



## ENVIRONMENTAL SCIENCE BUSINESS UNIT

Suspend PolyZone Mosquito Barrier Service Protocol

### General

#### **Previous Technical Experience**

Pest Management Professionals (PMP's) can provide effective management of mosquitoes, a Public Health Pest, around residential and commercial properties. This protocol defines the service procedures for PMP's to follow to provide mosquito management on individual properties/sites. This service must not be defined, marketed and/or promised to consumers to protect occupants and/or visitors from public health threats that may be carried by mosquitoes.

#### **Technical Approach**

Mosquito abatement service will be provided based on the following service categories:

1. **Inspection** of property for conditions conducive to mosquito development (i.e. breeding). Notification to customer contact of such conditions, and recommendations for modification to conditions on the property to eliminate or reduce mosquito development.
2. **Applications of larvacides** (where appropriate) to mosquito-bearing stagnant water and/or to areas subject to periodic flooding that will allow immature mosquitoes to develop.
3. **Application of Suspend PolyZone SC Insecticide** as a residual barrier treatment to foliage and structures where mosquitoes will shelter and rest.
4. **Reporting** to customer any changes in property conditions that may provide mosquitoes additional harborage or developing sites.

### Site and Design

This protocol is applicable to residential and commercial properties unless conditions present would result in violations of pesticide product label language.

#### **Evaluations and Treatment**

##### **Inspection**

On initial, and every, visit: Technicians will walk and inspect the property upon arriving (and before ANY application of pesticides). Inspect for natural and man-made conditions that allow water (rain or irrigation) to collect and lay stagnant (non-moving) on the property. Naturally moving water (streams, rivers, brooks) can be ignored as mosquitoes will not develop in moving water. Man-made containments (maintained swimming pools, fountains, reflecting ponds, fish-bearing ornamental ponds) where the water is moving, agitated, contains fish or is chemically treated may be ignored as they will not support mosquito development. Abandoned or poorly maintained swimming pools or ornamental ponds should be inspected for breeding.

Key examples of natural breeding sites include: stagnant drainage ditches; septic sumps; tree holes; 'low spots' on property that regularly flood and hold water after significant precipitation events. Key examples of artificial breeding sites include: neglected birdbaths; neglected fountains; neglected pet water bowls; discarded or unused vehicle tires; neglected swimming pools (including covers and child wading pools); toys (pails, sandboxes, riding toys); discarded beverage cans and bottles; flower pots and planters; blocked gutters; tarps; boat and snowmobile covers.

Learn to identify mosquito larvae and pupae in habitat and point out activity to customer contact when found. Advise on recommendations to change standing water conditions (if possible) to eliminate the breeding source.

If larvaciding and/or adultciding applications are appropriate, inspect to determine best application techniques to prevent potential runoff and/or drift of applications from target sites. Inspect for non-target presence or activity (all pets, children, visitors, pollinating insects, wildlife) that must be prevented before application. Refer to product labels for details.

##### **Larvaciding**

*Always read and follow all product label directions.*

If conditions are appropriate (standing, stagnant water that will be continually, or regularly, present and is a source of developing mosquitoes) apply an approved larvacide directly to the water according to the product directions. Biological larvacides (Bti) and/or biorational larvacides (methoprene) present a reduced hazard to non-targets. Formulations are available (solid granules, briquettes and donut-shaped 'dunks') that may be applied by hand. Apply at label rates, and at intervals as directed on the larvacide label.

##### **Adulticide Barrier Treatment**

*Always read and follow all product label directions.*

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Suspend PolyZone Insecticide will be utilized as the residual insecticide product for barrier treatments. Best results will be realized when Suspend PolyZone is applied through powered 'mist-blower' equipment. Applications of Suspend PolyZone by power sprayers and/or hand-held sprayers (i.e. 'back-pack' or B&G® sprayers) are allowed by label, but are not as efficient as mist-blowers. The high velocity of the blower propelling the product to the application site, as well as the small particle size, will allow the product to penetrate foliage and adhere to the underside of leaves where mosquitoes rest.

Outdoor residual mosquito control is maximized when applied from a powered backpack mist blower that is calibrated to maintain small droplet size with high delivery velocity. This allows the product to penetrate dense foliage, provide more uniform coverage, and wet the target application area without excessive runoff. For example, when utilizing the Stihl SR450 back mist blower, the adjustable flow rate varies from a setting of 1 (lowest volume) to 5 (highest volume). Utilizing a setting of "2" on the SR450 is optimal as it allows enough product to be delivered at an efficient pace, while minimizing waste. When using a lower flow rate such as "2" on the SR450 with high velocity (maximum throttle), the droplets are broken up more than at high flow rates resulting in reduced droplet size and improved efficacy. It is important to note that application equipment and settings varies greatly between manufacturers and models so care must be taken to establish what settings provide the optimal spray pattern for the selected equipment.

Tips of the Trade: Spray patterns from backpack mist blowers can be further improved by utilizing a diffuser. This part is usually included with a mist blower and is a simple plastic piece that is attached to the end of the discharge chute. Diffusers break apart the spray cloud, allowing the product to disperse, delivering it in hard to reach areas where mosquitoes may be resting.

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Suspend PolyZone is formulated to be diluted in water only. Do not dilute in oil or solvents. The use of a spray additive (spreader/stickers or wetting agents) is not recommended. The polymer included in the PolyZone formulation helps to adhere the active to treated surfaces and resist wash-off from precipitation and/or irrigation.

Dilution rates range from 0.01% to 0.06% active ingredient. Use the low rate when service intervals are short (i.e. monthly service); use higher rates for longer service intervals ('every-other-month', quarterly, or seasonal). The high rate (0.06%) is recommended for fast knock-down in sites with high population density or activity.

Dilute Suspend PolyZone, according to the label directions, in the sprayer. Apply the dilution, as a mist, to foliage of trees, shrubs and ornamental plantings where mosquitos rest. Comply with all label directions regarding weather conditions and non-target exposure warnings. Apply in a manner that allows treated mist to penetrate foliage canopies and reach the undersides of leaves, the preferred resting location for mosquitos. Be sure to include the 'upper' canopy of trees and ornamentals where possible. Mosquitos harbor in areas close to bird roosting sites (birds are natural sources of blood meals for many pest species of mosquitos). Whenever possible, make applications with your back to the property boundaries to avoid drift onto neighboring properties.

New label restrictions for outdoor pyrethroid treatments must be followed. Be aware of wind and weather conditions that may prevent or restrict treatment.

Structures may be treated for residual mosquito control; comply with label restrictions. Apply to sites where mosquitos will rest. These sites are generally in shaded areas protected from direct sunlight and wind. Such sites may include: under decks and porches; under soffits and overhangs. Avoid runoff of sprays.

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### **Wide Area Space Spraying With an Ultra Low Volume (ULV) Adulticide**

Wide area space spraying with a ULV adulticide is an effective application for immediate knockdown and suppression of adult mosquitos in an area. This use pattern is particularly useful when surfaces where a residual spray can be applied are limited, the region to be treated is very large (greater than 5 acres), or a non-residual solution is desired. When used together with a residual barrier treatment, an initial ULV application can provide immediate elimination of adult mosquitos on the entire property, ensuring the applied barrier effectively controls mosquitos attempting to reenter the treated area.

DeltaGard Insecticide will be utilized as the non-residual ULV adulticide for wide area space spraying. DeltaGard represents a new solution for rapid knockdown of mosquitos killing mosquitos quickly – in as few as 10-15 minutes with no knockdown recovery. DeltaGard has been demonstrated to be effective against pyrethroid-resistant mosquitos and carries the designation: EPA – Reduced Risk Classification for wide area mosquito control. DeltaGard has a favorable toxicity profile, contains no Piperonyl Butoxide (PBO) or other synergist, and contains no VOCs. For rural hygiene applications, DeltaGard may be applied with livestock present

Portable, Backpack or Hand Carried ULV Application: Apply DeltaGard insecticide through non-thermal ULV application equipment and base acreage calculations on a 50 foot swath. At a pace of 2 MPH (2.9 ft/sec) apply 1 ounce per minute of DeltaGard Insecticide diluted in water as follows: for an application rate of 0.00045 pounds of deltamethrin per acre dilute 1 to 14, for an application rate of 0.00089 pounds of deltamethrin per acre dilute 1 to 6.5, for an application rate of 0.00134 pounds of deltamethrin per acre dilute 1 to 4. Based on the above dilution and application rates apply 5 ounces of diluted product while walking 870 feet (290 yards).

Tips of the Trade: The proprietary FFAST (Film Forming Aqueous Spray Technology) formulation in DeltaGard greatly reduces the evaporation rate of water from the sprayed droplets and allows the water-based spray cloud to behave as that produced by a typical oil-based formulation. This enables the spray droplets to maintain optimum size and stability while drifting through the target area. Spray equipment must be adjusted so that the volume median diameter (VMD) is between 8 - 30 microns ( $8\mu \leq D_{v,0.5} \leq 30\mu$ ) and that 90% of the spray is contained in droplets smaller than 50 microns ( $D_{v,0.9} < 50\mu$ ). Directions from the equipment manufacturer or vendor or a test facility using a laser-based measurement instrument must be used to adjust equipment to produce acceptable droplet size spectra.

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### **'Event' or 'Party' Service**

If service is proposed to provide relief for a scheduled event (weddings, graduations, outdoor meetings, outdoor parties) service should be provided as close as possible to the date of the event for ULV applications, but allowing a minimum 48 hour period between treatment and the event if making a barrier treatment. Closely watch weather forecasts to allow insecticide treatments proper time to dry before anticipated precipitation and the event.

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