FLOODWATER MOSQUITOES

GUIDE TO PRODUCT APPLICATION

FOR THE FIRST TIME USER

Zoëcon® Altosid® Liquid Larvicide Mosquito Growth Regulator (A.L.L.) is the result of extensive research into the intricacies of natural biochemical and physiological development of insects. New chemical technology and biological findings were combined to develop a unique mosquito larvicide.

A.L.L., an insect growth regulator (IGR), acts by inducing morphological changes which interfere with normal development. These effects, not immediately apparent, result in the failure of adult mosquitoes to emerge from pupae. **A.L.L.** is **not** a conventional pesticide. It does not produce the nondiscriminatory rapid, directly toxic effects that are associated with traditional larvicides. **A.L.L.** differs from other larvicides you may have used only in the manner and time course of its action **after** application.

A.L.L. is applied to second, third, or fourth instar larvae using standard larviciding equipment in a manner similar to other larvicides. After application to second, third, or fourth instar larvae at the appropriate rates, absolutely no effects on larvae will be observed. They will continue developing normally and will pupate. Pupae will appear unaffected, but will eventually die. **Adults will not emerge.** Infrequently, a few adults may be seen at the water surface but they will have abnormalities preventing flight and will not survive. Because the effect of **A.L.L.** is neither larval death nor widespread mortality immediately following pupation, the **number of adults which emerge is the only criterion for accurately assessing control**. Checks by dip counts during larval and pupal stages will give no measure of effectiveness.

Refer to the following diagram and checklist, in addition to label instructions for guidance in timing of application and performance evaluation. They will assist you in obtaining the best possible results with this unique product.

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1501 East Woodfield Road 200W
Schaumburg, Illinois 60173

CHECKLIST

Things to remember when using **A.L.L.**

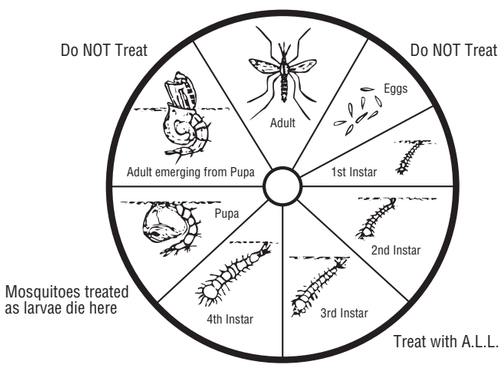
DO the following:

1. **DO** treat second, third, and/or fourth instar larvae, not pupae or adults. (First instar larvae are so small they are not readily detectable.)
2. **DO** wait until treated larvae have pupated. Then **collect pupae** and transfer to laboratory to observe for emergence of adults.
3. **DO** observe pupae for several days, since death of IGR treated mosquitoes occurs when pupae would normally emerge as adults. (Careful observation is necessary since dead pupae decompose rapidly and thus are not easily seen.)
4. **DO** monitor emerging adults at the treatment site.This absolutely requires that emergence traps be placed in treatment areas to capture adult mosquitoes as they emerge.

DO NOT do the following:

1. **DO NOT** take dip counts of larvae after treatment for the purpose of performance evaluation. **Normal looking larvae** will be present.
2. **DO NOT** take dip counts of pupae after treatment for the purpose of performance evaluation. **Normal looking pupae** will be seen but these will not develop into normal adults.
3. **DO NOT** think **A.L.L.** has failed if some adult mosquitoes are flying in treated areas; they probably have flown in from nearby untreated areas. Numbers 2 and 4 of the "**DO**" checklist are the only methods of accurately assessing effectiveness.
4. **DO NOT** spray again, either with **A.L.L.** or a conventional insecticide, because larvae or pupae are present after application. This is normal. The effectiveness of **A.L.L.** can only be measured by lack of adult emergence.

LIFE CYCLE OF MOSQUITO
When to Apply A.L.L.



Preparation of ALTOSAND®
Granular Formulation
An "On-Site" Method of Preparing a Granular Formulation of A.L.L.

INTRODUCTION

A method of application of **A.L.L.**, using sand as a carrier, has been developed for use in floodwater mosquito breeding areas with dense vegetation or canopy. The characteristics of **ALTOSAND®** provide excellent foliage penetration, ensuring that the active ingredient reaches the water where it is released from the sand.

ALTOSAND® will prevent the emergence of species of the floodwater mosquito complex when applied to second, third, or fourth larval instars at a rate of 10 to 13 pounds per acre.

PREPARATION INSTRUCTIONS

The following materials are required to prepare a 100 lb batch of **ALTOSAND®**:

96 lb washed, dry sand (20 to 45 mesh)
2 lb **A.L.L.** (15 fl oz/lb)
2 lb HiSil 233 (silicon dioxide)
Small Funnel
Cement Mixer

1. Measure the time required for a level funnel full of sand to empty.
2. Into a rotating-type mixer, place 96 lb of dry (20 to 45 mesh) sand. While the mixer is rotating, slowly pour 2 lb (30 fl oz) of **A.L.L.** onto the sand. (If better wetting is required, **A.L.L.** may be diluted in up to an equal volume of water.)
3. Mix until the sand is uniformly coated with **A.L.L.** (usually 5 to 10 minutes).
4. Stop the mixer and add 2 lb of HiSil 233. Cover the mixer to reduce dust. Start the mixer and run for approximately 5 minutes. (The quantity of HiSil 233 necessary to achieve a dry, free-flowing mixture will vary depending on the particle size distribution and moisture of the sand.)
5. Compare the flow rate of the **ALTOSAND®** mixture with that of untreated sand in Step No. 1. Add more HiSil if it flows significantly slower and reduce the amount of HiSil in subsequent batches if the mixture flows at the same or a faster rate and is excessively dusty.

APPLICATION RATE AND METHODS

Apply at a rate of 10 to 13 lb of the final mixture per acre, using standard granular dispersal equipment.

Preparation of Altodac™
Granular Formulation
An "On-Site" Method of Preparing a Granular Formulation of A.L.L.

INTRODUCTION

A method of **A.L.L.** application, using **BIODAC®** as carrier, has been developed for use in mosquito breeding areas in floodwater and intermittently flooded noncrop areas including freshwater and saltwater marshes. The characteristics of **A.L.L.** using **BIODAC®** carrier provide excellent coverage, ensuring that the active ingredient reaches the water and is released from the **BIODAC®**.

A.L.L. will prevent the emergence of adult mosquitos when applied to second, third, or fourth larval instars at a rate of 10 to 13 pounds per acre.

PREPARATION INSTRUCTIONS

The following materials are required to prepare a 100 lb batch of **ALTODAC™** using **BIODAC®** carrier:

96 lb **BIODAC®** 12/20
30 oz **A.L.L.**
32 oz water

1. Weigh the required amounts of **A.L.L.** into a tared container suitable for mixing.
2. Weigh the water into the vessel containing the **A.L.L.** Stir the contents in the vessel until a uniform mixture is achieved.
3. Add the appropriate amount of **BIODAC®** 12/20 to a blending device, e.g., a cement mixer with lifters, a munson blender, or any other device that will allow the granules to tumble through a spray.
4. Add the water/**A.L.L.** mixture to a spray unit or any pressurized device capable of delivering a cone-shaped, fine particle size spray to the contents in the blender.
5. Spray the mixture of **A.L.L.** and water onto the **BIODAC®** while the blender is tumbling the granules. Once the mixture has been applied to the **BIODAC®**, continue to blend until the granules appear to be dry (usually 5 to 10 minutes).
6. Remove the granules and screen over a 12 mesh screen to remove agglomerates.

APPLICATION RATE AND METHODS

Apply at a rate of 10 to 13 lb of the final mixture per acre using granular dispersal equipment.

Chemigation: Apply this product only through flood (basin), furrow, or border irrigation systems. Do not apply this product through any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Flood (Basin), Furrow, and Border Chemigation: Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from backflow if water flow stops.

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

- The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.
- The pesticide injection pipeline must contain a functional, automatic quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where the pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

A pesticide supply tank is recommended for the application of **A.L.L.** by chemigation.