

ACCEPTED  
FOR REGISTRATION

Doc id: 532077

7/10/2012



# MENACE<sup>®</sup>

FLOWABLE

# 7.9%

INSECTICIDE

New York State Department  
of Environmental Conservation  
Division of Solid & Hazardous Materials  
Pesticide Product Registration

To control listed pests indoors and outdoors around residential, institutional, public, commercial, and industrial buildings and interior plantscapes, on lawns, ornamentals, parks, recreational areas and athletic fields.

**ACTIVE INGREDIENT:**

Bifenthrin\* ..... 7.9%

**OTHER INGREDIENTS:** ..... 92.1%**TOTAL:** ..... 100.0%

\*Cis isomers 97% minimum, trans isomers 3% maximum. [This product contains 2/3 pound active ingredient per gallon.]

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY  
STATEMENTS AND DIRECTIONS FOR USE

For Chemical Spill, Leak, Fire,  
or Exposure, Call CHEMTREC  
(800) 424-9300

For Medical Emergencies Only,  
Call (877) 325-1840



EPA Reg. No. 228-451  
EPA Est. No. 053883-TX-002

**Net Contents**  
**1 Gal.**  
**(3.78 L)**

Manufactured for  
Nufarm Americas Inc.  
150 Harvester Drive  
Burr Ridge, IL 60527





**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**CAUTION**

Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling, and before eating, drinking, chewing gum, using tobacco or using the toilet.

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

All pesticide handlers (mixers, loaders and applicators) must wear:

- Long-sleeved shirt and long pants.
- Chemical-resistant gloves.
- Shoes plus socks.

After the product is diluted in accordance with label directions for use, and/or when mixing and loading using a closed spray tank transfer system all handlers must wear:

- Shirt and pants.
- Shoes plus socks.
- Waterproof gloves.

In addition, all pesticide handlers must wear a respiratory protection device<sup>1</sup> when working in a non-ventilated space. All pesticide handlers must wear protective eyewear when working in non-ventilated space.

<sup>1</sup>Use one of the following NIOSH approved respirator with any R, P or HE filter, or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P, or HE prefilter.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.



**FIRST AID**

<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.</li><li>• 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 to 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 to 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>

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-325-1840 for emergency medical treatment information.

**NOTE TO PHYSICIAN**

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.





## ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to fish and aquatic invertebrates. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.

To protect the environment, **DO NOT** allow pesticide to enter or run off into storm drains, drainage ditches, gutters or surface waters. Applying this product in calm weather when rain is not predicted for the next 24 hours will help to ensure that wind or rain does not blow or wash pesticide off the treatment area. Rinsing application equipment over the treated area will help avoid run off to water bodies or drainage systems.

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 or weeds if bees are visiting the treatment area.

## PHYSICAL AND CHEMICAL HAZARDS

**DO NOT** apply water-based dilutions of this product to electrical conduits, motor housings, junction boxes, switch boxes or other electrical equipment because of the possible shock hazard.

## DIRECTIONS FOR USE

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

**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 in greenhouses, nurseries.

**DO NOT** apply this product through any kind of irrigation system.

Not for use on sod farm turf, golf course turf, or grass grown for seed.

**DO NOT** water the treated area to the point of run-off.

**DO NOT** make applications during the rain.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur. Do not allow the product to enter any drain during or after application.





## GENERAL INFORMATION ON THE USE OF THIS PRODUCT

For use on plants intended only for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds.

This product is for control of listed insect and mite pests of trees, shrubs, lawns, foliage plants, and flowers around residential dwellings, institutional, public, commercial, and industrial buildings, parks, recreational areas, and athletic fields. This product can be used to control listed pests of trees, shrubs, foliage plants, and flowers grown in interior plantscapes including hotels, shopping malls, office buildings. This product can be used on non-bearing fruit and nut trees. Non-bearing fruit & nut trees are perennial crops that will not produce a harvestable raw agricultural commodity during the season of application.

### Use Directions for Tip-N-Measure Container

1. Remove the measuring chamber cap and induction seal. Replace the cap and securely tighten. Tip container until liquid fills measuring chamber.
2. Return container to level position. No adjustment is needed.
3. Remove measuring chamber cap and dispense into proper application equipment.

For multiple dose measuring: Remove fill chamber cap and dispense according to markings on side of bottle.

## GENERAL APPLICATION INSTRUCTIONS

This product formulation mixes readily with water and other aqueous carriers.

This product may be tank-mixed with other pesticides, including insect growth regulators. When tank mixing this product with other pesticides, observe all precautions and limitations on each product label. The physical compatibility of this product 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.

### RESISTANCE MANAGEMENT

**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. 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, immediately consult your local company representative or pest management advisor for the best alternative method of control for your area.

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### LAWNS

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### APPLICATION INSTRUCTIONS

Apply this product as a broadcast treatment. Use application volumes of up to 10 gallons per 1,000 square feet to get uniform coverage when treating dense grass foliage.

For low volume applications, less than 2 gallons per 1,000 square feet, immediate irrigation of treated area with at least 0.25 inch of water following application to ensure efficacy of sub-surface pests such as, but not limited to, Mole Crickets, is recommended.

### APPLICATION RATES

The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, this product may be applied at up to 1 fl. oz. per 1,000 square feet to control each of the pests listed in this table. The higher application rates should be used when maximum residual control is desired.



PEST	APPLICATION RATE OF THIS PRODUCT
Armyworms <sup>1</sup> Cutworms <sup>1</sup> Sod Webworm <sup>1</sup>	0.18 to 0.25 fluid oz. per 1,000 sq. ft.
Annual Bluegrass Weevil (Hyperodes)(Adult) <sup>2</sup> Banks Grass Mite <sup>6</sup> Billbugs (Adult) <sup>3</sup> Black Turfgrass Ataenius (Adult) <sup>4</sup> Centipedes Chinch Bugs <sup>5</sup> Crickets Earwigs Fleas (Adult) Grasshoppers Leafhoppers Mealybugs Millipedes Mites <sup>6</sup> Pillbugs Sowbugs	0.25 to 0.50 fluid oz. per 1,000 sq. ft.
Ants Fleas (Larvae) <sup>7</sup> Imported Fire Ants <sup>8</sup> Japanese Beetle (Adult) Mole Cricket (Adult) <sup>9</sup> Mole Cricket (Nymph) <sup>10</sup> Ticks <sup>11</sup>	0.50 to 1.00 fluid oz. per 1,000 sq. ft.



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, do make a single repeat application of this product if there are signs of renewed insect activity, but not sooner than two weeks after the first application.

#### Comments

- <sup>1</sup> **Armyworms, Cutworms and Sod Webworms:** 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 rates (up to 1 fluid oz. per 1,000 square feet) may be required during periods of high pest pressure.
- <sup>2</sup> **Annual Bluegrass Weevil (*Hyperodes*) Adults:** Applications should be timed to control adult weevils as they leave their overwintering sites and move into grass areas. This movement generally begins when *Forsythia* is in full bloom and concludes when flowering dogwood (*Cornus florida*) is in full bloom. Consult your State Cooperative Extension Service for more specific information regarding application timing.
- <sup>3</sup> **Billbug Adults:** Applications should be made when adult billbugs are first observed during April and May. Degree day models have been developed to optimize application timing. 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.
- <sup>4</sup> **Black Turfgrass *Ataenius* Adults:** Applications should be made during May and July to control the first and second generation of black turfgrass *ataenius* adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhoutte*) and horse chestnut (*Aesculus hippocastanum*). The July application should be timed to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).
- <sup>5</sup> **Chinch Bugs:** Chinch bugs infest the base of grass plants and 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. Chinch bugs can be one of the most difficult pests to control in grasses and the higher application rates (up to 1 fluid oz. per 1,000 square feet) may be required to control populations that contain both nymphs and adults during the middle of summer.
- <sup>6</sup> **Mites:** 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.







- <sup>7</sup> **Flea Larvae:** Flea larvae 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. Note: If the lawn area is being treated with this product at 0.25 fluid oz. per 1,000 square feet for adult flea control, then the larval application rate may be achieved by increasing the application volume two to four fold.
- <sup>8</sup> **Imported Fire Ants:** 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 it is important to irrigate before application or use a high volume application. Broadcast treatments should apply 1 fluid oz. per 1,000 square feet. Mounds should be treated by diluting 1 teaspoon of this product per gallon of water and applying 1 to 2 gallons of finished spray per mound. The mounds should be treated with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. A four-foot diameter circle around the mound should also be treated. For best results, apply in cool weather (65-80F) or in early morning or late evening hours. Note: A spray rig that is calibrated to apply 1 fluid oz. per 1,000 square feet of this product in 5 gallons per 1,000 square feet contains the approximate dilution (1 teaspoon per gallon) that is required for fire ant mound drenches in the spray tank.
- <sup>9</sup> **Mole Cricket Adults:** Achieving acceptable control of adult mole crickets is difficult because preferred grass areas are subject to continuous invasion during the early spring by this extremely active stage. Applications should be made as late in the day as possible and should be watered in with up to 0.5 inch of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized. Grass areas that receive pressure from adult mole crickets should be treated at peak egg hatch to ensure optimum control of subsequent nymph populations (see below).
- <sup>10</sup> **Mole Cricket Nymphs:** Grass areas that received intense adult mole cricket pressure in the spring should 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 should be made as late in the day as possible and should be watered in with up to 0.5 inch of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the mole crickets closer to the soil surface where contact with the insecticide will be maximized.
- <sup>11</sup> **Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever):** Do not make spot applications. 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. 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 activity. Repeat application should be limited to no more than once per seven days.

**Deer Ticks (*Ixodes* sp.)** have a complicated life cycle that ranges over a two-year period and involves four life stages. Applications should 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.

**American dog ticks** may be a considerable nuisance in suburban settings, particularly where homes are built on land that was previously field or forest. These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Applications should be made as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

LAWN DILUTION CHART					
Application Volume: Gallons per 1,000 sq. ft.	Application Rate: Fluid Ounces per 1,000 sq. ft.	Fluid Ounces* of This Product Diluted to these Volumes of Finished Spray			
		1 gallon	5 gallons	10 gallons	100 gallons
1.0	0.18	0.18	0.90	1.80	18.00
1.0	0.25	0.25	1.25	2.50	25.00
1.0	0.50	0.50	2.50	5.00	50.00
1.0	1.00	1.00	5.00	10.00	100.00
2.0	0.18	—	0.45	0.90	9.00
2.0	0.25	0.13	0.63	1.25	12.50
2.0	0.50	0.25	1.25	2.50	25.00
2.0	1.00	0.50	2.50	5.00	50.00
3.0	0.18	—	0.30	0.60	6.00
3.0	0.25	—	0.42	0.83	8.30
3.0	0.50	0.17	0.83	1.67	16.70
3.0	1.00	0.33	1.67	3.33	33.30

(continued)





### LAWN DILUTION CHART

Application Volume: Gallons per 1,000 sq. ft.	Application Rate: Fluid Ounces per 1,000 sq. ft.	Fluid Ounces* of This Product Diluted to these Volumes of Finished Spray			
		1 gallon	5 gallons	10 gallons	100 gallons
4.0	0.18	—	0.23	0.45	4.50
4.0	0.25	—	0.31	0.63	6.30
4.0	0.50	0.13	0.64	1.25	12.50
4.0	1.00	0.25	1.25	2.50	25.00
5.0	0.18	—	0.18	0.36	3.60
5.0	0.25	—	0.25	0.50	5.00
5.0	0.50	0.10	0.50	1.00	10.00
5.0	1.00	0.20	1.00	2.00	20.00
10.0	0.18	—	—	0.18	1.80
10.0	0.25	—	0.13	0.25	2.50
10.0	0.50	—	0.25	0.50	5.00
10.0	1.00	0.10	0.50	1.00	10.00

\*To convert to milliliters, multiply by 29.57.

1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure this product.

### LANDSCAPE ORNAMENTALS AND INTERIOR PLANTSCAPES

For ornamental applications to control listed insect and mite pests of bedding plants, foliage plants, ground covers, shrubs, shade and ornamental trees; apply 0.125 to 1.0 fluid oz. of this product per 1,000 square feet or 5.4 to 43.5 fl. oz. per 100 gallons. This product may be diluted and applied in various volumes of water providing that the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz. per 100 gallons) is not exceeded. This product may be applied through low volume application equipment by dilution with water or other carriers and providing that the maximum label rate (1.0 fluid oz. per 1,000 square feet or 43.5 fl. oz. per 100 gallons) 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 and foliage area increases. Repeat application should be 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.

**Calculating Dilution Rates Using the Ornamental Application Rates Table and the Ornamental Dilution Chart:**

Take the following steps to determine the appropriate dilution of this product that is required to control specific pests:

1. Identify the least susceptible target pest (the pest requiring the highest application rate for control).
2. Select an application rate in terms of fluid oz. of this product.
3. Identify your application volume and how much spray mix you want to prepare.
4. Use the Ornamental Dilution Chart to determine the appropriate volume of this product that must be mixed in your desired volume of water.

For example, suppose you are trying to control black vine weevil adults on rhododendron. The Ornamental Application Rates table shows that 0.25 to 0.5 fluid oz. of this product should be applied per 1,000 square feet. You select an application rate of 0.5 fluid oz. per 1,000 square feet because maximum residual control is desired. Your application volume is approximately 300 gallons per acre which is equivalent to 6.9 gallons per 1,000 square feet. Consulting the Landscape Ornamental Dilution Chart reveals that you should dilute 0.72 fluid oz. of this product in 10 gallons of water.





### LANDSCAPE ORNAMENTAL DILUTION CHART

Application Volume: Gallons per		Application Rate: Fluid Ounces per	Fluid Ounces* of This Product Diluted to these volumes of Finished Spray			
1,000 sq.ft.	Acre	1,000 sq. ft.	1 gallon	5 gallons	10 gallons	100 gallons
2.3	100	0.125	—	0.27	0.54	5.40
2.3	100	0.250	0.11	0.54	1.08	10.80
2.3	100	0.500	0.22	1.09	2.17	21.70
2.3	100	1.000	0.44	2.17	4.35	43.50
4.6	200	0.125	—	0.14	0.27	2.70
4.6	200	0.250	—	0.27	0.54	5.40
4.6	200	0.500	0.11	0.54	1.09	10.90
4.6	200	1.000	0.22	1.09	2.17	21.70
6.9	300	0.125	—	—	0.18	1.80
6.9	300	0.250	—	0.18	0.36	3.60
6.9	300	0.500	—	0.36	0.72	7.20
6.9	300	1.000	0.15	0.72	1.45	14.50

\*To convert to milliliters, multiply by 29.57.

300 gallons per acre is a typical application volume for landscape ornamental applications.

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

Do not use household utensils to measure this product.





## ORNAMENTAL APPLICATION RATES

The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, this product may be applied at up to 1 fluid oz. per 1,000 square feet (43.5 fl. oz. per 100 gallons) to control each of the pests listed in this Table. Use the higher application rates when maximum residual control is desired.

PEST	APPLICATION RATE OF THIS PRODUCT	
	Fluid Ounces per 1,000 sq. ft.	Fluid Ounces per 100 gallons
Bagworms <sup>12</sup> Cutworms Elm Leaf Beetles Fall Webworms Gypsy Moth Caterpillars Leaf-feeding Caterpillars Tent Caterpillars	0.125 to 0.250	5.40 to 10.80
Adelgids Ants Aphids Bees Beet Armyworm Beetles <sup>13</sup> Black Vine weevil (Adults) Brown Soft Scales Broad Mites Budworms California Red Scale (Crawlers) <sup>13</sup> Centipedes Cicadas	0.25 to 0.50	10.80 to 21.70

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PEST	APPLICATION RATE OF THIS PRODUCT	
	Fluid Ounces per 1,000 sq. ft.	Fluid Ounces per 100 gallons
Citrus Thrips	0.25 to 0.50	10.80 to 21.70
Clover Mites		
Crickets		
Diaprepes (Adults)		
Earwigs		
European Red Mite		
Flea Beetles		
Fungus Gnats (Adults)		
Grasshoppers		
Japanese Beetle (Adults)		
Leafhoppers		
Leaf rollers		
Mealybugs Millipedes		
Mites		
Mosquitoes		
Orchid Weevil		
Pillbugs		
Pine Needle Scales (Crawlers) <sup>13</sup>		
Plant Bugs (Including <i>Lygus spp.</i> )		
Psyllids		
San Jose Scales (Crawlers) <sup>13</sup>		
Scorpions		
Sowbugs		
Spider Mites <sup>14</sup>		
Spiders		

(continued)





PEST	APPLICATION RATE OF THIS PRODUCT	
	Fluid Ounces per 1,000 sq. ft.	Fluid Ounces per 100 gallons
Spittlebugs Thrips Tip Moths Treehoppers Twig Borers <sup>13</sup> Wasps Weevils <sup>13</sup> Whiteflies	0.25 to 0.50	10.80 to 21.70
Imported Fire Ants** Leafminers Pecan Leaf Scorch Mite Pine Shoot Beetle (Adults) Spider Mites <sup>14</sup>	0.50 to 1.00	21.70 to 43.50

<sup>12</sup> **Bagworms:** Apply when larvae begin to hatch and spray larvae directly. Applications when larvae are young will be most effective.

<sup>13</sup> **Beetles<sup>†</sup>, Scale Crawlers, Twig Borers, and Weevils:** Treat trunks, stems and twigs in addition to plant foliage.

<sup>14</sup> **Spider Mites:** This product provides optimal twospotted spider mite control when applied during spring to mid-summer. Higher application rates and/or more frequent treatments may be required for acceptable twospotted spider mite control during mid to late summer. The addition of a surfactant or horticultural oil may increase the effectiveness of this product. Combinations of this product with other registered miticides have also proven effective. Alternately, applications of this product may be rotated with those of other products that have different modes of action in control programs that are designed to manage resistance by twospotted spider mites. Consult your local Cooperative Extension Service for resistance management recommendations in your region.

\*\*For foraging ants.







## OUTSIDE SURFACES AND AROUND BUILDINGS

For control of Ants, Carpenter Ants, Fire Ants, Armyworms, Bees, Beetles, Biting Flies, Boxelder Bugs, Centipedes, Chiggers, Chinch Bugs, Clover Mites, Crickets, Cutworms, Dichondra Flea Beetles, Earwigs, Elm Leaf Beetles, Firebrats, Fleas, Flies, Gnats, Grasshoppers, Hornets, Japanese Beetles, Midges, Millipedes, Mosquitoes, Moths, Roaches (including Cockroaches), Scorpions, Silverfish, Sod Webworms, Sowbugs (Pillbugs), Spider Mites, Spiders (including Black Widow Spiders), Springtails, Ticks (including Brown Dog Ticks), and Wasps.

Apply this product using a 0.02% to 0.06% suspension as a residual spray to outside surfaces of buildings including exterior siding, foundations, porches, window frames, eaves, patios, garages, refuse, 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 residential and non-commercial structures, soil, trunks of woody ornamentals and other areas where pests congregate or have been seen. Use a spray volume of up to 10 gallons of emulsion per 1,000 square feet. Higher application volumes may be used to obtain the desired coverage of dense vegetation or landscaping materials.

Follow Additional Application Restrictions for Residential Outdoor Surface and Space Sprays under DIRECTIONS FOR USE.

Applications to vertical exterior surfaces (e.g., foundations) are permitted to a maximum height of 3 feet from ground level. Sections of vertical exterior surfaces that abut non-porous horizontal surfaces can only be treated if either 1) these sections are protected from rainfall and spray from sprinklers, or 2) they do not drain into a sewer, storm drain, or curbside gutter (e.g. not to sections that abut driveways or sidewalks that drain into streets).

**Mixing Directions:** For 0.02% suspension, mix 0.33 fluid oz. of this product per gallon of water. For 0.06% suspension, mix 1 fluid oz. of this product per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure this product. Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control. 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.

**Perimeter Treatment:** Apply to a band of soil and vegetation 5 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 0.33 to 1.0 fluid oz. of this product per 1,000 square feet in sufficient water to provide adequate coverage (refer to Perimeter Application Dilution Chart).





For sections of foundation that abut non-porous horizontal surfaces, the treated areas must be protected from rainfall and spray from sprinklers or they do not drain into a sewer, storm drain, or curbside gutter (e.g. not to sections that abut driveways or sidewalks that drain into streets).

PERIMETER APPLICATION DILUTION CHART					
Application Volume: Gallons per 1,000 sq. ft.	Application Rate: Fluid Ounces per 1,000 sq. ft.	Fluid Ounces* of This Product Diluted to these Volumes of Finished Spray			
		1 gallon	5 gallons	10 gallons	100 gallons
1	0.33	0.33	1.67	3.33	33.3
1	0.50	0.50	2.50	5.00	50.0
1	0.67	0.67	3.33	6.67	66.7
1	0.75	0.75	3.75	7.50	75.0
1	1.00	1.00	5.00	10.00	100.0
2	0.33	0.17	0.83	1.65	16.5
2	0.50	0.25	1.25	2.50	25.0
2	0.67	0.33	1.67	3.35	33.5
2	0.75	0.38	1.88	3.75	37.5
2	1.00	0.50	2.50	5.00	50.0
3	0.33	0.11	0.55	1.10	11.0
3	0.50	0.17	0.83	1.67	16.7
3	0.67	0.22	1.11	2.23	22.3
3	0.75	0.25	1.25	2.50	25.0
3	1.00	0.33	1.67	3.33	33.3

(continued)





PERIMETER APPLICATION DILUTION CHART					
Application Volume: Gallons per 1,000 sq. ft.	Application Rate: Fluid Ounces per 1,000 sq. ft.	Fluid Ounces* of This Product Diluted to these Volumes of Finished Spray			
		1 gallon	5 gallons	10 gallons	100 gallons
4	0.33	—	0.41	0.83	8.3
4	0.50	0.13	0.63	1.25	12.5
4	0.67	0.17	0.84	1.67	16.7
4	0.75	0.19	0.94	1.88	18.8
4	1.00	0.25	1.25	2.50	25.0
5	0.33	—	0.33	0.67	6.7
5	0.50	0.10	0.50	1.00	10.0
5	0.67	0.13	0.67	1.33	13.3
5	0.75	0.15	0.75	1.50	15.0
5	1.00	0.20	1.00	2.00	20.0
10	0.33	—	0.17	0.33	3.3
10	0.50	—	0.25	0.50	5.0
10	0.67	—	0.33	0.67	6.7
10	0.75	—	0.38	0.75	7.5
10	1.00	0.10	0.50	1.00	10.0

\*To convert to milliliters, multiply by 29.57.

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

Do not use household utensils to measure this product.





**For Ant and Fire Ant Mounds use this product 0.06% emulsion as Drench Method:** Apply 1 to 2 gallons of emulsion to each mound area by sprinkling the mound until it is wet and treat a 4-foot diameter circle around the mound. Use the higher volume for mounds larger than 12". For best results, apply in cool weather, such as in early morning or late evening hours, but not in the heat of the day.

**Mosquito Control:** Dilute 0.33 to 1.0 fluid oz. of this product per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a general spray around landscapes, lawn and buildings to control mosquitoes. For higher volume applications, this product may be diluted at lower concentrations and applied at greater volumes to deliver the desired amount of product per area (refer to the Ornamental or Perimeter Application Dilution Chart).

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## INDOOR USE

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In the home, cover all food preparation surfaces and utensils prior to treatment. Thoroughly wash any non-covered/exposed surfaces or utensils following treatment. Exposed food must be covered or removed.

For control of ants, bees, beetles, boxelder bugs, carpet beetles, centipedes, cloth moths, cockroaches, crickets, earwigs, firebrats, flies, gnats, midges, millipedes, pillbugs, scorpions, silverfish, sowbugs, spiders, ticks and wasps.

Use a 0.02% to 0.06% suspension (0.33 to 1 fluid oz. per gallon of water) for residual pest control in buildings and structures and on modes of transport. Apply either as a crack and crevice, pinstream, spot, coarse, low pressure spray (25 p.s.i. or less) or with a paint brush.

**Indoor Treatments:** Apply as a coarse, low pressure, crack and crevice or spot spray to areas where 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, the underside of shelves, drawers and similar areas. Do not use as a space spray. Pay particular attention to cracks and crevices.

**Mixing Directions:** See mixing directions in "Pest Control on Outside Surfaces and Around Buildings" Section.

This product is to be diluted with water for spray or brush application. Fill sprayer with the desired volume of water and add this product. Close and shake before use in order to insure proper mixing. Mix only the amount of solution needed for the application. 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.





**Cockroaches, Crickets, Firebrats, Scorpions, Silverfish, Spiders and Ticks:** 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, and stoves, the underside of shelves, drawers and similar areas. Pay particular attention to cracks and crevices.

**Ants:** Apply to any trails, around doors and windows and other places where ants may be found.

**Bees and Wasps:** Application to nests should be made late in the evening when insects are at rest. Thoroughly spray nest and entrance and surrounding areas where insects alight.

**Boxelder Bugs, Centipedes, Earwigs, Beetles, Millipedes, Pillbugs, and Sowbugs:** Apply around doors and windows and other places where these pests may be found or where they may enter premises. Spray baseboards, storage areas and other locations.

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## FOOD/FEED HANDLING ESTABLISHMENT APPLICATIONS

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Applications of this product are permitted in both food/feed and nonfood areas of food/feed handling establishments as a general surface, spot, or crack and crevice treatment.

Food/feed handling establishments are defined as places other than private residences in which exposed food/feed is held, processed, prepared or served. Included also are areas for receiving, storing, packing (canning, bottling, wrapping, boxing), preparing, edible waste storage and enclosed processing systems (mills, dairies, edible oils, syrups) of food. Serving areas where food is exposed and the facility is in operation are also considered food areas.

Permitted non-food areas of use include: garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, garages, mop closets and storage (after canning or bottling).

Permitted use sites include: aircraft (do not use in aircraft cabins), apartment buildings, bakeries, bottling facilities, breweries, buses, cafeterias, candy plants, canneries, dairy product processing plants, food manufacturing plants, food processing plants, food service establishments, granaries, grain bins, grain mills, hospitals, hotels, industrial buildings, laboratories, poultry/egg processing plants, mobile/motor homes, nursing homes, offices, railcars, restaurants, schools, ships, trailers, trucks, vessels, warehouses, and wineries.

**General Surface Application:** Do not use this application method in food/feed handling establishments when the facility is in operation or foods/feeds are exposed. Do not apply directly to food products. Cover or remove all food processing and/or handling equipment during application. After application 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.

**Spot, Crack and Crevice Application:** Spot 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. Do not apply directly to food.

#### **Foam Applications**

This product may be converted to foam and used to treat structural voids. Dilute 0.33 to 1.0 fluid oz. of this product per gallon of water and add the manufacturer's recommended volume of foaming agent to produce a 0.02% to 0.06% foam concentration. Verify before treatment that the foaming agent is compatible with this product.

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### **TERMITE CONTROL (ABOVE GROUND ONLY)**

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The purpose of the applications described below are to kill termite workers or winged reproductives that may be present at the time of treatment. These applications are intended as supplements to, and not substitutes for, mechanical alteration, soil treatment or foundation treatment.

To control exposed workers and winged reproductive termites in localized areas, dilute 1.0 fluid oz. of this product per gallon of water and apply as a coarse 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.

To control above-ground termites in localized areas of infested wood, dilute 1.0 fluid oz. of this product 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.

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### **ANT CONTROL**

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**Nuisance Ants Indoors:** For best results, locate and treat ant nests. Dilute 0.5 to 1.0 fluid oz. of this product per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a general surface, crack and crevice or spot treatment to areas where ants have been observed or are expected to forage. These areas include baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks and stoves, around pipes, cracks and crevices and in corners. Particular attention should be given to treating entry points into the home or premises such as around doors and windows. When using this product in combination with baits, apply this product as instructed above, and use baits in other areas that have not been treated with this product.





**Nuisance Ants Outdoors:** For best results, locate and treat ant nests. Apply this product 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 described in the “Pest Control on Outside Surfaces and Around Buildings” section of this label. The higher dilutions and/or application volumes, as well as more frequent applications, may be necessary when treating concrete surfaces for ant control. The following procedures must be followed to help achieve maximum control of the pest:

1. Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low volume applications using 0.5 to 1.0 fluid oz. of this product per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet.
2. Treat porous surfaces and vegetation with high volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of this product per 1,000 square feet (refer to the Ornamental and Perimeter Application Dilution Charts).
3. For maximum residual control, dilute 0.5 to 1.0 fluid oz. of this product per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000 square feet.

**Carpenter Ants Indoors:** Dilute 0.5 to 1.0 fluid oz. of this product per gallon of water and apply at the rate of one gallon of dilution per 1,000 square feet as a general surface, crack and crevice or spot treatment to areas where carpenter ants have been observed or are expected to forage. These areas include baseboards, in and behind cabinets, under and behind dishwashers, furnaces, refrigerators, sinks and stoves, around pipes, cracks and crevices and in corners. Particular attention should be given to treating entry points into the home or premises such as around doors and windows. When using this product in combination with baits, apply this product as instructed above, and use baits in other areas that have not been treated with this product.

**Carpenter Ants Outdoors:** Apply this product to carpenter ant trails around doors and windows and other places where carpenter ants have been observed or are expected to forage. For best results, locate and treat carpenter ant nests. Apply a perimeter treatment using either low or high volume applications described in the “Pest Control on Outside Surfaces and Around Buildings” section of this label. The higher dilutions and/or application volumes, as well as more frequent applications, may be necessary when treating concrete surfaces for carpenter ant control. The following procedures must be followed to help achieve maximum control of the pest:

1. Treat non-porous surfaces only in areas protected from rainfall and spray from sprinklers with low volume applications using 0.5 to 1.0 fluid oz. of this product per gallon of water and applying this dilution at the rate of one gallon per 1,000 square feet.





2. Treat the trunks of trees that have carpenter ant trails, or upon which carpenter ants are foraging, using 0.5 to 1.0 fluid oz. of this product per gallon of water and applying this dilution to thoroughly wet the bark from the base of the tree to as high as possible on the trunk.
3. Treat porous surfaces and vegetation with high volume applications using dilutions that are calculated to deliver 0.5 to 1.0 fluid oz. of this product per 1,000 square feet (refer to the Ornamental and Perimeter Application Dilution Charts).
4. For maximum residual control, dilute 0.5 to 1.0 fluid oz. of this product per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000 square feet.

For woodpiles and stored lumber apply a 0.06% emulsion. Use a hose-end sprayer or sprinkling can to deliver a coarse drenching spray. Treated wood can be burned or used for lumber one month after treatment. Do not use in structures.

To protect firewood from carpenter ants (and termites), dilute 1.0 fluid oz. of this product 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. **DO NOT** treat firewood with this product.

#### **ATTENTION**

Do not apply a broadcast application to interior surfaces of homes. Do not apply to pets, crops, or sources of electricity.

Firewood is not to be treated.

Use only in well ventilated areas.

During any application to overhead areas of structure, cover surfaces below with plastic sheeting or similar material except for soil surfaces in crawl spaces.

**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 treat areas where food is exposed.

During indoor surface applications do not allow dripping or runoff to occur.

**DO NOT** allow people or pets on treated surfaces until spray has dried.

Let surfaces dry before allowing people and pets to contact surfaces.







This product will not stain or damage any surface that water alone will not stain or damage.

**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. Do not apply this pesticide in livestock buildings (barns).

Application equipment that delivers low volume treatments may also be used to make spot and general surface treatments of this product.





## STORAGE AND DISPOSAL

**DO NOT** contaminate water, food or feed by storage or disposal.

**PESTICIDE STORAGE:** Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. **DO NOT** put concentrate or dilute material into food or drink container. **In case of spill, avoid contact, isolate area, and keep out animals and unprotected persons. Confine spills. Call CHEMTREC: 1-800-424-9300.**

**To confine spill:** 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.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. **DO NOT** contaminate water, food or feed by storage or disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. 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.

### **CONTAINER DISPOSAL [HANDLING]:**

**Nonrefillable Containers 5 Gallons or Less:** Nonrefillable container. **DO NOT** reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.





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