

53883-117

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 22 2006

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Carroll Draper
Control Solutions, Inc.
5903 Genoa-Red Bluff
Pasadena, TX 77507-1041

Subject: Amendment to Modify Label Wording Due to Copyright Infringement Litigation

Bifenthrin LT
EPA Registration No. 53883-117
Your submission dated May 18, 2006

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the comments listed below. Two (2) copies of the final printed labeling must be submitted prior to releasing the product for shipment. A stamped copy of the label is enclosed for your records.

1. Under Precautionary statements, revise "*Wash thoroughly with soap...*" to read "*Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.*"
2. Move the Storage and Disposal statements to the end of the Directions for Use section of the label. This is the preferred placement since it eliminates the break between the heading Directions for Use and the body of the use directions.
3. On page 3, under Impregnation delete the word "only" from "*Bifenthrin LT should be measured accurately and only the amount of product...*"
4. On page 6, footnote #8 (Imported Fire Ants), 1st sentence, change "eliminate" to "control" so that it reads "...with mound drenches that will control existing colonies."
5. Under Indoor Use, delete the statements beginning with "*Do not use Bifenthrin LT in food/feed areas...*" and ending with "...where food may be prepared or held." These statements are in conflict with the directions for use under Food/Feed Handling Establishment Applications.
6. Under Food/Feed Handling Establishment Applications, revise "*Permitted nonfood/feed areas such as garbage rooms...*" to read "*Permitted nonfood/feed areas of use include garbage rooms...*"

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7. Under Ant Control/Nuisance Ants Indoors and Ant Control/Carpenter Ants Indoors (pages 13 & 14), delete the broadcast application rate and the term "*general surface*". These directions conflict with the prohibition not to apply a broadcast application to interior surfaces of homes. These statements should read "...per gallon of water and apply as a crack and crevice or spot treatment...etc."

Please note the following spelling corrections:

1. On page 1, above the Note to Physician, revise "*in*formation" to read "*in*formation."
2. On page 8, under "*Calculating Dilution Rates...*" revise "*tying*" to read "*trying*" on "*For example, suppose you are...*"
3. On page 13, revise the end of the 3rd sentence to read "...and other surfaces which food will contact." Also, revise "*ios*" to read "*is*" in the directions for spot, crack, and crevice applications.

If you have any questions regarding this action, please contact Olga Odiott at (703) 308-9369.

Sincerely,


George J. LaRocca
Product Manager 13
Insecticide Branch
Registration Division (7505C)

Enclosure

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Bifenthrin LT

Only for Use and Storage by Commercial Applicators. To control insect pests and mites indoors, in interiorscapes and outdoors on ornamentals and lawns in landscaped areas around residential, institutional, public, commercial, and industrial buildings, parks, recreational areas and athletic fields.

Active Ingredient:	By Wt.
Bifenthrin*	7.9%
Inert Ingredients:	92.1%
Total	100.0%

Contains 2/3 pound active ingredient per gallon.
*Cis isomers 97% minimum, trans isomers 3% maximum.

EPA Reg. No. 53883 - 117
Control Solutions, Inc.
5903 Genoa-Red Bluff
Pasadena, TX 77507-1041

EPA Est. No. 53883-TX-002

ACCEPTED
with COMMENTS
In EPA Letter Dated
AUG 22 2006
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
53883-117

Net Contents _____

KEEP OUT OF REACH OF CHILDREN
CAUTION

See other panels for additional precautionary information

NOT FOR USE IN NEW YORK STATE WITHOUT THE PRODUCT BULLETIN FOR BIFENTHRIN LT INSECTICIDE/ MITICIDE.

FIRST AID	
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • 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. • Do not give anything by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continuing rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact SafetyCall® (866) 897-8050 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.	

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PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

CAUTION - Harmful if swallowed, inhaled or absorbed through skin. Causes moderate eye irritation. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

All pesticide handlers (mixers, loaders and applicators) must wear long sleeved shirt and long pants, socks, shoes and chemical resistant gloves. After the product is diluted in accordance with label directions for use, shirt, pants, socks, shoes and waterproof gloves are sufficient.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and run-off from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.

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 to drift on to blooming crops if bees are visiting the treatment area.

Physical and Chemical Hazards

Do not apply water-based dilutions of Bifenthrin LT to electrical conduits, motor housings, junction boxes, switch boxes, or other electrical equipment because of 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 this product through any kind of irrigation system.

Do not apply by air.

Do not apply in greenhouses and nurseries.

Bifenthrin LT is not for use on sod farm turf, golf course turf, or grass grown for seed.

STORAGE AND DISPOSAL

Prohibitions: 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.

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.

In the event of a major spill call 1-800-424-9300 (CHEMTREC).

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:

Plastic Container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, 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.

Returnable/Refillable Sealed Container: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.
 Metal Container: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Do not cut or weld metal containers.

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 Bifenthrin LT:

$$\frac{(7.9)(\text{Fl. Oz. of Bifenthrin LT added to tank})}{(\text{Gallons of finished spray mix})(128)} = \text{Percent Active Ingredient of spray mix}$$

IMPREGNATION AND APPLICATION OF BIFENTHRIN LT ON DRY BULK LAWN FERTILIZERS

Bifenthrin LT may be impregnated on dry bulk fertilizers. When applied as directed, Bifenthrin LT/dry bulk fertilizer mixtures provide insect control equal to that provided by the same rates of Bifenthrin LT applied in water.

Impregnation: Apply using a minimum of 2.3 pounds of dry bulk fertilizer per 1,000 sq. ft. with the recommended amount of Bifenthrin LT per 1,000 sq. ft. Use a closed rotary-drum mixer or a similar type of closed blender equipped with suitable spray equipment. The spray nozzle(s) should be positioned to provide a uniform, fine, spray pattern over the tumbling fertilizer for thorough coverage. The physical properties of fertilizers vary, particularly in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with Bifenthrin LT provides a satisfactory dry mixture. If the absorptive capacity is inadequate, use of a highly absorptive powder is required to provide a dry, flowable mixture. Microcel E (Johns-Manville Products Corporation) is a recommended absorbent powder. Generally less than 2% by weight of Microcel E is required.

DO NOT impregnate Bifenthrin LT onto straight coated ammonium nitrate or straight limestone because these materials will not absorb the insecticide. Dry fertilizer blends containing mixtures of ammonium nitrate or limestone may be impregnated with Bifenthrin LT.

Bifenthrin LT should be measured accurately and only the amount of product actually required in the preparation of individual fertilizer mixtures should be carefully determined for each production operation. This is necessary to ensure that the amount of pesticide actually contained in the mixture applied to the soil represents the correct rate of use.

Bulk fertilizer impregnated with Bifenthrin LT should be applied immediately, not stored.

All individual Federal and State regulations relating to bulk dry fertilizer blending, registration, labeling, and application of the mixtures are the responsibility of the individual and/or company selling the fertilizer and Bifenthrin LT mixture.

Fertilizer for this use should be Grass/Lawn fertilizers recommended for specific regions.

General Application Instructions

Bifenthrin LT is not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended only for aesthetic purposes or climatic modifications and being grown in interior landscapes, ornamental gardens or parks, or lawns and grounds.

Bifenthrin LT formulation mixes readily with water and other aqueous carriers, and controls a wide spectrum of insects and mites on trees, shrubs, foliage plants, non-bearing fruit and nut trees, and flowers in interiorscapes including hotels, shopping malls, office buildings, etc. and outdoor landscapes, such as around residential dwellings, parks, institutional buildings, recreational areas, athletic fields and home

lawns. Non-bearing crops are perennial crops that will not produce a harvestable raw agricultural commodity during the season of application.

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

APPLICATION RECOMMENDATIONS

LAWNS: Apply Bifenthrin LT as a surface or sub-surface treatment. Use application volumes of up to 10 gallons per 1000 square feet to get uniform coverage when treating dense grass foliage.

For low volume applications, less than 2 gallons/ 1000 square feet, immediate irrigation of treated area with at least 0.25 inches of water following application is recommended to ensure efficacy of sub-surface pests, such as, but not limited to, Mole Crickets.

LAWN 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, Bifenthrin LT may be applied at up to 1 fluid oz. per 1000 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 Bifenthrin LT
Armyworms ¹ Cutworms ¹ Sod Webworm ¹	0.18 - 0.25 fluid oz. per 1000 sq. ft.
Annual Bluegrass Weevil (<i>Hyperodes</i>)(Adult) ² Banks Grass Mite ⁶ Billbugs (Adult) ³ Black Turfgrass Ataenius (Adult) ⁴ Centipedes Chinch Bugs ⁵ Crickets Earwigs Fleas (Adult) Grasshoppers Leafhoppers Mealybugs Millipedes Mites ⁶ Pillbugs Sowbugs	0.25 - 0.5 fluid oz. per 1000 sq. ft.
Ants Fleas (Larvae) ⁷ Imported Fire Ants ⁸ Japanese Beetle (Adult) Mole Cricket (Adult) ⁹ Mole Cricket (Nymph) ¹⁰ Ticks ¹¹	0.5 - 1.0 fluid oz. per 1000 sq. ft.

Comments

¹**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 1000 square feet) may be required during periods of high pest pressure.

²**Annual Bluegrass Weevil (*Hyperodes*) adults:** Applications should be timed to control adult weevils as they leave their overwintering sites and move in to 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.

³**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.

⁴**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 vanhouttei*) and horse chestnut (*Aesculus hippocastanum*). The July application should be timed to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

⁵**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 1000 square feet) may be required to control populations that contain both nymphs and adults during the middle of the summer.

⁶**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.

⁷**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 Bifenthrin LT at 0.25 fluid oz. per 1000 square feet for adult flea control, then the larval application rate may be achieved by increasing the application volume two-to four- fold.

⁸**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 eliminate 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 Bifenthrin LT 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 (65-80°F) 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 Bifenthrin LT 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.

⁹**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 inches 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).

¹⁰**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 application 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 inches 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.

¹¹**Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever):** Do not make spot applications. Treat entire area where exposure to ticks may occur. Use the 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 applications 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.

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Bifenthrin LT Lawn Dilution Chart

Application Volume:	Application Rate:	Fluid Ounces* of Bifenthrin LT Diluted to these Volumes of Finished Spray			
		1 gallon	5 gallons	10 gallons	100 gallons
Gallons Per 1,000 Sq. Ft.	Fluid Ounces per 1,000 Sq. Ft.				
1.0	0.18	0.18	0.90	1.8	18.0
1.0	0.25	0.25	1.25	2.5	25.0
1.0	0.5	0.5	2.5	5.0	50.0
1.0	1.0	1.0	5.0	10.0	100.0
2.0	0.18	-	0.45	0.90	9.0
2.0	0.25	0.13	0.63	1.25	12.5
2.0	0.5	0.25	1.25	2.5	25.0
2.0	1.0	0.5	2.5	5.0	50.0
3.0	0.18	-	0.30	0.60	6.0
3.0	0.25	-	0.42	0.83	8.3
3.0	0.5	0.17	0.83	1.67	16.7
3.0	1.0	0.33	1.67	3.33	33.3
4.0	0.18	-	0.23	0.45	4.5
4.0	0.25	-	0.31	0.63	6.3
4.0	0.5	0.13	0.63	1.25	12.5
4.0	1.0	0.25	1.25	2.5	25.0
5.0	0.18	-	0.18	0.36	3.6
5.0	0.25	-	0.25	0.5	5.0
5.0	0.5	0.1	0.5	1.0	10.0
5.0	1.0	0.2	1.0	2.0	20.0
10.0	0.18	-	-	0.18	1.8
10.0	0.25	-	0.13	0.25	2.5
10.0	0.5	-	0.25	0.5	5.0
10.0	1.0	0.1	0.5	1.0	10.0

*To convert to millimeters, multiply by 29.57

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

Do not use household utensils to measure Bifenthrin LT.

ORNAMENTALS AND TREES

For ornamental applications (including but not limited to trees, shrubs, ground covers, bedding plants, and foliage plants) apply 0.125 to 1.0 fl. oz. of Bifenthrin LT per 1,000 square feet or 5.4 to 43.5 fl. oz. per 100 gallons. Bifenthrin LT 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. Bifenthrin LT 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 & 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.

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

**Bifenthrin LT
Ornamental Dilution Chart**

Application Volume: Gallons Per		Application Rate: Fl Oz. per	Fluid Ounces* of Bifenthrin LT Diluted to these Volumes of Finished Spray			
1,000 sq. ft.	Acre		1,000 sq. ft.	1 gallons	5 gallons	10 gallons
2.3	100	0.125	-	0.27	0.54	5.4
2.3	100	0.25	0.11	0.54	1.08	10.8
2.3	100	0.5	0.22	1.09	2.17	21.7
2.3	100	1.0	0.44	2.17	4.35	43.5
4.6	200	0.125	-	0.14	0.27	2.7
4.6	200	0.25	-	0.27	0.54	5.4
4.6	200	0.5	0.11	0.54	1.09	10.9
4.6	200	1.0	0.22	1.09	2.17	21.7
6.9	300	0.125	-	-	0.18	1.8
6.9	300	0.25	-	0.18	0.36	3.6
6.9	300	0.5	-	0.36	0.72	7.2
6.9	300	1.0	0.15	0.72	1.45	14.5

*To convert to millimeters, multiply by 29.57
 300 gallons per acre is a typical application volume for landscape ornamental applications.
 1 fluid ounce = 29.57 ml = 2 tablespoons = 6 teaspoons
 Do not use household utensils to measure Bifenthrin LT.

Calculating Dilution Rates using the Ornamental Application Rates Table and the Bifenthrin LT Ornamental Dilution Chart: The following steps should be taken to determine the appropriate dilution of Bifenthrin LT 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 Bifenthrin LT.
- 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 Bifenthrin LT 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 ounces of Bifenthrin LT 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 Ornamental Dilution Chart reveals that you should dilute 0.72 fluid oz. of Bifenthrin LT in 10 gallons of water.

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, the Bifenthrin LT 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. The higher application rates should be used when maximum residual control is desired.

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Pest	Application Rate Bifenthrin LT	
	Fluid Ounces per 1,000 square ft.	Fluid Ounces per 100 gallons
Bagworms ¹² Cutworms Elm Leaf Beetles Fall Webworms Gypsy Moth Caterpillars Lace Bugs Leaf Feeding Caterpillars Tent Caterpillars	0.125 - 0.25	5.4 - 10.8
Adelgids Ants Aphids Bees Beet Armyworm Beetles ¹¹ Black Vine Weevil (Adults) Brown Soft Scales Broad Mites Budworms California Red Scale (Crawlers) ¹¹ Centipedes Cicadas Citrus Thrips Clover Mites Crickets Diaprepes (Adults) Earwigs European Red Mite Flea Beetles Fungus Gnats (Adults) Grasshoppers Japanese Beetle (Adult) Leafhoppers Leafrollers Mealybugs Millipedes Mites Mosquitoes Orchid Weevil Pillbugs Pine Needle Scales (Crawlers) ¹¹ Plant Bugs (Including <i>Lygus spp</i>) Psyllids San Jose Scales (Crawlers) ¹¹ Scorpions Sowbugs Spider Mites Spiders Spittlebugs Thrips Tip Moths Trechoppers Twig Borers ¹³ Wasps Weevils ¹¹ Whiteflies	0.25 - 0.5	10.8 - 21.7
Imported Fire Ants** Leafminers	0.5 - 1.0	21.7 - 43.5

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Pecan Leaf Scorch Mite		
Pine Shoot Beetle (Adults)		
Spider Mites ¹⁴		

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

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

¹⁴**Spider Mites:** Bifenthrin LT 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 Bifenthrin LT. Combinations of Bifenthrin LT with other registered miticides have also proven effective. Alternately, Bifenthrin LT applications 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.

Pest Control on Outside Surfaces and Around Buildings

For control of Ants, Carpenter 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, 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 Bifenthrin LT using a 0.02 to 0.06% suspension as a residual spray to outside surfaces of buildings 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 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.

Mixing Directions: For 0.02% suspension, mix 0.33 fluid oz. of Bifenthrin LT per gallon of water. For 0.06% suspension, mix 1 fluid oz. Bifenthrin LT per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure Bifenthrin LT. Use the higher rates 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 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 0.33 to 1.0 fluid oz. of Bifenthrin LT per 1,000 square feet in sufficient water to provide adequate coverage (refer to Perimeter Application Dilution Chart).

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**Bifenthrin LT
Perimeter Application Dilution Chart**

Application Volume: Gallons Per	Application Rate: Fluid Ounces Per	Fluid Ounces* of Bifenthrin LT Diluted to these Volumes of Finished Spray			
		1000 sq. ft.	1000 sq. ft.	1 gallon	5 gallons
1	0.33	0.33	1.67	3.33	33.3
1	0.5	0.5	2.5	5.0	50.0
1	0.67	0.67	3.33	6.67	66.7
1	0.75	0.75	3.75	7.5	75.0
1	1.0	1.0	5.0	10.0	100.0
2	0.33	0.17	0.83	1.65	16.5
2	0.5	0.25	1.25	2.5	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	1.0	0.5	2.5	5.0	50.0
3	0.33	0.11	0.55	1.10	11.0
3	0.5	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	2.5	25.0
3	1.0	0.33	1.67	3.33	33.3
4	0.33	-	0.41	0.83	8.3
4	0.5	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	1.0	0.25	1.25	2.5	25.0
5	0.33	-	0.33	0.67	6.7
5	0.5	0.1	0.5	1.0	10.0
5	0.67	0.13	0.67	1.33	13.3
5	0.75	0.15	0.75	1.5	15.0
5	1.0	0.2	1.0	2.0	20.0
10	0.33	-	0.17	0.33	3.3
10	0.5	-	0.25	0.5	5.0
10	0.67	-	0.33	0.67	6.7
10	0.75	-	0.38	0.75	7.5
10	1.0	0.1	0.5	1.0	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 Bifenthrin LT.

For Ant and Fire Ant Mounds use Bifenthrin LT 0.06% emulsion as Drench Method: Apply 1-2 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 fl. oz. of Bifenthrin LT 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, Bifenthrin LT 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 Charts).

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INDOOR USE

Do not apply Bifenthrin LT as a broadcast application to interior surfaces of homes.

Do not use Bifenthrin LT in food/feed areas of food/feed handling establishments, or restaurants or other areas where food is commercially prepared or processed.

Do not use Bifenthrin LT in serving areas while food/feed is exposed or facility is in operation. Serving areas are areas where prepared foods are served, such as dining rooms, but excluding areas where food may be prepared or held. In the home, all food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed. -

For control of ants, bees, beetles, boxelder bugs, centipedes, clothes 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 gallons 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 psi or less) or with a pain 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.

Bifenthrin LT is to be diluted with water for spray or brush application. Fill sprayer with the desired volume of water and add Bifenthrin LT. 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.

FOOD/FEEED HANDLING ESTABLISHMENT APPLICATIONS

Applications of this product are permitted in both food/feed areas and non-food 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. Include 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 nonfood/feed areas such as ^{at 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, but are not limited to: 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 mills, hospitals, hotels, industrial buildings, laboratories, meat/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 apply Bifenthrin LT using this application method in food/feed handling establishments when the facility is in operation or the foods/feeds are exposed.

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Do not apply Bifenthrin LT 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 will 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

Bifenthrin LT may be converted to foam and used to treat structural voids. Dilute 0.33 to 1.0 fluid oz. of **Bifenthrin LT** per gallon of water and add the manufacturers recommended volume of foaming agent to produce a 0.02 to 0.06 percent foam concentration. Verify before treatment that the foaming agent is compatible with Bifenthrin LT.

TERMITE CONTROL (ABOVE GROUND ONLY)

The purpose of the applications described below is 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 ounce of Bifenthrin LT 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 Bifenthrin LT 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.

To control termite carton nests in building voids, dilute 1.0 fluid oz. of Bifenthrin LT per gallon of water and apply as 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.

ANT CONTROL

Nuisance Ants Indoors: For best results, locate and treat ant nests. Dilute 0.5 to 1.0 fluid oz. of Bifenthrin LT 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, but are not limited to, 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 Bifenthrin LT in combination with baits, apply Bifenthrin LT as instructed above, and use baits in other areas that have not been treated with Bifenthrin LT.

Nuisance Ants Outdoors: For best results, locate and treat ant nests. Apply Bifenthrin LT 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. Maximum control is generally achieved using the following procedure:

1. Treat non-porous surfaces with low volume applications using 0.5 to 1.0 fluid oz. of Bifenthrin LT 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 Bifenthrin LT per 1,000 square feet (refer to the Ornamental and Perimeter Application Dilution Charts).

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3. For maximum residual control, dilute 0.5 to 1.0 fluid oz. of Bifenthrin LT 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 Bifenthrin LT 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, but are not limited to, 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. Spray or foam into cracks into crevices or drill holes and spray, mist or foam into voids where carpenter ants or their nests are present. When using Bifenthrin LT in combination with baits, apply Bifenthrin LT as instructed above, and use baits in other areas that have not been treated with Bifenthrin LT.

Carpenter Ants Outdoors: Apply Bifenthrin LT 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. Maximum control is generally achieved using the following procedure:

1. Treat non-porous surfaces with low volume applications using 0.5 to 1.0 fluid oz. of Bifenthrin LT 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 fl. oz. of Bifenthrin LT 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 Bifenthrin LT 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 Bifenthrin LT per gallon of water and apply at a rate of up to 10 gallons of dilution per 1,000.

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 0.06% dilution (1.0 fl. oz. of Bifenthrin LT per gallon of water) into the cavity using a sufficient volume and an appropriate treatment tool with a splash-back guard.

To control carpenter ants that are tunneling in the soil, dilute 0.5 to 1.0 fluid ounces of Bifenthrin LT 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.

For wood piles 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 Bifenthrin LT 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

1. Do not allow people or pets on treated surfaces until spray has dried
2. Let surfaces dry before allowing people and pets to contact surfaces.
3. Do not treat pets with this product.
4. Do not apply this pesticide when classrooms are in use.
5. Do not apply this pesticide in occupied patient rooms, or in any rooms occupied by the infirm, elderly or children for extended periods of time.
6. Bifenthrin LT will not stain or damage any surface that water alone will not stain or damage.
7. Do not apply water-based dilutions of Bifenthrin LT to electrical equipment because of possible shock hazard.

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8. Application equipment that delivers low volume treatments, such as the Micro-Injector® or Actisol® applicators, may also be used to make crack and crevice, deep harborage, spot and general surface treatments of Bifenthrin LT.
9. Do not apply this product in livestock buildings (barns).

Dealers Should Sell in Original Packages Only.

Terms of Sale or Use: On purchase of this product buyer and user agree to the following conditions:

Warranty: Control Solutions, Inc. makes no warranty, expressed or implied, concerning the use of this product other than indicated on the label. Except as so warranted, the product is sold as is. Buyer and user assume all risk of use and/or handling and/or storage of this material when such use and/or handling and /or storage is contrary to label instructions.

Use of Product: Control Solutions, Inc.'s recommendations for the use of this product are based upon tests believed to be reliable. The use of this product being beyond the control of the manufacturer, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice.

Damages: Buyer's or user's exclusive remedy for damages for breach of warranty or negligence shall be limited to direct damages not exceeding the purchase price paid and shall not include incidental or consequential damages.