

279-3363

4/28/2010

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U.S. ENVIRONMENTAL PROTECTION AGENCY  
Office of Pesticide Programs  
Registration Division (H7505C)  
1200 Pennsylvania Avenue, N.W.  
Washington, D.C. 20460

EPA Reg. Number:  
279-3363

Date of Issuance:  
APR 28 2010

Term of Issuance:  
Conditional

Name of Pesticide Product:  
F6138-1 ZW FHE Insecticide

NOTICE OF PESTICIDE:  
 Registration  
 Reregistration

(Under FIFRA as amended)

Name and Address of Registrant (include ZIP Code):  
FMC Corporation  
1735 Market Street  
Philadelphia, PA 19103

*Note: Changes in labeling, differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product, always refer to the above EPA registration number.*

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is **conditionally** registered in accordance with FIFRA sec. 3(c)(7)(A), provided that:

1. You will submit and/or cite all data required for registration/reregistration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for reregistration of your product under FIFRA section 4.
2. You will make the following label changes before you release the product for shipment:
  - a) Revise the EPA Registration Number to read "EPA Reg. No. 279-3363."
  - b) The acute toxicity profile for this product is as follows:
 

Acute oral toxicity	III
Acute dermal toxicity	IV
Acute inhalation toxicity	IV
Primary eye irritation	IV
Primary skin irritation	IV
Dermal sensitization	Negative

Signature of Approving Official:  
*Richard Gebken*  
Richard Gebken, Product Manager  
Insecticide Branch/Registration Division (7505P)

Date:  
*April 28, 2010*

Enclosure

Based on the toxicity profile revise the Precautionary Statements to read as follows:

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“Harmful if swallowed. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

- c) Also, based on the acute toxicity for acute dermal, inhalation and primary eye irritation (all classified Toxicity Category IV), delete the “If inhaled”, “If on skin or clothing” or “If in eye” first aid statement.
- d) Since the product contains more than 10% petroleum distillates, revise the label as follows:
  - a. Replace “Have person sip a glass of water if able to swallow” with “Do not give any liquid to the person” in the If Swallowed, first aid statement.
  - b. Add “Note to Physician: Contains Petroleum Distillate – vomiting may cause aspiration pneumonia” to the Note to Physician section.
  - c. Add “Contains petroleum distillate” after the Ingredients statement.
- e) Delete all food/feed handling establishment applications from the label. Adequate data hasn’t been cited or submitted to support this use.
- f) Replace the amount of active ingredient “F6138-1 ZW FHE INSECTICIDE contains 0.78 (7/9ths) pounds active ingredient per gallon” with “This product contains 0.72 lbs bifenthrin/gallon and 0.0675 lbs zeta-cypermethrin/gallon”.
- g) Under the *Physical and Chemical Hazards* section replace, “Do not apply water-based dilutions of F6138-1 ZW FHE INSECTICIDE to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard” with “Do not apply this product around electrical equipment due to the possibility of shock hazard”.
- h) Revise the *Environmental Hazards* statements in accordance with PR Notice 2008-1.
- i) Express the Net Contents in terms of liquid measure (gallons, quarts, pints, fluid ounces) on the front panel.
- j) Revise the *Storage and Disposal* section as follows:
  - a. Move “Carefully open containers. After partial use replace lids and close tightly. DO NOT put concentrate or dilute material into food or drink container.” to the *Directions for Use* section.
  - b. Replace the three bullet statements under *Pesticide Disposal* with “If empty: Place in trash or offer for recycling if available. If partly filled: Call your local solid waste agency for disposal

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instructions. Never place unused product down any indoor or outdoor drain”

- c. Replace the bullets statements under *Container Disposal, plastic container & returnable/refillable sealed container* statements with either “Nonrefillable container. Do not reuse or refill this container. 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.” Or “Nonrefillable container. Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Do not burn, unless allowed by state and local ordinances.”
  
- k) On page 6, add a formula for determining the amount of each active ingredient in the finished spray, in order for the applicator to determine how much bifenthrin and zeta-cypermethrin are in the end-use dilution.
  
- l) On page 6, revise the *Dilution Chart* to reflect the percentage of bifenthrin and the percentage of zeta-cypermethrin in the dilution. Based on the cited data the end-use dilution of this product must be applied at the rate of 0.02 lbs bifenthrin/1000 square feet or greater, equivalent to 0.5 oz of product per gallon of finished dilution/1000 square feet. See attached Product Performance Data Evaluation Report.
  
- m) On page 6, revise the Foam Table to include bifenthrin and zeta-cypermethrin concentrations in the end-use foam. In addition replace the tables’ title, “Mixing Table for F6138-1ZW Foam” with “Mixing Table for F6138-1ZW FHE Foam”.
  
- n) Adjust the maximum application rates thru out the label not to exceed 0.5 oz of product/1000 square feet.
  
- o) Delete “Arvoviruses” from the *Adult Mosquito Control* claims. The data submitted support kill claims of mosquito vectors. See attached Product Performance Data Evaluation Report.
  
- p) On page 9, delete the term “arthropods” from the *Pests Under Slab* section. Also, add a disclaimer that this application is not a stand alone termite treatment.
  
- q) Delete “and other arthropods” from the *Pest Control in Crawlspace and Voids* section.
  
- r) Delete “Recommendations” from the following:
  - a. Specific Outdoor Pest Control Recommendations
  - b. Specific Indoor Pest Control Recommendations
  - c. Specific Pest Control Recommendations

- s) On page 10 under *Fleas* replace, "DO NOT apply F6138-1 ZW FHE INSECTICIDE dilution directly to pets" with "DO NOT apply F6138-1 ZW FHE INSECTICIDE dilution to pets".
- t) On page 14 under *Where to Apply* replace, "Feeders, waterers, and feed carts should be covered before application to prevent contamination" with "Feeders, waters, and feed carts must be covered before application to prevent contamination". In addition under *Mixing Directions* replace "Fill sprayer with the desired volume of water and add F6138-1ZW" with "Fill sprayer with the desired volume of water and add F6138-1ZW FHE".
- u) On page 13 under *Warehouses and Grocery/Pet Stores* replace, "DO NOT apply directly to food, interior of grain bins, or animals" with "DO NOT apply to food, interior of grain bins, or animals". Also, under *Where to Apply* replace, "DO NOT apply directly to food" with "DO NOT apply to food".
- v) Under *General Information on the use of this Product* revise as following:
  - a. Replace "F6138-1 ZW FHE INSECTICIDE controls a wide spectrum of insects and mites on trees ... etc" with "F6138-1 ZW FHE INSECTICIDE controls listed insects and mites on trees ... etc".
  - b. Replace "F6138-1 ZW FHE INSECTICIDE may also be used in feed and food handling establishments, animal confinement facilities, and in/around/under structures" with "Use F6138-1 ZW FHE INSECTICIDE in animal confinement and in/around/under structures".
  - c. Replace "F6138-1 ZW FHE INSECTICIDE may be used on any surface which will not ... etc." with "Use F6138-1 ZW FHE INSECTICIDE on any surface which will not ... etc."
- w) Add the following precautions to ATTENTION-OBSERVE section:
  - a. Do not apply in warehouses while raw agricultural commodities for food or feed are being stored.
  - b. Do not apply to institutions (including libraries, sports facilities, etc.) in the immediate area when occupants are present.
- x) On page 7 under *Perimeter Treatment* replace "(refer to F6138-1ZW Dilution Chart)" with "(refer to F6138-1ZW FHE Dilution Chart)" and on page 11 under *Ants* and *Where to Apply* replace "F6138-1ZW" with "F6138-1ZW FHE".
- y) Under *Lawns/Application Rate* replace "... to ensure efficacy of sub-surface pests such as, but not limited to, mole crickets, is recommended" with "... to ensure efficacy of sub-surface to mole crickets and other listed pests".

3. Delete all references to Bedbug use. Product specific data against susceptible and pyrethroid resistant bedbugs and compare the results must be submitted to the Agency to support the bedbug use.
4. Submit an one year storage stability study for this product under warehouse conditions along with a corrosion characteristics study. We recommend that observation be made at 0, 3, 6, 9, and 12 months intervals in the storage stability study.
5. Please submit three (3) copies of your final printed labeling before releasing the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product bearing amended labeling constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

If you have any questions regarding this action, please contact BeWanda Alexander at [www.alexander.bewanda@epa.gov](mailto:www.alexander.bewanda@epa.gov) or (703) 305-7460.

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# F6138-1 ZW FHE INSECTICIDE

To control pests indoors and outdoors on residential, institutional, public, commercial, and industrial buildings, animal confinement facilities/livestock premises, kennels, food handling establishments, lawns, ornamentals, parks, recreational areas and athletic fields.

-Brand [ICON]

Active Ingredients:	By Wt.
Bifenthrin (2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate) <sup>1,2</sup> .....	8.00%
Zeta-cypermethrin (S-Cyano (3-phenoxyphenyl)methyl (+) cis/trans 3-(2,2-dichloroethenyl)-2,2 dimethylcyclopropane carboxylate) <sup>3</sup> .....	0.75%
<b>Other Ingredients:</b> .....	<b>91.25%</b>
	<b>100.00%</b>

F6138-1 ZW FHE INSECTICIDE contains 0.78 (7/9ths) pounds active ingredient per gallon.

<sup>1</sup>Capsule Suspension (microencapsulated)

<sup>2</sup>Cis isomers 97% minimum, trans isomers 3% maximum.

<sup>3</sup>Cis/trans ratio: Max. 75% (±) cis and min. 25% (±) trans

U.S. Patent No. 4,238,505. Other patents Pending.

EPA Reg. No. 279-XXXX EPA Est. 279-XXX

FMC Corporation  
Agricultural Products Group  
1735 Market Street  
Philadelphia PA 19103

**ACCEPTED  
with COMMENTS  
In EPA Letter Dated  
APR 28 2010  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.  
279-3363**

Net Contents

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

<b>FIRST AID</b>	
<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>HOTLINE NUMBER</b>	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)-331-3148 for Emergency Assistance.
<b>NOTE TO PHYSICIAN</b>	<p>This product is a pyrethroid. If large amounts have been ingested, the stomach and intestine should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided.</p> <p>For Information Regarding the Use of this Product Call 1-800-321-1FMC (1362).</p>

<b>PRECAUTIONARY STATEMENTS</b>	
<b>HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)</b>	<ul style="list-style-type: none"> <li>• Harmful if swallowed, inhaled or absorbed through skin.</li> <li>• Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.</li> <li>• Remove and wash contaminated clothing and wash before reuse.</li> </ul>
<b>CAUTION</b>	
<b>ENVIRONMENTAL HAZARDS</b>	<ul style="list-style-type: none"> <li>• This pesticide is extremely toxic to fish, aquatic invertebrates, oysters and shrimp. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark.</li> <li>• Drift and run-off from treated areas may be hazardous to aquatic organisms in neighboring areas.</li> <li>• Do not contaminate water when disposing of equipment wash waters.</li> <li>• Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.</li> <li>• This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are visiting the treatment area.</li> </ul>
<b>PHYSICAL AND CHEMICAL HAZARDS</b>	<ul style="list-style-type: none"> <li>• Do not apply water-based dilutions of F6138-1 ZW FHE INSECTICIDE to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of possible shock hazard.</li> </ul>

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## DIRECTIONS FOR USE

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

<b>USE DIRECTIONS FOR TIP-N-MEASURE® CONTAINER</b>	<ol style="list-style-type: none"> <li>1. Remove the measuring chamber cap and induction seal. Replace the cap and securely tighten. Tip container until liquid fills measuring chamber.</li> <li>2. Return container to level position. No adjustment is needed.</li> <li>3. Remove measuring chamber cap and dispense into proper application equipment.</li> </ol> <p>For multiple dose measuring: Remove fill chamber cap and dispense according to markings on side of bottle.</p>
<b>USE DIRECTIONS FOR SQUEEZE-N-MEASURE® CONTAINER</b>	<ol style="list-style-type: none"> <li>1. Remove the measuring chamber cap and induction seal.</li> <li>2. Replace cap loosely on measuring chamber to allow venting.</li> <li>3. Squeeze container gently until liquid fills measuring chamber.</li> <li>4. Remove measuring chamber cap and dispense into proper application equipment.</li> <li>5. Replace cap onto measuring chamber and Securely Tighten.</li> </ol>

<b>STORAGE AND DISPOSAL</b>	
<b>PROHIBITIONS:</b>	<b>DO NOT</b> contaminate water, food or feed by storage or disposal.
<b>PESTICIDE STORAGE:</b>	<ul style="list-style-type: none"> <li>• Keep out of reach of children and animals.</li> <li>• Store in original containers only.</li> <li>• Store in a cool, dry place and avoid excess heat.</li> <li>• Carefully open containers. After partial use replace lids and close tightly. <b>DO NOT</b> put concentrate or dilute material into food or drink container.</li> </ul>
<b>IN CASE OF SPILL:</b>	<ul style="list-style-type: none"> <li>• Avoid contact, isolate area and keep out animals and unprotected persons. Confine spills. Call FMC: (800) 331-3148.</li> <li>• <b>TO CONFINE SPILL:</b> If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.</li> </ul>
<b>PESTICIDE DISPOSAL</b>	<ul style="list-style-type: none"> <li>• Pesticide wastes are toxic.</li> <li>• <b>DO NOT</b> contaminate water, food or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law.</li> <li>• Dispose of excess or waste pesticide by use according to label directions, or contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.</li> </ul>
<b>CONTAINER DISPOSAL:</b>	<p><b>PLASTIC CONTAINER:</b> Non-refillable container.</p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> reuse or refill this container.</li> <li>• Triple rinse as follows: Empty the contents into application equipment or a mix tank and drain for 10 seconds after flow begins to drip. Fill container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or 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 reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.</li> </ul> <p><b>RETURNABLE/REFILLABLE SEALED CONTAINER:</b> Refill this container with pesticide only.</p> <ul style="list-style-type: none"> <li>• <b>DO NOT</b> reuse this container for any other purpose.</li> <li>• <b>DO NOT</b> rinse container.</li> <li>• <b>DO NOT</b> empty remaining formulated product.</li> <li>• <b>DO NOT</b> break seals.</li> <li>• Return intact to point of purchase. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller.</li> </ul>

**GENERAL INFORMATION ON THE USE OF THIS PRODUCT**

- F6138-1 ZW FHE INSECTICIDE controls a wide spectrum of insects and mites on trees, shrubs, foliage plants, non-bearing fruit and nut trees, and flowers in greenhouses, interiorscapes including hotels, shopping malls, office buildings, etc., and outdoor plantscapes, such as around residential dwellings, parks, institutional buildings, recreational areas, athletic fields and home lawns.
- Also for use on non-bearing crops are perennial crops that will not produce a harvestable raw agricultural commodity during the season of application.
- F6138-1 ZW FHE INSECTICIDE may also be used in feed and food handling establishments, animal confinement facilities, and in/around/under structures.
- F6138-1 ZW FHE INSECTICIDE may be used on any surface which will not be damaged or stained by water. Heavy applications may leave a visible deposit. On some surfaces this deposit can be removed with a damp cloth or sponge. You may test the area to be treated before proper application.

**RESISTANCE:** Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. You may consult your local or state pest management authorities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control.

If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and suspect that resistance is a reasonable cause, you should consult your local company representative or pest management advisor for the best alternative method of control for your area.

**GENERAL APPLICATION INSTRUCTIONS**

- F6138-1 ZW FHE INSECTICIDE formulation mixes readily with water and other aqueous carriers.
- F6138-1 ZW FHE INSECTICIDE may be tank-mixed with adjuvants, and with other pesticides, including insect growth regulators. When tank mixing F6138-1 ZW FHE INSECTICIDE with other pesticides, observe all precautions and limitations on each separate product label.
- The physical compatibility of F6138-1 ZW FHE INSECTICIDE may vary with different sources of pesticide products, and local cultural practices. Any tank mixture which has not been previously tested should be prepared on a small scale (pint or quart jar), using the proper proportions of pesticides and water to ensure the physical compatibility of the mixture.

The following procedure is recommended for preparation of a new tank mix, unless specified otherwise in label directions:

- (1) Add wettable powders to tank water,
- (2) Agitate,
- (3) Add liquids and flowables,
- (4) Agitate,
- (5) Add emulsifiable concentrates, and
- (6) Agitate.

If a mixture is found to be incompatible following this order of addition, try reversing the order of addition, or increase the volume of water. NOTE: If the tank-mixture is found to be compatible after increasing the amount of water, then the sprayer will need to be recalibrated for a higher volume application.

DO NOT allow tank mix to stand overnight.

**FORMULA FOR DETERMINING THE ACTIVE INGREDIENT CONTENT OF THE FINISHED SPRAY MIXTURE:**

The following formula may be used to determine the percent active ingredient that is in the spray tank after mixing F6138-1 ZW FHE INSECTICIDE:

$(0.07) * (\text{Fl. Oz. of F6138-1 ZW FHE INSECTICIDE added to tank}) \div (\text{Gallons of finished spray mix}) = \text{Percent Active Ingredient of spray mix}$

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<b>Dilution Chart</b>						
		Fluid Ounces of F6138-1 ZW FHE INSECTICIDE Diluted to these Volumes of Finished Spray				
Application Volume		Application Rate	1 Gallons	5 Gallons	10 Gallons	50 Gallons
% a.i.	Gal/ 1000 sq. ft.	Fl. oz./ 1000 sq. ft.	fl. oz.	fl. oz.	fl. oz.	fl. oz.
0.035	1.0	0.50	0.50	2.50	5.00	25.00
0.070	1.0	1.00	1.00	5.00	10.00	50.00
0.018	2.0	0.50	0.25	1.25	2.50	12.50
0.035	2.0	1.00	0.50	2.50	5.00	25.00
0.012	3.0	0.50	0.17	0.83	1.67	8.35
0.023	3.0	1.00	0.33	1.67	3.33	16.65
0.009	4.0	0.50	0.13	0.63	1.25	6.25
0.017	4.0	1.00	0.25	1.25	2.50	12.50
0.007	5.0	0.50	0.10	0.50	1.00	5.00
0.014	5.0	1.00	0.20	1.00	2.00	10.00
0.004	10.0	0.50	-	0.25	0.50	2.50
0.007	10.0	1.00	0.10	0.50	1.00	5.00

1 fl. oz. = 29.57 ml = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure F6138-1 ZW FHE INSECTICIDE.

Note: Higher finished volume should be applied to penetrate thatch, mulch, brush, and porous surfaces. Lower finished volumes can be used indoors and for non-porous surfaces. Do not apply more than 1 oz. F6138-1 ZW FHE INSECTICIDE per 1,000 square feet

### Foam Application

F6138-1 ZW FHE INSECTICIDE dilution may be converted to foam with expansion characteristics from 2 to 50 times for localized control or prevention of pests including ants, bees, termites, wasps or other arthropods harboring in walls, under slabs or in other void areas.

Depending on the circumstances, foam applications may be used alone or in combination with liquid dilution applications. Applications may be made behind veneers, piers, chimney bases, into rubble foundations, into block voids or structural voids, under slabs, stoops, porches, or to the soil in crawlspaces, and other similar voids.

Indoors, F6138-1 ZW FHE INSECTICIDE may be used to treat void spaces, floor drains (to sewers) or as a spot spray on vertical or horizontal surfaces where visual marking of application is desired. Use of a foaming agent increases a.i. surface contact time on challenging surfaces and provides visual marking of the application. Foam and liquid application must be consistent with volume and active ingredient instructions in order to insure proper application has been made. The volume and amount of active ingredient are essential to an effective treatment. At least 75% of the labeled liquid dilution volume of product must be applied, with the remaining percent delivered to appropriate areas using foam application. Refer to label and use recommendations of the foam manufacturer and the foaming equipment manufacturer.

Foam applications are generally a good supplement to liquid treatments in difficult areas, but may be used alone in difficult spots.

Use dry foam (25:1 or greater expansion ratio) for applications to wall voids and stud walls.

Use wet foam (15:1 or lower expansion ratio) for applications to soil, including applications to filled porches.

<b>Mixing Table for F6138-1ZW Foam</b>				
Desired Foam Expansion Ratio	Amount of F618-1 (fl. oz.)	Gallons of Water	Finished Foam (gallons)	Finished Foam (% a.i.)
5:1	2.5	1.0	5.0	0.035%
10:1	5.0	1.0	10.0	0.035%
15:1	7.5	1.0	15.0	0.035%
25:1	12.5	1.0	25.0	0.035%
50:1	25.0	1.0	50.0	0.035%
5:1	5.0	1.0	5.0	0.070%
10:1	10.0	1.0	10.0	0.070%

15:1	15.0	1.0	15.0	0.070%
25:1	25.0	1.0	25.0	0.070%
50:1	50.0	1.0	50.0	0.070%

**INSECTS CONTROLLED**

<b>Controls</b>	Ants	Gnats
	Armyworms	Grasshoppers
	Bees	Hornets
	Beetles	Japanese Beetles
	Biting Flies	Lady Beetles
	Boxelder Bugs	Midge
	Carpenter Ants	Millipedes
	Centipedes	Mosquitoes
	Chiggers	Moths
	Chinch Bugs	Scorpions
	Cicadas	Silverfish
	Clover Mites	Sod webworms
	Cockroaches	Sowbugs (Pillbugs)
	Crickets	Spider Mites
	Cutworms	Spiders (including Black Widow, Brown Recluse, Hobo Spiders)
	Dichondra Flea Beetle	Springtails
	Earwigs	Ticks (including Brown Dog Ticks)
	Elm leaf Beetles	Wasps
	Fire Ants	
	Firebrats	
Fleas		
Flies		
Fruit Flies (Vinegar Flies)		

**OUTDOOR PEST CONTROL APPLICATIONS**

<b>Where to Apply</b>	Apply as a <b>pinstream, spot, crack and crevice or perimeter residual spray</b> on and around outside surfaces of residential and non-residential buildings and structures including, but not limited to, exterior siding, foundations, porches, window frames, eaves, patios, garages, refuse dumps, lawns such as grass areas adjacent or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns and other structures, soil, trunks of woody ornamentals, trees, shrubs, ground cover, bedding plants, foliage plants, flowers, non-bearing fruit and nut trees, non-bearing crops or perennial crops that will not produce harvestable raw agricultural commodities during the season of application, and other areas where pest congregate or have been seen.
<b>Application Rate</b>	<p><b>0.50 fl. oz. (0.035% ai) to 1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>Treat non-porous surfaces with low volume applications using 0.50 fl. oz. to 1.0 fl. oz. per gallon of water and applying dilution at a rate of 1 gallon per 1,000 square feet.</p> <p>Treat porous surfaces and vegetation with high volume applications (usually 5 to 10 finished gallons per 1,000 square feet) using dilutions that are calculated to deliver 0.5 fl. oz. to 1.0 fl. oz. per 1,000 square feet</p> <p>For maximum residual control, use the higher rate of 1.0 fl. oz. applied to 1,000 square feet.</p>
<b>Perimeter Treatment</b>	<p>Apply to a band of soil and vegetation 6 to 10 feet wide around and adjacent to the structure. Also, treat the foundation of the structure to a height of 2 to 3 feet. Apply 0.50 fl. oz. to 1.0 fl. oz. per 1,000 square feet in sufficient water to provide adequate coverage (refer to F6138-1ZW Dilution Chart). Do not apply more than 1.0 fl. oz. per 1,000 square feet per application.</p> <p>Prior to applying to wood siding, especially rough wood siding, it is recommended to thoroughly agitate the tank mixture. Prior to treating wood siding, test a small area and allow it to dry to be sure no deposits will form. Follow the same procedure when applying to wood surfaces in direct sunlight or during the heat of the day.</p>
<b>Mixing Directions</b>	<p>For 0.035% ai concentration, mix 0.50 fl. oz. per gallon of water.</p> <p>For 0.070% ai concentration, mix 1.0 fl. oz. per gallon of water.</p>

	Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control.
<b>Repeat Applications</b>	Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity. Repeat application should be limited to no more than once per seven days.

**Specific Outdoor Pest Control Recommendations**

<b>Ants</b>	For best results, locate and treat ant nests. Apply to ant trails around doors and windows and other places where ants have been observed or are expected to forage. Apply a perimeter treatment using either low or high volume applications.
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<b>For Ant and Fire Ant Mounds</b>	<p>Control is optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies.</p> <p>If soil is not moist, than it is important to irrigate before application or use a high volume application.</p> <p>For broadcast treatments, apply 0.50 fl. oz. to 1.0 fl. oz. per 1,000 square feet. Use enough finished volume to penetrate thatch or sod.</p> <p>Treat mounds by applying 1.0 fl. oz. per mound in 1 to 2 gallons water by sprinkling the mound until it is wet and treat 3 feet out around the mound. Use the higher volume for mounds larger than 12 inches. Treat mounds with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels.</p> <p>For best results, apply in cool weather (65 - 80°F) or in early morning or later evening house.</p>
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<b>Carpenter Ants in soil, trees, utility poles, fencing, deck materials and similar structural members; wood piles and stored lumber</b>	<p>To control carpenter ants that are tunneling in the soil, dilute 0.50 fl. oz. to 1.0 fl. oz. per gallon of water and apply as a drench or inject the dilution or foam at intervals of 8 to 12 inches. Establish a uniform vertical barrier at the edges of walls, driveways or other hard surfaces where ants are tunneling beneath the surfaces.</p> <p>Treat trunks of trees that have carpenter ant trails or upon which carpenter ants are foraging using 0.50 fl. oz. to 1.0 fl. oz. per gallon of water and applying dilution to thoroughly wet from the base of the tree to as high as possible on the trunk of the tree.</p> <p>To control carpenter ants inside trees, utility poles, fencing or deck materials and similar structural members, drill to locate the interior infested cavity and inject or foam a 0.070% dilution (1.0 fl. oz. per gallon of water) into the cavity using a sufficient volume and an appropriate treatment tool with a splashback guard.</p> <p>To protect firewood from carpenter ants, dilute 1.0 fl. oz. per gallon of water and apply to the soil beneath where the firewood will be stacked at the rate of one gallon of dilution per 8 square feet. Advise that treated firewood be burned no sooner than one month after application.</p> <p>For wood piles and stored lumber, dilute 1.0 fl. oz. per gallon of water and apply using a hose-end sprayer or sprinkling can to deliver a coarse drenching spray.</p>
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<b>Adult Mosquito Control</b> (including Mosquitoes that may transmit West Nile Virus, Malaria, Eastern Equine Encephalitis, St. Louis Encephalitis, Dengue Fever or Arboviruses)	<p>For the lower use rate, repeat application is limited to no more than once per seven days. For the high use rate of 1.0 fl. oz. per gallon of water, DO NOT apply more than once per four weeks.</p> <p>Apply with hand-held and back pack sprayers or mist blowers, ground sprayers, power sprayers, truck mounted hydraulic sprayers or mist blowers. DO NOT apply by air or with truck mounted or hand held cold aerosol ULV sprayers and thermal fogging devices.</p> <p>For best results apply when the mosquitoes are most active. Application during the cooler hours of the night or early mornings is recommended.</p> <p>DO NOT apply when wind speed exceeds 10 MPH.</p>
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	<p>The purpose of this treatment is to kill termite workers or winged reproductive's that may be present at time of treatment. These applications are intended as supplements to, and not substitutes for, mechanical alteration, soil treatment or foundation treatment.</p> <p>To control exposed workers and winged reproductive termites in localized areas, dilute 1.0 fl. oz. per gallon of water and apply as a course fan spray at the rate of one gallon per 1,000 square feet to attics, crawl spaces, unfinished basements and other void areas. Treat swarming termites as well as the areas in which they congregate.</p>
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<p><b>Termite Control</b> (Above Ground Only)</p>	<p>To control above-ground termites in localized areas of infested wood, dilute 1.0 fl. oz. per gallon of water and apply as a liquid or foam to voids and galleries in damaged wood as well as to spaces between wooden structural members and between the sill plate and foundation where wood is vulnerable to attack. Applications may be made to inaccessible areas by drilling and then injecting the dilution or foam, with a suitable directional injector, into damaged wood or wall voids. All treatment holes drilled in construction elements in commonly occupied areas of structures should be securely plugged after treatment.</p> <p>To control termite carton nests in building voids, dilute 1.0 fl. oz. per gallon of water and apply as a liquid or foam using a pointed injection tool. Multiple injection points and varying depths of injection may be necessary to achieve control. When possible, the carton nest material should be removed from the building void after treatment.</p>
<p><b>Pests Under Slab</b></p>	<p>Infestations of Arthropods, such as ants, cockroaches and scorpions inhabiting under slab area may be controlled by drilling and injecting or horizontal rodding and then injecting 1 gallon of a 0.070% or ½ gallon of a 0.140% dilution per 10 square feet, (or 2 gallons of a 0.070% dilution or 1 gallon of a 0.140% dilution per 10 linear feet).</p>
<p><b>Underground Services</b></p>	<p>Underground services such as wires, cables, utility lines, pipes, conduits, etc. Services may be within structures or located outside structures, in right-of-ways or to protect long range (miles) of installations of services.</p> <p>Soil treatment may be made using 0.070% to 0.140% dilutions (1.0 fl. oz. - 2.0 fl. oz. per gallon of water) to prevent attack by termites and ants.</p> <p>Apply 2 gallons of dilution per 10 linear feet to the bottom of the trench and allow to soak into the soil. Lay services on the treated soil and cover with approximately 2 inches of fill soil. Apply another 2 gallons per 10 linear feet over the soil surface to complete the treatment barrier. In wide trenches, only treat the soil in the area near the services. It is important to establish a continuous barrier of treated soil surrounding the services.</p> <p>Where soil will not accept the above labeled volume, 1 gallon of 0.140% may be used per 10 linear feet of trench both to the bottom of the trench and over the soil on top of the services.</p> <p>Finish filling the trench with treated fill soil. The soil where each service protrudes from the ground may be treated by trenching/rodding of no more than 1 to 2 gallons of dilution into the soil.</p> <p><b>DO NOT treat electrically active underground services.</b></p>
<p><b>Posts, Poles, and Other Constructions</b></p>	<p>Create an insecticidal barrier in the soil around wooden constructions such as signs, fences and landscape ornamentation by applying a 0.070% dilution (1 fl. oz. per gallon of water).</p> <p>Previously installed poles and posts may be treated by sub-surface injection or treated by gravity-flow through holes made from the bottom of a trench around the pole or post. Treat on all sides to create a continuous insecticidal barrier around the pole.</p> <p>Use 1 gallon of dilution per foot of depth for poles and posts less than six inches in diameter. For larger poles, use 1.5 gallons of dilution per foot of depth. Apply to a depth of 6 inches below the bottom of the wood.</p> <p>For larger constructions, use 4 gallons per 10 linear feet per foot of depth.</p>
<p><b>Treatment of Wood-in-Place for Control of Wood-Infesting Insects and Nuisance Pests</b></p>	<p>Apply a 0.070% dilution (1.0 fl. oz per gallon of water) to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundations where wood is vulnerable.</p> <p>Plastic sheeting must be placed immediately below any overhead areas treated except for soil surfaces in crawl spaces.</p> <p>Treatment should be made to thoroughly and uniformly cover the surface but limit excess runoff.</p> <p>To control wood-infesting insects active inside trees, utility poles, fence posts or other inaccessible areas, drill to find the interior infested cavity and inject a 0.070% dilution. When using to control termite carton nests in trees or building voids, multiple injection points to varying depths may be necessary. It is desirable to physically remove carton nest material from building voids when such nests are found.</p> <p>To control Bees, Wasps, Hornets and Yellow Jackets, it is recommended to apply in evening when insects are at rest. Aim spray at nest openings in ground, bushes and in cracks and crevices which may harbor nests, saturating nest openings and contacting as many insects as possible.</p> <p>This type of application is not intended to be a substitute for soil treatment, mechanical alterations or fumigation to</p>

control extensive infestation of wood-infesting insects.

**INDOOR PEST CONTROL APPLICATIONS**

<p><b>Where to Apply</b></p>	<p>Apply as a <b>pinstream, spot, coarse, low pressure spray</b> (25 psi or less), <b>crack and crevice</b>, or with a <b>paint brush</b> to areas where pest hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, stoves, the underside of shelves, drawers and similar areas.</p> <p>As a foam, F6138-1ZW may be used to treat void spaces, floor drains (to sewers) or as a spot spray on vertical or horizontal surfaces where visual marking of application is desired.</p> <p>DO NOT use as space spray.</p> <p>When applying adjacent to food processing areas, surfaces and utensils <b>MUST</b> be covered during treatment and thoroughly washed before use. Exposed food <b>MUST</b> be covered or removed.</p>
<p><b>Application Rate</b></p>	<p><b>0.50 fl. oz. (0.035% ai) to 1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>For maximum residual control, use the higher rate of 1.0 fl. oz. applied to 1,000 square feet.</p>
<p><b>Mixing Directions</b></p>	<p>For 0.035% ai concentration, mix 0.50 fl. oz. per gallon of water. For 0.070% ai concentration, mix 1.0 fl. oz per gallon of water.</p> <p>Fill sprayer with the desired volume of water and add F6138-1ZW. Close and shake before use in order to insure proper mixing. Mix only the amount of solution needed for the application.</p> <p>Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control.</p>
<p><b>Repeat Applications</b></p>	<p>Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed insect activity. Repeat application should be limited to no more than once per seven days.</p>

**Specific Indoor Pest Control Recommendations**

<p><b>Ants</b></p>	<p>Apply as a crack and crevice or spot treatment where ants have been observed or are expected to forage. For best results, locate and treat ant nests. Particular attention should be given to treating entry points into the home or premises such as around doors and windows.</p> <p>Spray or foam into cracks and crevices or drill holes and spray, mist or foam into voids where ants or their nest are present.</p> <p>When using in combination with baits, apply as instructed above and use baits in other areas that have not been treated with F6138-1ZW.</p>
<p><b>Bed Bugs</b></p>	<p>Apply at a rate of 1.0 fl. oz. per gallon of water. Thorough application should be made to crack and crevices where evidence of bed bugs occurs. This includes bed frames, box springs, inside empty dressers and clothes closets and carpet edges, high and low wall moldings and wallpaper edges, buildings, other structures and modes of transport.</p> <p>DO NOT use this product on bed linens, pillows, mattresses or clothes. Remove all clothes and other articles from dressers or clothes closets before application. Allow all treated areas to thoroughly dry before use. Not recommended for use as sole protection against bed bugs. If evidence of bed bugs is found in/on mattresses, use products approved for this use.</p>
<p><b>Cockroaches, Crickets, Firebrats, Flies, Gnats, Moths, Mosquitoes, Scorpions, Silverfish, Spiders, Ticks</b></p>	<p>F6138-1 ZW FHE INSECTICIDE will provide up to 1 month residual control of house flies. Length of residual control is dependent upon rate and surface treated.</p> <p>Apply as a coarse, low pressure spray to areas where these pests hide such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, cabinets, sinks, furnaces, stoves, underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices.</p>
<p><b>Fleas</b></p>	<p>F6138-1 ZW FHE INSECTICIDE will kill fleas for up to 3 months.</p> <p>Apply as a coarse, low pressure spray, spot or crack and crevice treatment to areas frequented by pets; such as, under bedding, rugs and next to furniture. Vacuuming prior to treatment is recommended.</p> <p>DO NOT apply F6138-1 ZW FHE INSECTICIDE dilution directly to pets.</p>



	Treatment must be dry before pet re-entry.
<b>Boxelder Bugs, Centipedes, Cicadas, Earwigs, Beetles, Millipedes, Pillbugs (Sowbugs), Springtails</b>	Apply around doors and windows and other places where these pests may be found or where they may enter premises. Check damp areas and drains for pest access. Spray baseboards, storage areas and other locations.
<b>Spider Mites</b>	Treat houseplants using a 0.070% dilution or 1.0 fl. oz per gallon of water. Do not allow run-off to occur. Treat underside of leaves.
<b>Bees, Hornets, Yellow Jackets, Wasps</b>	Apply at a rate of 1.0 fl. oz. per gallon of water. Application is recommended in the evening when insects are at rest. Thoroughly spray nest and entrance and surrounding areas where insects alight. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible.
<b>Pest control in Crawlspace and Voids</b>	Broadcast F6138-1 ZW FHE INSECTICIDE to all surfaces in crawlspace and/or void to control ants, fleas, cockroaches, scorpions and other arthropods. Treatment should be made to thoroughly and uniformly cover the surface but limit excess runoff.

**FOOD/FEED HANDLING ESTABLISHMENT APPLICATIONS**

<b>Where to Apply</b>	<p>May be applied as a <b>spot, crack and crevice</b> or <b>general spray</b> treatment in both food and non-food areas of food handling establishments including areas for serving, receiving, storing, packing (canning, bottling, wrapping, boxing), preparing, storing edible waste and enclosed processing systems (mills, dairies, edible oils, syrups), garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets and storage areas (after canning or bottling). All areas where insects hide or through which insects may enter should be treated.</p> <p>Do not use as a general spray in food/feed handling establishments when the facility is in operation or foods/feeds are exposed. Cover or remove all food processing and/or handling equipment during general spray application. After application as a general spray in food processing plants, bakeries, cafeterias and similar facilities, wash all equipment, benches, shelving and other surfaces which food will contact. Clean food handling or processing equipment and thoroughly rinse with clean, fresh water.</p> <p>Spot (not more than 2 square feet) or crack and crevice applications may be made while the facility is in operation; however, food should be covered or removed from area being treated.</p> <p><b>Do not apply directly to food products.</b></p>
<b>Application Rate</b>	<p><b>0.50 fl. oz. (0.035% ai) to 1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>For maximum residual control, use the higher rate of 1.0 fl. oz. applied to 1,000 square feet.</p>
<b>Mixing Directions</b>	<p>For 0.035% ai concentration, mix 0.50 fl. oz. per gallon of water. For 0.070% ai concentration, mix 1.0 fl. oz per gallon of water.</p> <p>Fill sprayer with the desired volume of water and add F6138-1ZW. Close and shake before use in order to insure proper mixing. Mix only the amount of solution needed for the application.</p> <p>Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control.</p>

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STORED PRODUCTS PESTS	
<b>Controls</b>	Cigarette Beetles Dermestid Beetles Flour Beetles Grain Weevils Indian Meal Moth Lesser Grain Borers Merchant Grain Beetles Psocids Rice Moth Sawtoothed Grain Beetles Tobacco Moth Warehouse Beetles Other Similar Pests
<b>Where to Apply</b>	<p>Apply as a <b>coarse, low pressure spray</b> to areas in food and nonfood storage warehouses and stores where these pests hide, such as baseboards, corners, storage areas, closets, around water pipes, doors and windows, attics and eaves, behind and under refrigerators, between and under bins, cabinets, sinks, furnaces, and stoves, the underside of shelves, drawers, between and under pallets, and similar areas. Pay particular attention to cracks and crevices.</p> <p>Locate and remove infested food sources, remove any food items or food serving dishes or utensils prior to treatment.</p> <p><b>DO NOT</b> apply directly to food, interior of grain bins, or animals.</p>
<b>Application Rate</b>	<p><b>0.50 fl. oz. (0.035% ai) to</b>  <b>1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>For maximum residual control, use the higher rate of 1.0 fl. oz. applied to 1,000 square feet..</p>
<b>Mixing Directions</b>	<p>For 0.035% ai concentration, mix 0.50 fl. oz. per gallon of water.            For 0.070% ai concentration, mix 1.0 fl. oz per gallon of water.</p> <p>Fill sprayer with the desired volume of water and add F6138-1ZW. Close and shake before use in order to insure proper mixing. Mix only the amount of solution needed for the application.</p> <p>Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control.</p>
Specific Pest Control Applications	
<b>Warehouses and Grocery/Pet Stores</b>	<p>Apply as a <b>general surface, spot or crack and crevice treatment</b> in food and nonfood storage warehouses and stores.</p> <p>Apply to all areas that may harbor pests, including under and between pallets, bins, and shelves.</p> <p><b>DO NOT</b> apply directly to food, interior of grain bins, or animals.</p>

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**ANIMAL CONFINEMENT FACILITIES, LIVESTOCK PREMISES,  
CONFINED ANIMAL FEEDING OPERATIONS, AND KENNELS**

<p><b>Controls</b></p>	<p>Bed Bugs Biting Flies Filth-Breeding Flies Fleas Hide Beetles Litter Beetles Mites Ticks</p>
<p><b>Where to Apply</b></p>	<p>Apply as a <b>crack and crevice, interior perimeter and/or general surface (including directed spray)</b> treatment in areas of poultry/livestock facilities, kennels and animal facilities to floors, vertical and overhead surfaces where crawling or flying insect pests may be present. Pay attention to animal areas including stanchions, pipes, windows, doors, and areas where insect pests hide or congregate.</p> <p>Control is enhanced when interior and exterior perimeter applications are made in and around the livestock, poultry, or pet housing structures. Normal cleaning practices of the structure must also be followed, along with applications of F6138-1 ZW FHE INSECTICIDE, to effectively control crawling and flying insect pests.</p> <p>For occupied areas of poultry/livestock facilities and kennels, apply to indoor <b>cracks and crevices</b> only.</p> <p>For unoccupied areas of poultry/livestock facilities and kennels, apply as a <b>crack and crevice, interior perimeter and/or general surface (including directed spray)</b> treatment to floors, vertical and overhead surfaces where crawling or flying insect pests may be present.</p> <p>Feeders, waterers, and feed carts should be covered before application to prevent contamination</p> <p><b>DO NOT</b> apply to milk rooms.</p> <p><b>DO NOT</b> apply as a <i>general surface spray</i> when animals are present in the facility. Treatment may be made to cracks and crevices when animals are present.</p> <p><b>DO NOT</b> apply to any animal, animal feed, water, or watering equipment.</p> <p><b>DO NOT</b> contaminate any animal feed, food, or water in and around livestock, poultry, or pet housing when making applications.</p> <p>Allow F6138-1 ZW FHE INSECTICIDE treatment to dry before restocking the facility or before applying disinfectants.</p>
<p><b>Application Rate</b></p>	<p><b>0.50 fl. oz. (0.035% ai) to 1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>For maximum residual control, use the higher rate of 1.0 fl. oz. applied to 1,000 square feet.</p>
<p><b>Mixing Directions</b></p>	<p>For 0.035% ai concentration, mix 0.50 fl. oz. per gallon of water. For 0.070% ai concentration, mix 1.0 fl. oz per gallon of water.</p> <p>Fill sprayer with the desired volume of water and add F6138-1ZW. Close and shake before use in order to insure proper mixing. Mix only the amount of solution needed for the application.</p> <p>Use sufficient finished volume to penetrate leaf litter, thatch, mulch, or porous surfaces.</p> <p>Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control.</p>
<p><b>Specific Pest Control Recommendations</b></p>	
<p><b>Bed Bugs, Mites, Ticks</b></p>	<p>Treat cracks and crevices, walls, posts, nest boxes, and mobile side curtains. Use the higher rate of application on painted and non-porous surfaces.</p>
<p><b>Adult Flies</b></p>	<p>Target areas where flies will rest, such as the ceiling, rafters, and trusses. Also treat windows, interior and exterior walls and supports, fences, and vegetation. F6138-1 ZW FHE INSECTICIDE dilution may be sprayed on manure in areas where fly larvae are abundant and the area cannot be cleaned.</p>
<p>To control beetles in broiler-breeder houses or houses containing birds grown on litter, apply F6138-1 ZW</p>	

<b>Beetles</b>	<p>FHE INSECTICIDE to litter after birds are removed and during tilling. If litter is removed and replaced with fresh litter, apply F6138-1 ZW FHE INSECTICIDE to bare soil or concrete, and treat new litter after it is spread. Apply spray to inside walls, posts, and exterior perimeter. Reapply between each flock.</p> <p>To control beetles in caged-layer houses, do not treat accumulated manure, as it will likely disrupt natural enemies that control fly breeding. Instead, treat the perimeter of the manure, pit walls, posts, and exterior of structure. Reapply between each flock.</p>
<b>Poultry Houses</b>	<p>Apply to floor area (birds grown on litter) or to walls, posts, and cage framing (birds grown in cages). Application should also be made into cracks and crevices around insulation. Reapply after each growout or sanitization procedure, but not more frequently than every 8 weeks. Indoor control can be enhanced by making perimeter treatments around the outside of building foundations to prevent immigrating adult beetles. Apply in a uniform band 2 to 3 feet up and 6 to 10 feet out from the structure. Maintaining a year-round treatment program will prevent background populations from reaching problem levels.</p>

**LAWNS**

<b>Controls</b>	<p>Annual Bluegrass Weevil (<i>Hyperodes</i>) (Adult)          Ants          Ants          Armyworms          Banks Grass Mite Billbugs (Adult)          Black Turfgrass <i>Ataenius</i> (Adult)          Chinch Bugs          Centipedes          Crane Flies          Crickets          Cutworm          Earwigs</p>	<p>Fleas (Adult)          Fleas (Larvae)          Grasshoppers          Imported Fire Ants          Japanese Beetle (Adult)          Leafhoppers          Mealybugs          Millipedes          Mites          Mole Cricket (Adult &amp; Nymph)          Pillbugs          Sowbugs          Sod Webworms          Ticks</p>
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<b>Application Rate</b>	<p><b>0.50 fl. oz. (0.035% ai) to          1.0 fl. oz. (0.070% ai) per 1,000 square feet</b></p> <p>Apply F6138-1 ZW FHE INSECTICIDE as a broadcast treatment. Use application volumes of up to 10 gallons per 1000 square feet to get uniform coverage when treating dense grass foliage.</p> <p>For low volume applications, less than 2 gallons per 1000 square feet, immediate irrigation of treated area with at least 0.25 inches of water following application to ensure efficacy of sub-surface pests such as, but not limited to, mole crickets, is recommended.</p> <p>For maximum residual control, dilute 1.0 fl. oz. in 1 to 10 gallons of water and apply to 1,000 square feet.</p>
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**Specific Pest Control Recommendations**

<b>Armyworm, Cutworm, Sod Webworm</b>	To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the grass area is being maintained at a mowing height of greater than 1 inch, then higher application rate may be required during periods of high pest pressure.
<b>Annual Bluegrass Weevil (<i>Hyperodes</i>) adults</b>	Applications may be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This generally begins when Forsythia is in full bloom and concludes when flowering dogwood ( <i>Cornus florida</i> ) is in full bloom. You may consult your State Cooperative Extension Service for more specific information regarding application timing.
<b>Billbug adults</b>	Applications may be made when adult billbugs are first observed during April and May. You may consult your State Cooperative Extension Service for information specific to your region. In temperate regions, spring applications targeting billbug adults will also provide control of over-wintered chinch bugs.
<b>Black Turfgrass <i>Ataenius</i> adults</b>	Applications may be made during May and July to control the first and second generation of black turfgrass <i>ataenius</i> adults.. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea ( <i>Spiraea vanhouttei</i> ) and horse chestnut ( <i>Aesculus hippocastanum</i> ). The July application should be timed to coincide with the blooming of Rose of Sharon ( <i>Hibiscus syriacus</i> ).
<b>Chinch Bugs</b>	Chinch Bugs are often found in the thatch layer. Irrigation of the grass area before treatment will optimize the penetration of the insecticide to the area where the chinch bugs are located. Use higher volume applications if the thatch layer is excessive or if a relatively long mowing height is being maintained. Higher application rate may be required to control populations that contain both nymphs and adults during the middle of the summer.
<b>Crane Flies</b>	Treatments can be made to control early to mid-season larvae (approximately August – February) as they feed on plant crowns. Treatments made to late-season larvae (approximately March, April) may only provide suppression.

2/10/22

<b>Flea larvae</b>	Flea larvae can develop in the soil of shaded areas that are accessible to pets or other animals. Use a higher volume application when treating these areas to ensure penetration of the insecticide into the soil.
<b>Imported Fire Ants</b>	Control will be optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then irrigate before application or use a high volume application. Use enough finished volume to penetrate thatch or sod. Treat mounds by applying 1 oz F6138-1 ZW FHE INSECTICIDE per mound in 1 to 2 gallons water by sprinkling the mound until it is wet and treat 3 feet out around the mound. Use the higher volume for mounds larger than 12". Treat mounds with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. For best results, applying in cool weather (65 - 80°F) or in early morning or late evening hours.
<b>Mites</b>	To ensure optimal control of eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, five to seven days after the first, may be necessary to achieve acceptable control
<b>Mole Cricket adults</b>	Achieving acceptable control of adult mole crickets is difficult because areas are subject to continuous invasion during the early spring . Applications may be made as late in the day as possible and be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.
<b>Mole Cricket nymphs</b>	Grass areas that received intense adult mole cricket pressure in the spring be treated immediately prior to peak egg hatch. Optimal control is achieved at this time because young nymphs are more susceptible to insecticides and they are located near the soil surface where the insecticide is most concentrated. Control of larger, more damaging, nymphs later in the year may require both higher application rates and more frequent applications to maintain acceptable control. Applications may be made as late in the day as possible and watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, irrigation before application will bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.
<b>Ticks</b>	<b>Ticks</b> (Including ticks that may transmit Lyme disease and Rocky Mountain Spotted fever). Treat the entire area where exposure to ticks may occur. Use higher spray volumes when treating areas with dense ground cover or heavy leaf litter. Ticks may be reintroduced from surrounding areas on host animals. Repeat application is limited to no more than once per seven days. <b>Deer ticks</b> (Ixodes sp.) Applications may be made in the late fall and/or early spring to control adult ticks that are usually located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that reside in the soil and leaf litter. <b>American dog ticks:</b> These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Make applications as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

In New York State, this product may not be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch). In New York State, a single repeat application of F6138-1 ZW FHE INSECTICIDE can be made if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

**ORNAMENTALS AND TREES**

**Application rate of 0.50 fl. oz. to 1.0 fl. oz. per 1000 square feet.**

F6138-1 ZW FHE INSECTICIDE may be diluted and applied in various volumes of water providing that the maximum label rate is not exceeded.

F6138-1 ZW FHE INSECTICIDE may be applied through low volume application equipment by dilution with water or other carriers providing that the maximum label rate is not exceeded.

Apply the specified application rate as a full coverage foliar spray. Repeat treatment as necessary to achieve control using higher application rates as pest pressure & foliage area increases. Repeat application is limited to no more than once per seven days.

Certain cultivars may be sensitive to the final spray solution. A small number of plants should be treated and observed for one week prior to application to the entire planting.

Use of an alternate class of chemistry in a treatment program is recommended to prevent or delay pest resistance.

**ATTENTION – OBSERVE THE FOLLOWING:**

- DO NOT** apply a broadcast application to interior surfaces of homes.
- DO NOT** apply by air.
- DO NOT** apply in plant nurseries.
- DO NOT** apply this product through any kind of irrigation system.
- DO NOT** use on sod farm turf, golf course turf, or grass grown for seed.

**DO NOT** use household utensils to measure F6138-1 ZW FHE INSECTICIDE.  
**DO NOT** apply into electrical fixtures, switches, or sockets.  
**REMOVE** pets, birds, and **COVER** aquariums before spraying.  
**DO NOT** permit people or pets to contact treated surfaces until the spray has dried.  
During any overhead applications to overhead interior areas of structures, **COVER** surfaces below with plastic sheeting or similar materials.  
**DO NOT** use on edible crops.  
**DO NOT** allow spray to contact food, foodstuffs, food contacting surfaces, food utensils or water supplies. Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.  
**DO NOT** apply as a general surface spray in areas where food is exposed.  
During indoor surface applications **DO NOT** allow dripping or run-off to occur.  
**DO NOT** apply this product in patient rooms or in any rooms while occupied by the elderly or infirm.  
**DO NOT** apply in classrooms when in use.  
**DO NOT** apply when occupants are present in the immediate area in institutions such as libraries, sports facilities, etc.

**Conditions of Sale and Limitation of Warranty and Liability:**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions beyond the control of FMC or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold FMC and Seller harmless for any claims relating to such factors.

Seller warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the Directions for Use when used in accordance with the directions under normal conditions of use. EXCEPT AS WARRANTED BY THIS LABEL, FMC MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, NOR ANY OTHER EXPRESS OR IMPLIED WARRANTIES WITH RESPECT TO THE SELECTION, PURCHASE, OR USE OF THIS PRODUCT. Any warranties, express or implied, having been made are inapplicable if this product has been used contrary to label instructions, or under abnormal conditions, or under conditions not reasonably foreseeable to (or beyond the control of) seller or FMC, and buyer assumes the risk of any such use.

To the extent consistent with applicable law FMC or seller shall not be liable for any incidental, consequential or special damages resulting from the use or handling of this product. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF FMC AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF FMC OR SELLER, THE REPLACEMENT OF THE PRODUCT.

**This Conditions of Sale and Limitation of Warranty and Liability may not be amended by any oral or written agreement.**

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