ALTOSID® LIQUID LARVICIDE

An Insect Growth Regulator for Mosquito Control

PREVENTS EMERGENCE OF ADULT FLOODWATER MOSQUITOES

Prevents emergence of adult fleas up to 8 weeks outdoors
Controls pre-adult fleas (larvae) up to 8 weeks
Biorational [approach to] flea control outdoors

ACTIVE INGREDIENT:	
(S)-Methoprene [Isopropyl (2E,4E,7S)-11-methoxy-3,7,11-trimethyl-2,4-dodecadienoate]*	5.0%
INERT INGREDIENTS:	95.0%
TOTAL	100.0%

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

KEEP OUT OF REACH OF CHILDREN

CAUTION

See Back Panel For Additional Precautionary Statements

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

NET CONTENTS:

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PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS - CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

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

RECOMMENDED APPLICATIONS – 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 recommended rates when applied to larval stages under varying field conditions. For further information, see Guide to Product Application.

METHODS OF APPLICATION – Aerial: Use the recommended amount of A.L.L. listed below in sufficient water to give complete coverage. One-half to 5 gals. 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 recommended below.

APPLICATION RATE: Apply 3 to 4 fl.oz. of A.L.L. per acre (219 to 293 ml/hectare) in water as directed.

MIXING AND HANDLING INSTRUCTIONS:

1. **SHAKE WELL BEFORE USING.** 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 recommended amount of A.L.L., agitate and complete filling. Mild agitation during application is desirable.
4. Spray solution should be used within 48 hours; always agitate before spraying.

In dense vegetation or canopy areas, apply an A.L.L. sand mixture using standard granular dispersal equipment. For detailed preparation instructions, refer to Guide to Product Application.

APPLICATION SITES - 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, woodland pools and meadows, dredging spoil sites, drainage areas, waste treatment and settling ponds, ditches and other natural and man-made 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.

CHEMIGATION: Refer to supplemental labeli
Product Application" for use direction. for
apply this product through any irrigation
supplemental labeling on ch. migation is follow

TANK MIXING INSTRUCTIONS: A.L.L. may
liquid Bacillus thuringiensis variety israelensi
such as TEKNAR HP-D (or its equivalent).
HP-D to A.L.L. should range from 6:1 to 12.
For example to prepare a 12.5:1 tank mix, ad
to 12.5 gallons of HP-D. This tank mix can be
above at rates of 2-16 fluid ounces/acre (0.15

STORAGE & DISPOSAL:

in cool place. Store product away from other
feed. In case of leakage or spill, soak up
absorbent material DISPOSAL: Triple rinse
offer for recycling or reconditioning or punctur
sanitary landfill, or incineration, or, if allowe
authorities, by burning. If burned, stay out
resulting from the use of this product may be
at an approved waste disposal facility. Do n
food or feed by storage or disposal.

Seller makes no warranty, express or implied,
this product other than indicated on the label
risk of use and handling of this material
handling are contrary to label instructions.

Zoecon Corporation
A Sandoz Company
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EPA Reg. No. 2724-392
U.S. Pats. 3,904,662;3,912,815
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...der the Federal Insecticide
...icide, and Rodenticide
...ded, for the pesticide
...ered under
...Reg. No. 2724-39

ALTOSID LIQUID LARVICIDE

PREVENTS EMERGENCE OF ADULT FLOODWATER MOSQUITOES

GUIDE TO PRODUCT APPLICATION

FOR THE FIRST TIME USER

Altosid Liquid Larvicide (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. Zoecon A.L.L. is not a conventional pesticide. It does not produce the nondiscriminatory rapid, directly toxic effects that are associated with traditional larvicides. Zoecon 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 recommended 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.

The information presented herein, while not guaranteed, is to the best of our knowledge true and accurate. No warranty or guarantee, express or implied, is made regarding the performance or stability of any product, since the manner of use and conditions of storage and handling are beyond our control.

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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, insuring 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 eight to ten pounds per acre.

PREPARATION INSTRUCTIONS

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

99 lbs. washed, dry sand (20-45 mesh)
2 lbs. A.L.L. (15 fluid oz./lb.)
0.5 lbs. 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 99 lbs. of dry (20-45 mesh) sand. While the mixer is rotating, slowly pour 2 lbs. (15 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 0.5 lbs. 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 8 to 10 lbs. of the final mixture per acre, using standard granular dispersal equipment.

CHECK LIST
Things to remember when using A.L.L.

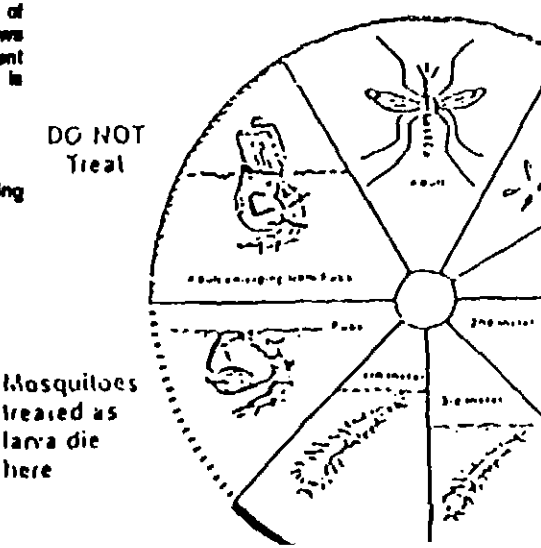
DO the following:

1. DO treat second, third and/or fourth inst adults. (First instar larvae are so sma detectable.)
2. DO wait until treated larvae have pupate and transfer to laboratory to observe for
3. DO observe pupae for several days, sinc mosquitoes occurs when pupae would nor (Careful observation is necessary since d rapidly and thus are not easily seen.)
4. DO monitor emerging adults at the absolutely requires that emergence traps areas to capture adult mosquitoes as the

DO NOT do the following:

1. DO NOT take dip counts of larvae after tr of performance evaluation. Normal lookin
2. DO NOT take dip counts of pupae a purpose of performance evaluation. Nor be seen but these will not develop into n
3. DO NOT think A.L.L. has failed if some flying in treated areas; they probably hav untreated areas. Numbers 2 and 4 of the only methods of accurately assessing eff
4. DO NOT spray again, either with A.L insecticide, because larvae or pupae are p This is normal. The effectiveness o measured by lack of adult emergence.

LIFE CYCLE OF MOSQU
WHEN TO APPLY ZOECON
MOSQUITO GROWTH REGU



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 manufacutrers or ther 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 automically 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.

Mixing Instructions: 1. SHAKE WELL BEFORE USING. A.L.L. may separate on standing and must be thoroughly agitated prior to dilution. 2. Thoroughly clean the pesticide supply tank. 3. Determine the quantity of wter sufficient to achieve good coverage. 4. Partially fill the pesticide supply tank with water, then add the recommended amount of A.L.L., agitate, and add thre remaining water. Mild agitation during application is desirable. 4. The A.L.L./ water solution in the supply tank should be used within 48 hours. Always agitate before application.

Apply A.L.L. continuously for the duration of water application.

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