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Sumilarv 0.5G
Application &
Protocol

TechService

Solutions for effective mosquito control

Sumilarv 0.5G is a fine sand granule formulation that contains the active ingredient pyriproxyfen, an IGR that prevents mosquitoes from becoming biting adults. This unique formulation provides extended control due to the slow release of the AI and the non-flushing qualities of the sand granule.

PERSONAL PROTECTION EQUIPMENT

When applying Sumilarv 0.5G sand granules, no PPE is required.

WHERE TO USE

Sumilarv 0.5G is intended for catch basins and listed sites, which do not drain directly into natural water bodies.



Sumilarv 0.5G Application

Efficacy Protocol

Data Collection Methodology

Sumilarv 0.5G Application

Sumilarv 0.5G is a unique sand granule formulation that is easily applied to larval habitats and mosquito breeding sites. The sand granules are applied to targeted areas using a broadcast spreader or by hand-casting with a scoop.

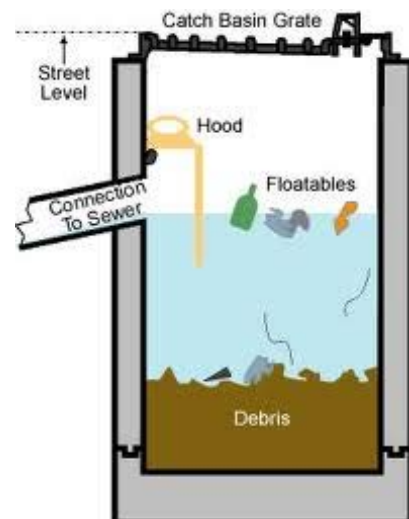
Sumilarv 0.5G will effectively control mosquito emergence for 4 to 5 weeks of continuously wet conditions at the labeled use rates. Pyriproxyfen will begin releasing and controlling adult emergence shortly after initial application.

Storm water retention ponds and temporary water holding sites are all breeding sites for mosquitoes. Examples of these types of sites are; ornamental ponds, fountains, cesspools, abandoned swimming pools, gutters, construction site depressions, septic tanks, flooded basements & structures, animal waste lagoons, stock dams, livestock runoff lagoons, sewers, waste water impoundments, waste water settling ponds, landfills, tire dumps, junk yards, man-made depressions, hollow trees, tree holes, potted plants, bird baths and rain barrels.

Applications made to urban storm water catch basins is pending EPA approval. However, these urban and suburban storm water catch basins are a primary breeding site for mosquitoes that can transmit and vector West Nile Virus, Dengue, Eastern Equine Encephalitis (EEE), Western Equine Encephalitis (WEE), St. Louis Encephalitis (SLE) and Dog Heart Worm.

Applications to Catch Basins

The typical dose rate is 75 grams of Sumilarv 0.5G. Just scoop and drop it into the catch basin to achieve 150 days of control. The sand granules are flush resistant and provide slow release of the active ingredient (pyriproxyfen).



How much material is needed to treat retention or detention ponds?

To calculate the amount of Sumilarv 0.5G to use for broadcast applications you must first determine the volume of water for a specific site.

Use the following calculation method:

Total cubic ft. of target site (ft³) = surface area (ft²) X average depth (ft).

Site (Gallons)	Water Depth (ft)	Amount Sumilarv 0.5G (grams)	lb Al/acre
0-500	1	10	0.00011
500-1500	2	30	0.00033
1500-3000	4	60	0.00066
3000-4500	6	90	0.00099
4500-6000	8	120	0.00132

Do not apply more than 0.2 lbs. of pyriproxyfen per acre per year or 20 lbs. of Sumilarv 0.5G/acre/year.

Packaging sizes available:

- 1 kg bags (10 x 1 kg bags)
- 5 kg bags (2 x 5 kg bags)



Helpful Evaluation Tips:

Before starting, make sure you have dedicated sample collection & measuring supplies.

Where & when to apply:

Choose a site that is readily accessible containing abundant populations of mosquitoes.

For best results, apply the Sumilarv 0.5G material early in the season before mosquito breeding season begins. Surveillance is essential to establish a baseline for mosquito densities, activity and control.

Untreated sites should be used as a comparison or control to the treatment sites. Make sure the control site is far enough away to prevent cross contamination from application drift or autodissemination effects of the pyriproxyfen.

Once your population baselines are established and the sites are vetted, it is important to provide periodic surveillance and larval dip counts early in the season. Emergence inhibition is monitored once pupae are present & collected.

Pre-Treatment:

Determine larval abundance (1st through 4th instar & pupae) and record these in log books for both control and treatment sites. Count & record from each site.

Application:

Use a 75 gram scoop and broadcast the sand evenly into the catch basin. The sand granules are non-flushing and slowly release the pyriproxyfen to prevent adult mosquito emergence and control for 150 days (depending on rain volume).

Wear the appropriate PPE equipment during applications.

Sampling:

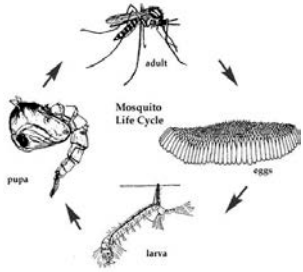
Use dedicated sample collection tools for treatment & control. The control tools should be used only in the control and the treatment tools should only be used in the treated area to avoid cross contamination of the control site from the sampling tools.

Data calculations:

Use data sheets to record dip counts and pupae collected as follows:

1. Record conditions at treatment site and any factors that may affect application of granule product.
2. Record Pre-treatment larval populations on the data sheet with ten dip counts for the treatment and control sites.
3. Collect pupae after the first 72 hours and rear them for emergence inhibition calculations.
4. Make pupal collection weekly or when present and check for emergence inhibition until the control percentage drops below the 70% threshold.

Testing Guidelines



How to evaluate efficacy:

To evaluate the effectiveness of an application of Sumilarv 0.5G, there are a few simple steps to take.

Larval abundance (all stages) should be monitored 48 hours post application and then weekly. using pupae collected from the treated and untreated control areas. Take dip counts at various locations at the treated site to determine larval abundance and collect pupae. Mosquito larvae must be in a treated environment upon molting to pupae for control. Pyriproxyfen will not kill the larval stages of the mosquito within the treated site.

Collected pupae will then be taken to a lab situation and monitored for emergence.

Laboratory observations should be made after the first 72 to 96 hours to determine inhibition of adult emergence.

Inhibition of emergence begins at application, but waiting 48 hours after initial treatment ensures that all pupae collected have developed in the presence of pyriproxyfen.

The IGR effect from pyriproxyfen will prevent adult emergence for up to 150 days post treatment in a catch basin. Pupae must be collected from the field and held in a lab to determine emergence inhibition of adult mosquitoes. Collecting larvae is not an effective method for determining emergence inhibition.

Characterization of the habitats in terms of abiotic and biotic factors aid the interpretation of results. Rainfall and environmental changes in water level or other parameters, such as; algae bloom, water quality, outflow, temperature or other relevant factors should be recorded.

Pupal Sampling:

The sampling method should be appropriate to the type of habitat, and the number of samples to be collected. If measuring adult emergence inhibition, then pupae should be collected from treated and untreated sites and bringing them to the laboratory in glass containers with water from the respective habitats, then transferring them to small inside holding cages. Dead pupae found in the cups should be removed and any morphological abnormalities recorded.

EYE ON IT

Current Industry Trends

Mosquito disease is ever changing and new vector borne diseases are affecting people all over the world. Using new & novel control methods is vital to stay ahead of these rapidly changing organisms. *Aedes aegypti* mosquitoes are urban mosquitoes and prefer to live near and around human beings. Sumilarv 0.5G is a tool that vector control professionals can use to provide long lasting control and suppression of adult mosquitoes.

Where to find more information

www.MGK.com

For more information on Mosquito control solutions and methodologies for fighting mosquito resistance

Go to MGK.com

Product Testimonial:

"For Catch Basins, Sumilarv 0.5G provides season-long control with one application. Saving MMCD time and money while protecting our citizens."

Dr. Steven Manweiler, Director, Metropolitan Mosquito Control District

Evaluation Tips

Q: How do I calculate emergence inhibition?

A: Emergence inhibition (EI) is calculated by collected pupae (20 – 40) and bringing them back to the laboratory in glass containers with water from the respective habitats, then transferring them to small cups inside holding cages. Dead pupae found in the cups should be removed and any morphological abnormalities recorded.

When adult emergence is monitored in the laboratory using pupae from treated and untreated habitats, EI% is calculated using the following formula, on the basis of determining adult emergence from the number of pupae isolated:



Catch Basin Testing Protocol

1. **Record Conditions at treatment site and any factors that may affect application**
2. **Record pre-treatment larval populations on the data sheet with 10 random dip counts for the treatment and control sites.**
3. **Begin collecting pupae after the first 48 hours post treatment and rearing them for emergence calculations**
4. **Make pupal collection weekly or when present and check for emergence inhibition until control percentages drop below 70%**

Calculation Methods:

The efficacy and residual activity of the larvicide is determined from the post-treatment counts of pupae in the treated and control sites. Where C = Percentage of emerging or living in control habitats and T = Percentage emerging or living in treated habitats.

$$EI(\%) = \left(\frac{C-T}{C} \right) \times 100$$



Cryptic or problematic treatment sites

In every city there are cryptic breeding sites that pose problems for Vector control professionals, such as tire piles, recycling centers and abandoned properties. Sumilarv 0.5G is a great solution that provides residual control and helps fight resistance.