



06/10

# BITHOR SC

For foliar and systemic control of insect pests of turfgrass, landscape ornamentals, shrubs and trees in lawns, landscapes, playgrounds, parks and athletic fields.

Active Ingredient:	By Wt.
Imidacloprid .....	5.0%
Bifenthrin* .....	4.0%
Other Ingredients: .....	91.0%
<b>TOTAL:</b> .....	<b>100.0%</b>

\*Cis isomers 97% minimum, trans isomers 3% maximum

Contains 0.45 pounds of imidacloprid and 0.36 pounds of bifenthrin per gallon

EPA Reg. No. 83923-2 EPA Est. 81824-NC-001

**STOP – Read the label before use**

**KEEP OUT OF REACH OF CHILDREN**

## CAUTION

(PRECAUCION AL USUARIO: Si usted no puede leer o entender ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.)

(TO THE USER: If you cannot read and understand English, do not use this product until the label has been fully explained to you.)

For product use information call 1-866-FOR-THOR (866-367-8467) or visit [www.for-thor.com](http://www.for-thor.com).

**NET CONTENTS: As marked on container**

Manufactured by:

**ENSYSTEX IV, Inc.**

2913 Breezewood Ave., Fayetteville, NC 28303

### FIRST AID

<b>If swallowed</b>	<ul style="list-style-type: none"> <li>• Call 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 to an unconscious person.</li> </ul>
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### HOTLINE 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-(800)-369-4352 for emergency medical treatment information.

### NOTE TO PHYSICIAN

**Note To Physician:** No specific antidote is available. Treat the patient symptomatically. This product contains a pyrethroid. If large amounts have been ingested, milk, cream and other digestible fats and oils may increase absorption and so should be avoided.

### PRECAUTIONARY STATEMENTS

#### Hazards to Humans and Domestic Animals

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

#### Environmental Hazards

This product is extremely toxic to fish and aquatic invertebrates. Run-off may be hazardous to aquatic organisms in water adjacent to treated areas.

This product contains a chemical with properties and characteristics associated with chemicals detected in groundwater. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination.

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 and drainage systems.

#### DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State or Tribe, consult the agency responsible for pesticide regulation.

Do not allow children or pets on treated surfaces until the spray has dried.

Do not water the treated areas to the point of run-off.

Do not make applications during 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.

#### Additional Application Restrictions for Residential Outdoor Surface and Space Sprays:

All outdoor applications must be limited to spot or crack-and-crevice treatments only, except for the following permitted uses:

- (1) Treatment to soil or vegetation around structures.
- (2) Applications to lawns, turf, and other vegetation.
- (3) Applications to building foundations up to a maximum height of 3 feet.

Other than applications to building foundations, all outdoor applications to impervious surfaces such as sidewalks, driveways, patios, porches and structural surfaces (such as windows, door and eaves) are limited to spot and crack-and-crevice applications only.

### STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**Pesticide Storage:** Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Handle and open container in a manner as to prevent spillage. If container is leaking, invert to prevent leakage. If container is leaking or if material is spilled for any reason or cause, carefully contain any spilled material to prevent non-target contamination. Do not walk through spilled material and dispose of as directed for pesticides below. Absorb spilled material with absorbing type compounds and dispose of as directed for pesticides below. Refer to *Precautionary Statements* on label for hazards associated with the handling of this material. In spill or leak incidents, keep unauthorized people away. You may contact ENSYSTEX IV for decontamination procedures or any other assistance that may be necessary at 1-866-367-8467 or contact Chemtrec at 1-800-424-9300.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### GENERAL INFORMATION

BITHOR SC controls or suppresses a wide spectrum of insects and mites on turfgrass, trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, ground covers, bedding plants and foliage plants at and/or around residential dwellings (single and multi-family), office, commercial, shopping and institutional buildings and complexes, grounds, parks, recreational areas, athletic fields, playgrounds, airports, cemeteries, lawns and interior landscapes. (Nonbearing crops are perennial crops that will not produce a harvestable raw agricultural commodity during the season of application.) BITHOR SC mixes readily with water and other aqueous carriers.

BITHOR SC is not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. BITHOR SC is not for use in commercial greenhouses, nurseries, or on grasses grown for seed, golf courses, turfgrass grown for sale (sod farms) or on commercial fruit and nut trees.

Some insects can develop resistance to products used repeatedly for their control. Because the development of resistance by an insect to an insecticide cannot be predicted, the use of this product should be according to established resistance management strategies. Consult your local or state pest management authorities for details.

If necessary, consult resources in horticulture in your area (such as your Cooperative Extension Service) to determine appropriate application timing and cultural practices to control different types of pests.

## APPLICATION FOR TURF PESTS

BITHOR SC can be used for the control of a wide range of pests of turfgrass. Because BITHOR SC's active ingredients have long lasting residual activity, applications for control of subsurface feeders can be made before the occurrence of egg laying activity. BITHOR SC's active ingredients also have sufficient knockdown and residual activity to provide curative and residual control of surface feeding pests.

Do not apply more than 4.5 pints (0.25 lb imidacloprid, 0.2 lb bifenthrin) per acre or 1.65 fluid ounces per 1000 square feet per application of product to turf. Do not apply more than 9 pints (0.5 lb of imidacloprid active ingredient, 0.4 lb bifenthrin) per acre or 3.3 fluid ounces per 1000 square feet per year of product to turf.

### Application Sites

Permitted sites include but are not limited to lawns, grounds and landscapes at and/or around residential dwellings (single and multi-family), office, commercial, shopping and institutional buildings and complexes, grounds, parks, recreational areas, athletic fields, playgrounds, airports and cemeteries. **New York State only: Do not apply BITHOR SC containing solutions to grass or turf within 100 feet of a body of water (lake, pond, river, stream, wetland or drainage ditch).**

### Application Timing

The active ingredients in BITHOR SC have sufficiently long-lasting residual activity that applications can be made prior to egg laying by the target pest(s). Optimum control of turf pests will be achieved when application is made prior to egg hatch followed by sufficient irrigation or rainfall to move the active ingredient through the thatch and down into the underlying soil. Applications can be timed based on past experiences at the site or in the area, current results of adult monitoring/trapping or other methods.

### Post Application Watering and Mowing

Optimum control is achieved if irrigation or rainfall occurs within 24 hours after application. Uniformity of application may be adversely affected if turf is mowed prior to irrigation/rainfall occurring.

### Application Precautions and Preparations

Keep children and pets off treated areas until spray has dried.

Application should not be made to turf that is frozen, waterlogged or is saturated with water. Turf in this condition will not allow the necessary vertical distribution of the active ingredient down into the soil.

BITHOR SC can be mixed with other insecticides, miticides, fungicides and fertilizers. Follow the label directions of all the products mixed, making sure not to exceed the labeled application rate of any individual product in the mixture. Any tank mixture that has not been tested before should be tested before full scale use by first mixing a small quantity of the mixture to ensure there is no physical or chemical incompatibility.

Because certain cultivars may be sensitive to the final spray solution, test the effects of applications of different rates and volumes of mixed solution on a small patch of a type of grass (with observations over one week to detect the occurrence of negative effects) before application of solutions to large areas of that type of grass.

### Application Equipment and Methods

Apply BITHOR SC mixed in water (according to the table below) as a spray of uniform, coarse droplets at a pressure low enough to eliminate drift from the target area. Properly calibrated application equipment must be used to apply BITHOR SC. Check calibration periodically to ensure that equipment is working properly.

### Reapplication

Reapplications may be necessary particularly in the event of high pest pressure. Reapply as necessary to achieve control using higher application rates as pest pressure and foliage area increases but make reapplications no more often than once every 7 days. **New York State only: Do make a single reapplication of BITHOR SC if there is renewed insect activity, but not sooner than two weeks after first application.**

### Turf Pest Application Use Rates

Use rates for BITHOR SC for turf pests are stated in fluid ounces of BITHOR SC per 1000 square feet and pints per acre. The application use rates listed below provide control of the listed pests under normal conditions. Apply BITHOR SC at 0.4 to 1.65 fluid ounces per 1000 square feet or 1.1 to 4.5 pints per acre, depending on the target pest. Recommended rates for specific pests within this range are given below. Use the higher application rates when maximum residual control is needed. However, applications of up to 1.65 fluid ounce per 1000 square feet or 4.5 pints per acre are permitted at the discretion of the applicator to control any pest. Do not apply more than 9 pints (0.5 lb of imidacloprid active ingredient, 0.4 lb bifenthrin) per acre or 3.3 fluid ounces per 1000 square feet of product per year to turf.

### Turf Application Use Rates

Use Rate Table for BITHOR SC for Turf Applications		
Use Rate	Fluid ounces BITHOR SC per 1,000 square feet (Range)	Pints BITHOR SC per acre (Range)
A	1.32⇒1.65	3.6⇒4.5
B	0.4⇒1.65	1.1⇒4.5

1 fluid ounce = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure BITHOR SC.

### Turf Application Volumes

Apply the indicated amount of BITHOR SC mixed in a volume of water sufficient to adequately distribute the active ingredient to the target area(s) and to wet all foliage.

The calculated amount of BITHOR SC can be applied in any volume of water provided the maximum label rate is not exceeded. Do not exceed the maximum label rate by applying

solution to an area smaller than intended when it was mixed and diluted unless such under dosing will not result in an application rate in excess of the maximum label rate.

### Calculating Amounts of BITHOR SC to Mix for Turf Pests

To mix and apply any amount of BITHOR SC for turf pests based on number of square feet, determine:

A = # of Square feet of area to be treated / 1000 (for example 5,500 sq. ft. / 1000 = 5.5)

B = Applicable BITHOR SC Use Rate (fluid ounces per 1000 square feet) for the target pest(s) from the Use Rate Table. If treating for more than one type of pest, select the highest rate.

Calculate the amount of BITHOR SC to mix for turf pests as follows:

Ounces BITHOR SC to use = A X B

Mix this amount of BITHOR SC in the amount of water needed to make the application.

To mix and apply any amount of BITHOR SC for turf pests based on number of acres, determine:

A = # of acres of area to be treated = square feet of area to be treated / 43,560 (1 acre = 43,560 sq. ft.)

B = Applicable BITHOR SC Use Rate (pints per acre) for the target pest(s) from the Use Rate Table. If treating for more than one type of pest, select the highest rate.

Calculate the amount of BITHOR SC to mix for turf pests as follows:

Pints BITHOR SC to use = A X B

Mix this amount of BITHOR SC in the amount of water needed to make the application.

1 Pint = 16 ounces

### Turf Pests Grouped by Use Rates

**Use Rate A:** Annual bluegrass weevil, *Aphodius spp.*, Asiatic garden beetle, Black turfgrass atenioid, Black vine weevil, European chafer, European crane fly, Frit fly, Green June beetle, Imported Fire Ant, Japanese beetle, Mole crickets, Northern masked chafer, Nuisance ants, Oriental beetle, *Phyllophaga spp.*, Southern masked chafer, Ticks

**Use Rate B:** Armyworms, Banks grass mites, Billbugs, Chinch bugs, Chinch Bugs, Centipedes, Crickets, Cutworms, Earwigs, Fleas, Grasshoppers, Leafhoppers, Mealybugs, Millipedes, Mites, Pillbugs, Sod webworms, Sowbugs

### Application Recommendations Against Specific Turf Pests

**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 Cooperative Extension Service for more specific information regarding application timing.

**Armyworms, Cutworms and Sod Webworms:** To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. The highest application rate may be necessary during periods of highest pest pressure if the grass is being maintained at a mowing height of 1 inch or greater.

**Billbug adults:** Applications should be made when adults first appear in the spring or when chewed or brown grass indicates damage. Degree day models have been developed to optimize application timing. Consult your Cooperative Extension Service for information specific to your region.

**Chinch Bugs:** Because they infest the base of grass plants, chinch bugs are often found in the thatch layer. Irrigation of the grass or high volume applications of solution can increase penetration of the solution to where the chinch bugs are located. Chinch bugs can be one of the most difficult turf pest to control. High application rates may be required to achieve effective control, particularly in the middle of the summer when both nymphs and adults are present.

**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.

**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.

**Imported Fire Ants:** Combine broadcast treatments to control newly invading ants and mound treatments to eliminate existing ant colonies. If the soil is not moist, irrigate before application or use a high volume application. Broadcast treatments should be applied at 1.65 fluid oz. per 1,000 square feet. Mounds should be treated by diluting 1/3 fluid oz. (2 teaspoons) of BITHOR SC 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.

**Mole Cricket adults:** Adult mole cricket control is difficult to attain because of continuous invasion during the early spring. Applications, made as late in the day as possible, should be watered in with 0.5 inches of water immediately following treatment. Irrigating dry soil before application will bring crickets closer to the surface.

**Mole Cricket nymphs:** Grass areas that received intense adult mole cricket pressure in the spring should be treated immediately prior to peak egg hatch when young nymphs are located near the soil surface. 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, made as late in the day as possible, should be watered in with 0.5 inches of water immediately following treatment. Irrigating dry soil before application will bring crickets closer to the surface.

**Ticks (Including ticks that may transmit Lyme Disease and Rocky Mountain Spotted fever):** Treat the entire area where exposure to ticks may occur. Avoid spot applications. 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 two year life cycle that 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 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 their larvae, nymphs and adults.

## FOLIAR AND BROADCAST APPLICATION FOR ORNAMENTAL PESTS

BITHOR SC, applied to foliage and broadcast on the soil, controls or suppresses a wide range of pests on trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, ground covers, bedding plants and foliage plants including plants in interior plantscapes. (Non-bearing trees are perennial plants that will not produce a harvestable agricultural commodity within the next 12 months.) BITHOR SC is not for use on plants being grown for sale, fruit, nut or commercial seed production or for research purposes.

BITHOR SC is a systemic insecticide meaning it can be translocated by the plant's vascular system from the roots up into the body of the plant. This means optimum effectiveness of BITHOR SC is realized when BITHOR SC is applied on or near a growing portion of the plant from which it may be translocated to other parts of the plant. Combining BITHOR SC with a nitrogen containing fertilizer may accelerate or otherwise enhance the uptake of the active ingredient into the plant. Translocation of soil directed applications made to woody stemmed plants can be delayed by up to 60 days. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control. Foliar applications of BITHOR SC also have local systemic activity against insect pests.

For outdoor ornamentals, broadcast applications cannot exceed a total of 9.0 pints (0.5 lb of imidacloprid and 0.4 lb of bifenthrin) per acre per year.

### Application Sites

For use on ornamental plants including but not limited to trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, ground covers, bedding plants and foliage plants including plants in interior plantscapes.

### Application Preparation

BITHOR SC can be mixed with other insecticides, miticides, fungicides and fertilizers. Follow the label directions of all the products mixed, making sure not to exceed the labeled application rate of any individual product in the mixture. Any tank mixture that has not been tested before should be tested before full scale use by first mixing a small quantity of the mixture to ensure there is no physical or chemical incompatibility.

### Foliar Application

#### Ornamental Application to Control Ants

BITHOR SC can be used to indirectly control ants when applied to control aphids, scale insects, mealybugs and other sucking insects on ornamentals thereby limiting the amount of honeydew available.

#### Foliar Application Volumes and Application Methods

BITHOR SC mixes readily with water and may be used in many types of application equipment. Mix required amount of product (from the table below) with the amount of water required to uniformly wet foliage and apply as desired dependent upon the selected use pattern. When making foliar applications on hard to wet foliage such as holly, pine, or ivy, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the area sprayed, as would be used in a dilute application. Begin treatments prior to establishment of high pest populations. Reapply as needed.

#### Foliar Application Use Rates

Use rates for BITHOR SC for foliar application for ornamental pests are stated in fluid ounces (and milliliters) of BITHOR SC per 100 gallons of water. The application rates listed below provide control of the listed pests under normal conditions. Apply BITHOR SC at 6.7 to 21.3 fluid ounces per 100 gallons, depending on the target pest. Recommended rates for specific pests within this range are given below. Use the higher application rates when maximum residual control is needed. However, applications of up to 21.3 fluid ounces per 100 gallons are permitted at the discretion of the applicator to control any pest.

Use Rate Table for BITHOR SC for Foliar Applications		
Use Rate	Fluid ounces BITHOR SC per 100 gallons of water	Milliliters BITHOR SC per 100 gallons of water
A	21.3	630
B	10.7⇒21.3	315⇒630
C	6.7⇒21.3	200⇒630

1 fluid ounce = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure BITHOR SC.

### Ornamental Pests Controlled by Foliar Application

**Use Rate A:** Ants, Beet Armyworm, Black vine weevil adult, Broad mites, Budworms, Scale crawlers, Citrus thrips, Clover mites, Diaprepes (adults), European red mites, Fleabeetles, Fungus gnats (adults), Grasshoppers, Leafrollers, Mites, Mosquitoes, Orchid weevil, Pine needle scales (crawlers), Plant bugs, San Jose scale (crawlers), Spider Mites, Thrips, Tip moths, Twig borers, Wasps

**Use Rate B:** Bagworms, Cutworms, Fall webworms, Gypsy moth caterpillars, Leaf feeding caterpillars, Tent caterpillars

**Use Rate C:** Adelgids, Aphids, Japanese beetles, Lacebugs, Leaf beetles (including elm and viburnum leaf beetles), Leafhoppers (including glassy-winged sharpshooter), Mealybugs, Psyllids, Sawfly larvae, Thrips (suppression), Treehoppers, Whiteflies

### Broadcast Application

#### Broadcast Application Volumes and Application Method

Mix required amount of product in a quantity of water sufficient to uniformly treat area. Use a minimum of 2 gallons of water per 1000 square feet. To achieve optimum control, irrigate treated area in order to incorporate treatment into upper level of soil.

Do not exceed the maximum label rate by applying solution to an area smaller than intended when it was mixed and diluted unless such under dosing will not result in an application rate in excess of the maximum label rate.

For outdoor ornamentals, broadcast applications cannot exceed a total of 9.0 pints (0.5 lb of imidacloprid and 0.4 lb of bifenthrin) per acre or 3.3 fluid ounces per 1000 square feet per year.

### Broadcast Application Use Rates

Use rates for BITHOR SC for broadcast application for ornamental pests are stated in fluid ounces (and milliliters) of BITHOR SC per 1000 square feet. The application rates listed below provide control of the listed pests under normal conditions. Apply BITHOR SC at 0.4 to 1.65 fluid ounces per 1000 square feet, depending on the target pest. Recommended rates for specific pests within this range are given below. Use the higher application rates when maximum residual control is needed.

Use Rate Table for BITHOR SC for Broadcast Applications		
Use Rate	Fluid ounces BITHOR SC per 1000 square feet	Milliliters BITHOR SC per 1000 square feet
A	1.32⇒1.65	40⇒50
B	0.4⇒0.85	12⇒26

### Ornamental Pests Controlled by Broadcast Application

**Use Rate A:** White grub larvae (such as Japanese beetle larvae, Chafers, *Phyllophaga spp.*, Asiatic garden beetle, Oriental beetle), Imported Fire Ants, Nuisance Ants

**Use Rate B:** Centipedes, Crickets, Earwigs, Pillbugs, Sowbugs, Armyworms, Cutworms, Sod webworms

### SOIL INJECTION AND SOIL DRENCH FOR ORNAMENTAL PESTS

BITHOR SC, applied as a soil drench or soil injection, controls or suppresses a wide range of insects on trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, foliage plants, ground covers and interior plantscapes. (Non-bearing trees are perennial plants that will not produce a harvestable agricultural commodity within the next 12 months.) BITHOR SC is not for use on plants being grown for sale, fruit, nut or commercial seed production or for research purposes.

BITHOR SC is a systemic insecticide meaning it can be translocated by the plant's vascular system from the roots up into the body of the plant. This means optimum effectiveness of BITHOR SC is realized when BITHOR SC is applied on or near a growing portion of the plant from which it may be translocated to other parts of the plant. Combining BITHOR SC with a nitrogen containing fertilizer may accelerate or otherwise enhance the uptake of the active ingredient into the plant. Translocation of soil directed applications made to woody stemmed plants can be delayed by up to 60 days. For this reason, applications should be made prior to anticipated pest infestation to achieve optimum levels of control.

Applications to trees for the control of existing borer infestations may not prevent the eventual loss of the tree due to existing damage already caused by the pest and stress to the tree caused by the pest infestation.

### Application Sites

For use on ornamental plants including but not limited to trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, ground covers, bedding plants and foliage plants including plants in interior plantscapes.

### Application Preparation

BITHOR SC can be mixed with other insecticides, miticides, fungicides and fertilizers. Follow the label directions of all the products mixed, making sure not to exceed the labeled application rate of any individual product in the mixture. Any tank mixture that has not been tested before should be tested before full scale use by first mixing a small quantity of the mixture to ensure there is no physical or chemical incompatibility.

### Ornamental Pests Controlled by Soil Injection or Drench Application

Adelgids, Aphids, Armored scales (suppression), Black vine weevil larvae, Eucalyptus longhorned borer, Flatheaded borers (including bronze birch borer and alder borer), Japanese beetles, Lace bugs, Leaf beetles (including elm and viburnum leaf beetles), Leafhoppers (including glassy-winged sharpshooter), Leaf miners, Mealybugs, Pine tip moth larvae, Psyllids, Royal palm bugs, Sawfly larvae, Soft scales, Thrips (suppression), White grub larvae, Whiteflies.

### Soil Injection for Trees

Soil Injection is not allowed in Nassau and Suffolk Counties of New York

#### Soil Injection Use Rate for Trees

Use Rate Table for BITHOR SC for Soil Injection for Trees
0.45 to 0.9 fluid ounces per inch of trunk diameter (D. B. H.) / 14 to 27 milliliters per inch of trunk diameter (D. B. H.)

### Soil Injection Volumes and Application Method for Trees

Mix the calculated amount of BITHOR SC in the amount of water determined to be adequate for the treatment to be adequately dispersed. Apply at a low pressure according to one of the two following methods. Make a minimum of 4 injection holes per tree. For optimum control, maintain a high level of soil moisture in the treated area for 7 to 10 days after treatment.

Grid Injection: Evenly space holes on 2.5 foot centers in a grid pattern in the soil beneath the tree's branches/foliage out to the tree's drip line.

Basal Injection: Evenly space injection holes around the base of the tree no more than 12 inches out from the tree.

### Soil Drench for Trees

#### Soil Drench Use Rate for Trees

Use Rate Table for BITHOR SC for Soil Drench for Trees
0.45 to 0.9 fluid ounces per inch of trunk diameter (D. B. H.) / 14 to 27 milliliters per inch of trunk diameter (D. B. H.)

### Soil Drench Volume and Application Method for Trees

Mix the calculated amount of BITHOR SC in the amount of water determined to be adequate for the solution to be adequately dispersed. Apply solution at a rate of no less than 10 gallons per 1000 square feet around the base of the tree directed to the root zone. If present, remove any barrier to the movement of the solution into the soil such as a plastic vapor barrier.

## Soil Injection for Shrubs

Soil Injection is not allowed in Nassau and Suffolk Counties of New York

### Soil Injection Use Rate for Shrubs

Use Rate Table for BITHOR SC for Soil Injection for Shrubs
0.45 to 0.9 fluid ounces per foot of shrub height
14 to 27 milliliters per foot of shrub height

### Soil Injection Volume and Application Method for Shrubs

Mix the calculated amount of BITHOR SC in the amount of water determined to be adequate for the treatment to be adequately dispersed. Apply to individual plants using dosage indicated at a low pressure, making a minimum of 4 injection holes per shrub. For optimum control, maintain a high level of soil moisture in the treated area for 7 to 10 days after treatment.

## Soil Drench for Shrubs

### Soil Drench Use Rate for Shrubs

Use Rate Table for BITHOR SC for Soil Drench for Shrubs
0.45 to 0.9 fluid ounces per foot of shrub height
14 to 27 milliliters per foot of shrub height

### Soil Drench Volumes and Application Method for Shrubs

Mix the calculated amount of BITHOR SC in the amount of water determined to be adequate for the solution to be adequately dispersed, but at a rate no less than 10 gallons per 1000 square feet around the base of each shrub directed to the root zone. If present, remove any barrier to the movement of the solution into the soil such as a plastic vapor barrier

## Soil Incorporation for Flowers and Groundcovers

Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.

### Soil Incorporation Use Rate for Flowers and Groundcovers

Use Rate Table for BITHOR SC for Soil Incorporation for Flowers and Groundcovers
1.32 to 1.65 fluid ounces per 1000 square feet
40 to 50 milliliters per 1000 square feet

## ATTENTION

Do not graze treated areas or use clippings from treated areas for feed or forage.

Avoid runoff or puddling of irrigation water following application.

Do not apply by air.

Do not apply by any type of irrigation system.

## IMPORTANT READ BEFORE USE

**NOTICE:** Read the entire Directions for Use, Conditions of Sale, Disclaimer of Warranties and Limitations of Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded. By using this product, user or buyer accepts the following conditions, disclaimer of warranties and limitations of liability.

**CONDITIONS OF SALE:** The Directions for Use of this product are believed to be adequate and must be followed carefully. However, because of manner of use and other factors beyond the control of ENSYSTEX IV, Inc., it is impossible for ENSYSTEX IV to eliminate all risks associated with the use of this product such as ineffectiveness or unintended consequences. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold ENSYSTEX IV harmless for any claims relating to such factors.

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Revised 06/10

# Material Safety Data Sheet

## BITHOR SC

Emergency Phone 1-800-424-9300 (Chemtrec)

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** BITHOR SC

**CHEMICAL NAME:** Imidacloprid plus Bifenthrin

**CHEMICAL FAMILY:** Chloro-nicotinyl plus pyrethroid insecticide

**COMPANY:** Ensystem IV, Inc.

**ADDRESS:** 2713 Breezewood Ave., Fayetteville, NC 28303

**DAYTIME PHONE:** 1-866-367-8467

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

Imidacloprid 5.0% CAS# 138261-41-3

Bifenthrin 4.0% CAS# 82657-04-3

### 3. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** Caution. Harmful if swallowed or absorbed through the skin.

**PHYSICAL STATE:** Viscous liquid suspension

**ODOR:** Mild

**APPEARANCE:** Off white to light brown

**ROUTES OF EXPOSURE:** Inhalation, skin contact, eye contact

#### IMMEDIATE EFFECTS

**EYE:** May cause mild eye irritation. Avoid contact with eyes.

**SKIN:** May cause slight irritation. Avoid contact with skin and clothing.

**INGESTION:** Harmful if swallowed. Do not take internally.

**INHALATION:** Inhalation not likely.

### 4. FIRST AID MEASURES

**EYES:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**SKIN:** Take off contaminated clothing and shoes immediately. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

**INGESTION:** Call a poison control center or doctor immediately for treatment advice. Rinse out mouth and 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. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

**INHALATION:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

**NOTES TO MEDICAL DOCTOR:** This product contains a pyrethroid. Treat symptomatically. There is no antidote.

### 5. FIRE FIGHTING MEASURES

**FLASH POINT:** >93°C / > 199 °F

**EXTINGUISHING MEDIA:** Water spray, Carbon dioxide, dry chemical powder or appropriate foam.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hydrogen chloride gas, Nitrogen oxides.

**SUITABLE EXTINGUISHING MEDIA:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**FIRE FIGHTING PROCEDURES:** Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke, gases or vapors generated. Keep out of smoke. Fight fire from an upwind position. Cool closed containers exposed to fire with water spray. Dike area to prevent runoff and contamination of water sources. Equipment or materials involved in pesticide fires may become contaminated.

### 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTION(S):** Isolate and post spill area. Wear protective clothing and personal protective equipment as prescribed in Section 8, "Exposure Controls/Personal Protection". Keep unprotected persons and animals out of the area.

**METHOD FOR CLEANING UP:** Dike area to prevent runoff. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder,

universal binder, sawdust). Clean contaminated floors and objects thoroughly, observing environmental regulations. Collect and transfer the product into a properly labeled and tightly closed container. Do not allow material to enter streams, sewers, or other waterways. You may contact Ensystem III at 1-866-367-8467 for assistance if necessary. You may also contact Chemtrec at 1-800-424-9300 for assistance.

### 7. HANDLING AND STORAGE

**STORAGE PROCEDURES:** Store in a cool, dry, well-ventilated and preferably locked storage area. Keep out of reach of children and animals. Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal. Store in original containers only. Keep storage container tightly closed. Do not freeze.

**WORK/HYGENIC PROCEDURES:** Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**ENGINEERING CONTROLS:** General air replacement or dilution ventilation is sufficient for material handling and storage.

**PERSONAL PROTECTIVE EQUIPMENT:** Applicators and other handlers must wear long-sleeved shirt and long pants and shoes plus socks (PPE). Follow manufacturer's instructions for cleaning/maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

**USER SAFETY RECOMMENDATIONS:** Wash hands before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**EXPOSURE LIMITS:** Glycerine CAS # 56-81-5 ACGIH TWA 10 mg/m3 Form of exposure - Mist

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Off-white to light brown

**PHYSICAL STATE:** Viscous liquid suspension

**ODOR:** Mild

**WATER SOLUBILITY:** Dispersible

### 10. STABILITY AND REACTIVITY

**STABILITY:** Stable under recommended storage conditions.

### 11. TOXICOLOGICAL INFORMATION

The non-acute information pertains to the active ingredient.

#### ACUTE TOXICITY

**EYE EFFECTS:** Mild eye irritation (rabbits)

**SKIN SENSITIZATION:** No (guinea pig)

**SKIN IRRITATION:** Slight (rabbit)

**ACUTE ORAL TOXICITY FEMALE RAT:** LD50 > 1,030 mg/kg

**ACUTE DERMAL TOXICITY FEMALE RAT:** LD50: > 5,000 mg/kg

**ACUTE INHALATION TOXICITY FEMALE COMBINED RAT:** LC50 - 4-hr exposure to liquid aerosol: 2.03 mg/l (actual). LC50: 1-hr exposure to liquid aerosol: 8.12 mg/l (Extrapolated from 4 hr. LC50.)

#### SUBCHRONIC TOXICITY

##### IMIDACLOPRID TECHNICAL

In a 3-week dermal toxicity study, rabbits treated with imidacloprid showed no local or systemic effects at levels up to and including 1000 mg/kg, the limit dose. In a 4-week inhalation study, rats exposed to high concentrations of imidacloprid exhibited decreased body weight gains and changes in clinical chemistries and organ weights.

##### BIFENTHRIN TECHNICAL

In a 21-day dermal toxicity study in rabbits, bifenthrin caused a loss of muscle coordination. In subchronic toxicity studies, tremors were observed in rats and dogs following dietary exposure to bifenthrin.

## CHRONIC TOXICITY

### IMIDACLOPRID TECHNICAL

In chronic dietary studies in rats and dogs exposed to imidacloprid, the target organs were the thyroids and/or liver.

### BIFENTHRIN TECHNICAL

The principal effect observed in rats, mice and dogs from long-term exposure to bifenthrin was clinical signs of toxicity (e.g., tremors).

## ASSESSMENT CARCINOGENICITY

### IMIDACLOPRID TECHNICAL

In oncogenicity studies in rats and mice, imidacloprid was not considered carcinogenic in either species.

### BIFENTHRIN TECHNICAL

Bifenthrin was not carcinogenic in a chronic feeding study in rats. In an oncogenicity study in mice, there was an increased incidence of tumors (urinary bladder, liver, lung). EPA classified bifenthrin as Group C (possible human carcinogen) chemical based on urinary bladder tumors in mice. The Agency used a nonlinear methodology approach for determining the Margin of Exposure (MOE) for the estimation of cancer risk. Therefore, EPA has a reasonable certainty that no harm will result from exposure to residues of bifenthrin.

## CARCINOGENICITY

**IARC:** Not listed

**NTP:** Not listed

**OSHA:** Not listed

## REPRODUCTIVE AND DEVELOPMENTAL TOXICITY

### IMIDACLOPRID TECHNICAL

**REPRODUCTION:** In a two-generation reproduction study in rats, imidacloprid was not a primary reproductive toxicant. Offspring exhibited reduced body weights at the high dose and in conjunction with maternal toxicity.

**DEVELOPMENTAL TOXICITY:** In developmental toxicity studies in rats and rabbits, there was no evidence of an embryotoxic or teratogenic potential for imidacloprid. In both species, developmental effects were observed only at high doses and in conjunction with maternal toxicity.

### BIFENTHRIN TECHNICAL

**REPRODUCTION:** Bifenthrin is not a reproductive toxicant based on a multigeneration reproduction study in rats.

**DEVELOPMENTAL TOXICITY:** Bifenthrin is not a developmental toxicant based on developmental toxicity studies in rats and rabbits.

## NEUROTOXICITY

### IMIDACLOPRID TECHNICAL

In acute and subchronic neurotoxicity screening studies in rats, imidacloprid produced slight neurobehavioral effects in each study at the highest dose tested. There were no correlating morphological changes observed in the neural tissues.

In a one-generation developmental neurotoxicity screening study in rats, offspring exposed to imidacloprid showed decreased motor activities. These effects occurred at the highest dose tested and in conjunction with maternal toxicity. There were no correlating morphological changes observed in the neural tissues.

### BIFENTHRIN TECHNICAL

Bifenthrin did not cause delayed neurotoxicity in hens. In acute and subchronic neurotoxicity screening studies in rats, transient well-defined neurobehavioral effects were seen without correlating morphological changes in the neural tissues.

## MUTAGENICITY

### IMIDACLOPRID TECHNICAL

The imidacloprid mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

### BIFENTHRIN TECHNICAL

Bifenthrin is not considered genotoxic or mutagenic based on in vitro and in vivo mutagenicity studies.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL PRECAUTIONS:** This pesticide is highly toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

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.

**ECOLOGICAL INFORMATION:** This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

## 13. DISPOSAL CONSIDERATIONS

**GENERAL DISPOSAL GUIDANCE:** Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of at an approved waste facility in accordance with applicable Federal, state and local laws and regulations.

**CONTAINER DISPOSAL:** Follow advice on product label and/or leaflet.

## 14. TRANSPORT INFORMATION

**DOT CLASSIFICATION:** Not regulated.

**FREIGHT CLASSIFICATION:** Insecticides or Fungicides, N.O.I., other than poison

## 15. REGULATORY INFORMATION

**CERCLA REPORTABLE QUANTITY:** No components listed.

**Sara Title III – section 313 – Toxic Chemical Release Reporting:**

Bifenthrin 82657-04-3 1.0%

## 16. OTHER INFORMATION

NFPA 704: (National Fire Protection Association)

Health - 2 Flammability - 1 Reactivity - 1 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Revised 03/07