

UP-Star® EC TT&O

Termiticide/Insecticide

For use by individuals/firms licensed or registered by the State to apply termiticide products.

States may have more restrictive requirements regarding qualifications of persons using this product.

Consult the structural pest control regulatory agency of your State prior to use of this product.

For use by pest control operators or commercial applicators to control pests on lawns and ornamental plants.

Active Ingredient:	By Wt.
Bifenthrin*	23.4%
Other Ingredients**	76.6%
Total	100.0%

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

**Contains petroleum distillates.

UP-Star® EC TT&O termiticide/insecticide contains 2 pounds active ingredient per gallon.

EPA Reg. No. 70506-209

EPA Est. No. 5905-GA-1

KEEP OUT OF REACH OF CHILDREN WARNING

FIRST AID

If swallowed	<ul style="list-style-type: none">• Immediately call a poison control center or doctor.• Do not induce vomiting unless told to do so by a poison control center or doctor.• Do not give any liquid to the person.• Do not give anything by mouth to an unconscious person.
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.
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 in eyes	<ul style="list-style-type: none">• Hold eye open and rinse slowly and gently with water for 15-20 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact the Rocky Mountain Poison Center at 1-866-673-6671 for emergency medical assistance.

NOTE TO PHYSICIAN: This product is a pyrethroid. This product also contains aromatic hydrocarbons. Because of the risk of hydrocarbon pneumonitis if even tiny amounts are aspirated into the lung during emesis, consideration should be given to gastric lavage with endotracheal tube in place. Treatment is symptomatic and supportive. Animal and vegetable fats, milk, cream and alcohol may increase absorption and should not be administered.

FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC 1-800-424-9300.

PRECAUTIONARY STATEMENTS

Hazards to Humans (and Domestic Animals)

Warning. May be fatal if swallowed. Causes skin irritation and moderate eye irritation. Do not get on skin or on clothing. Avoid breathing vapors or spray mist, and contact with eyes. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash contaminated clothing before reuse.

All pesticide handlers (mixers, loaders and applicators) must wear long-sleeved coveralls worn over a minimum of short-sleeved shirt and short pants, socks, chemical-resistant footwear, chemical-resistant gloves and protective eyewear. After the product is diluted in accordance with label directions for use, shirts, pants, socks, shoes and waterproof gloves are sufficient. In addition, all pesticide handlers must wear a respiratory protection device¹ when handling the concentrate or when working in a non-ventilated space. All pesticide handlers must wear protective eyewear when working in a non-ventilated space or applying termiticide by rodding or sub-slab injection.

¹NIOSH approved respirator with any R, P or HE filter or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any R, P or HE prefilter.

When treating adjacent to an existing structure, the applicator must check the area to be treated, and immediately adjacent areas of the structure, for visible and accessible cracks and holes to prevent any leaks or significant exposures to persons occupying the structure. People present or residing in the structure during application must be advised to remove their pets and themselves from the structure if they see any signs of leakage. After application, the applicator is required to check for leaks. All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy contaminated areas of the structure until the clean-up is completed.

Environmental Hazards

This pesticide is extremely toxic to fish and 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 by cleaning of equipment or disposal of equipment washwaters. Do not apply when weather conditions favor drift from treated areas. Care should be used when spraying to avoid fish and reptile pets in/around ornamental ponds.

This pesticide is toxic to bees. Do not apply this product or allow it to drift to crops or weeds on which bees are actively foraging. Additional information may be obtained from your Cooperative Extension Service.

Physical/Chemical Hazards

Do not use or store near heat or open flame.

Do not apply this product in or on electrical equipment due to the possibility of shock hazard.

Net Contents: 1 Gallon

 **UPI United Phosphorus, Inc.**

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DIRECTIONS FOR USE

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

Aerial application is prohibited.

Application in greenhouses and nurseries is prohibited.

Shake well before using.

STORAGE AND DISPOSAL

Pesticide Storage: If crystals are observed, warm material to above 60°F by placing container in warm location. Shake or roll container periodically to redissolve solids. Do not use external source of heat for warming container.

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 containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

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, commercial clay or gel absorbent. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

Pesticide Disposal: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Disposal: Metal or Plastic 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.

Returnable/Refillable Containers: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

General Information

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 for aesthetic purposes or climatic modifications and being grown in interior plantscapes, ornamental gardens or parks, or lawns and grounds.

TERMITE CONTROL

This product works by creating a barrier between the wood and the termites in the soil. In order to work properly, the dilute emulsion must be well dispersed in the soil. As a rule, it is useful to remove all non-essential wood and cellulose containing materials from around the area to be treated. Also repair faulty plumbing and/or construction grade to eliminate termite access to moisture.

The service technician who applies this product must be familiar with current control practices such as: trenching, rodding, sub-slab injection, coarse fan spraying of soil surfaces, crack and crevice (void) injection, excavated soil treatment, and brush or spray applications to infested or susceptible wood. Correct usage of these techniques is essential to control or prevent infestations by subterranean Termites (*Coptotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*). The biology and behavior of the species involved, as well as the suspected location of the colony and the severity of the infestation should be considered

by the service technician in determining the appropriate control practices to use.

In order to choose the appropriate procedures the service technician must consider variables including design of the structure, location of heating, ventilation, and air conditioning (HVAC) systems, water table, soil type, soil compaction, grade conditions, and location and type of domestic water supplies and utilities.

For advice concerning current control practices for specific local conditions, consult resources in structural pest control and state regulatory agencies.

Subterranean Termite Control

Important: Avoid contamination of public and private water supplies by following these precautions:

- Prevent siphonage of pesticide back into water supplies by employing anti-backflow equipment or procedures.
- Do not contaminate cisterns or wells.
- Do not treat soil that is water saturated or frozen.

For information on the recommended distances of wells from treated areas, consult state and local specifications. If such regulations do not exist, refer to Federal Housing Administration (H.U.D.) Specifications for guidance.

Note: Crawl spaces are to be considered as part of the interior of the structure.

Critical Areas: Special attention should be paid to areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and locations where cement constructions have been poured next to the foundation (for instance, stairs, patios and slab additions).

Structures with Wells/Cisterns Inside Foundations

Structures that contain wells or cisterns within the foundation of a structure can only be treated using the following techniques:

1. Do not treat soil while it is beneath or within the foundation or along the exterior perimeter of a structure that contains a well or cistern. The treated backfill method must be used if soil is removed and treated outside/away from the foundation. The treated backfill technique is described as follows:
 - a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material or into a wheelbarrow.
 - b. Treat the soil at the rate of 4 gallons of dilute emulsion per 10 linear feet per foot of depth of the trench, or 1 gallon per 1.0 cubic feet of soil. See "Mixing Directions" section of the label. Mix thoroughly into the soil taking care to contain the liquid and prevent runoff or spillage.
 - c. After the treated soil has absorbed the diluted emulsion, replace the soil into the trench.
2. Treat infested and/or damaged wood in place using an injection technique such as described in the "Control of Wood Infesting Insects" section of this label.

Structures with Adjacent Wells/Cisterns and/or Other Water Bodies

Applicators must inspect all structures with nearby water sources such as wells, cisterns, surface ponds, streams, and other bodies of water and evaluate, at a minimum, the treatment recommendations listed below prior to making an application.

1. Prior to treatment, if feasible, expose the water pipe(s) coming from the well to the structure, if the pipe(s) enter the structure within 3 feet of grade.
2. Prior to treatment, applicators are advised to take precautions to limit the risk of applying the termiticide into subsurface drains that could empty into any bodies of water. These precautions include evaluating whether application of the termiticide to the top of the footer may result in contamination of the subsurface drain. Factors such as depth to the drain system

and soil type and degree of compaction should be taken into account in determining the depth of treatment.

- When appropriate (i.e., on the water side of the structure), the treated backfill technique (described above) can also be used to minimize offsite movement of termiticide.

Application Rate:

Use a 0.06% emulsion for subterranean termites. For other pests on the label use specific listed rates.

Mixing Directions: Mix the termiticide use dilution in the following manner.

Fill tank 1/4 to 1/3 full.

Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose.

Add appropriate amount of UP-Star EC TT&O termiticide/insecticide.

Add remaining amount of water. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

UP-Star EC TT&O may also be mixed into full tanks of water, but requires substantial agitation to insure uniformity of the emulsion.

To prepare a 0.06% water emulsion, ready to use, dilute 1 quart of UP-Star EC TT&O with 99.75 gallons of water.

Mixing: Use the use dilution chart below to determine the amount of UP-Star EC TT&O for a given volume of finished emulsion:

Amount of UP-Star EC TT&O (Gallons except where noted)			
Emulsion Concentration	Amount of UP-Star EC TT&O	Amount of Water	Quantity of Finished Emulsion (gallons)
0.06%	0.32 oz.	127.68 oz.	1
	1.6 oz.	4.99	5
	3.2 oz.	9.975	10
	8 oz.	24.94	25
	0.5 qt.	49.875	50
	0.75 qt.	74.8125	75
	1 qt.	99.75	100
	1.5 qt.	149.62	150
	2 qt.	199.5	200
	0.12% (For termite applications, only use this rate in conjunction with the application volume adjustments as listed in the section below or in the foam or underground service application sections.)	0.64 oz.	127.36 oz.
3.2 oz.		4.975	5
6.4 oz.		9.95	10
0.5 qt.		24.875	25
1 qt.		49.75	50
1.5 qt.		74.625	75
2 qt.		99.5	100
3 qt.		149.25	150
1		199	200

Units of measure: 1 pint = 16 fluid ounces (oz.)
1 quart = 2 pints = 4 cups = 32 fluid ounces (oz.)

Application Volume: To provide maximum control and protection against termite infestation apply the specified volume of the finished water emulsion and active ingredient as set forth in the directions for use section of this label. If soil will not accept the labeled application volume, the volume may be reduced provided there is a corresponding increase in concentration so that the amount of active ingredient applied to the soil remains the same.

Note: Large reductions of application volume reduce the ability to obtain a continuous barrier. Variance is allowed when volume and concentration are consistent with label directed rates and a continuous barrier can still be achieved.

For pre and post construction treatments, the volume of the 0.12% emulsion may be reduced by half the labeled volume. See Volume Adjustment Chart below.

Note that when volume is reduced, the hole spacing for subslab injection and soil rodding may also need to be adjusted to account for the lower volume dispersal of UP-Star EC TT&O in the soil.

Volume Adjustment Chart		
Rate (% emulsion)	0.06%	0.12%
Volume allowed:		
Horizontal (gallons emulsion/10 ft. ²)	1.0 gallons	0.5 gallons
Vertical (gallons emulsion/10 lin. ft.)	4.0 gallons	2.0 gallons

After Treatment: All holes in commonly occupied areas into which UP-Star EC TT&O has been applied must be plugged. Plugs must be of a non-cellulose material or covered by an impervious, non-cellulose material.

Pre-Construction Subterranean Termite Treatment

Pre-Construction Treatment: Do not apply at a lower dosage and/or concentration than specified on this label for applications prior to the installation of the finished grade.

When treating foundations deeper than 4 feet, apply the termiticide as the backfill is being replaced, or if the construction contractor fails to notify the applicator to permit this, treat the foundation to a minimum depth of 4 feet after the backfill has been installed. The applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to a minimum depth of 4 feet. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

Effective pre-construction subterranean termite control requires the establishment of an unbroken vertical and/or horizontal insecticidal barrier. To meet federal termite proofing requirements, follow the procedures in the most current edition of the Housing and Urban Development (H.U.D.) Minimum Property Standards.

Instructions for Horizontal Barriers

A horizontal barrier may be established wherever treated soil will be covered by a slab, such as footing trenches, slab floors, carports, and the soil beneath stairs and crawl spaces.

To create a horizontal insecticidal barrier, apply the emulsion at the rate of 1 gallon per 10 square feet to fill soil. If fill consists of washed gravel or other coarse material, apply 1.5 gallons of emulsion per 10 square feet so that the emulsion will reach the soil beneath the fill. Apply using a low pressure spray (less than 50 psi) using a coarse spray nozzle. If slab will not be poured the same day as treatment, cover treated soil with a water-proof barrier such as polyethylene sheeting. This is not necessary if foundation walls have been installed around the treated soil.

Instructions for Vertical Barriers

Establish a vertical barrier in areas such as around the base of foundations, plumbing, utility entrances, back-filled soil against foundation walls and other critical areas.

To create a vertical barrier in soil, apply the emulsion at a rate of 4 gallons per 10 linear feet per foot of depth, distributing the treatment as evenly as possible.

- When rodding or trenching, ensure that emulsion reaches the top of the footing. Space rod holes so that a continuous insecticidal barrier is established.

- b. Take care to avoid soil wash-out around the footing.
- c. Trenches need not be wider than 6 inches. Mix the emulsion with the soil as it is being replaced in the trench.
- d. For a monolithic slab, an inside vertical barrier may not be required.

Treat hollow block voids at a rate of 2 gallons of emulsion per 10 linear feet to ensure that the emulsion will reach the top of the footing.

Prior to each application, applicators must notify the general contractor, construction superintendent, or similar responsible party, of the intended termiticide application and intended sites of application and instruct the responsible person to notify construction workers and other individuals to leave the area to be treated during application and until the termiticide is absorbed into the soil.

Post Construction Subterranean Termite Treatment

Use a 0.06% emulsion for post-construction treatment, which shall be made by injection, rodding, and/or trenching or coarse fan spray with pressures not exceeding 25 psi at the nozzle. Take care to avoid soil wash-out around the footing.

Do not apply emulsion until location of wells, radiant heat pipes, water and sewer lines and electrical conduits are known and identified. Take care to avoid puncturing and injection into these elements.

Foundations: For applications made after the final grade is installed, the applicator must trench and rod into the trench or trench along the foundation walls and around pillars and other foundation elements, at the rate prescribed from grade to the top of the footing. When the footing is more than four (4) feet below grade, the applicator must trench and rod into the trench or trench along the foundation walls at the rate prescribed to a minimum depth of four feet. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity.

When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. However, in no case should a structure be treated below the footing.

Slabs

Establish vertical barriers by sub-slab injection within the structure and trenching and rodding or trenching outside at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Take care to distribute the treatment evenly. Do not allow treatment to extend below the bottom of the footing.

Treat along the outside of the foundation and beneath the slab on the inside of foundation walls. Treatment may also be necessary beneath the slab along both sides of interior footing-supported walls, one side of interior partitions and along all cracks and expansion joints. Establish horizontal barriers by long-rodding or by grid pattern injection vertically through the slab.

- a. Holes should be drilled in the slab and/or foundation to allow a continuous insecticidal barrier to be applied.
- b. When footing is 1 foot, dig a narrow trench about 6 inches wide along the outside of the foundation walls. The trench should not extend below the bottom of the footing. Apply the emulsions to the trench and soil using 4 gallons of emulsion per 10 linear feet per foot of depth as the soil is replaced in the trench.
- c. If foundation is deeper than 1 foot, follow rates for basements.
- d. Exposed soil and wood in bath traps may be treated with a 0.06% emulsion.

Basements

Apply at a rate of 4 gallons of emulsion per 10 linear feet per foot of depth. Where the footing is more than 1 foot of depth from grade to the bottom of the foundation, apply by trenching and rodding or trenching. If the footer is more than four feet below grade, the applicator may trench and rod or trench along foundation walls at the rate prescribed for four feet of depth. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity, but, in no case should a structure be treated below the footer. Sub-slab injection may be necessary along the inside of foundation walls, along cracks and partition walls, around pipes, conduits, piers, and along both sides of interior footing-supported walls.

Accessible Crawl Spaces: For crawl spaces, apply vertical termiticide barriers at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth from grade to the top of the footing, or if the footing is more than 4 feet below grade, to a minimum depth of 4 feet. Apply by trenching and rodding into the trench, or trenching. Treat both sides of foundation and around all piers and pipes. Where physical obstructions such as concrete walkways adjacent to foundation elements prevent trenching, treatment may be made by rodding alone. When soil type and/or conditions make trenching prohibitive, rodding may be used. When the top of the footing is exposed, the applicator must treat the soil adjacent to the footing to a depth not to exceed the bottom of the footing. Read and follow the mixing and use direction section of the label if situations are encountered where the soil will not accept the full application volume

1. Rod holes and trenches must not extend below the bottom of the footing.
2. Rod holes must be spaced so as to achieve a continuous termiticide barrier but in no case more than 12 inches apart.
3. Trenches must be a minimum of 6 inches deep or to the bottom of the footing, whichever is less and need not be wider than 6 inches. When trenching in sloping (tiered) soil, the trench must be stepped to ensure adequate distribution and to prevent termiticide from running off. The emulsion must be mixed with the soil as it is replaced in the trench.
4. When treating plenums or crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

Inaccessible Crawl Spaces: For inaccessible interior areas, such as areas where there is insufficient clearance between floor joists and ground surfaces to allow operator access, excavate if possible, and treat according to the instructions for accessible crawl spaces. Otherwise, apply one or a combination of the following two methods.

1. To establish a horizontal barrier, apply to the soil surface, 1 gallon of emulsion per 10 square feet overall using a nozzle pressure of less than 25 psi and a coarse application nozzle (e.g., Delavan Type RD Raindrop, RD-7 or larger, or Spraying Systems Co. 8010LP TeeJet or comparable nozzle). For an area that cannot be reached with the application wand, use one or more extension rods to make the application to the soil. Do not broadcast or powerspray with higher pressures.
2. To establish a horizontal barrier, drill through the foundation wall or through the floor above and treat the soil perimeter at a rate of 1 gallon of emulsion per 10 square feet. Drill spacing must be at intervals not to exceed 16 inches. Many States have smaller intervals, so check State regulations which may apply.

When treating plenums and crawl spaces, turn off the air circulation system of the structure until application has been completed and all termiticide has been absorbed by the soil.

Masonry Voids: Drill and treat voids in multiple masonry elements of the structure extending from the structure to the soil in

order to create a continuous treatment barrier in the area to be treated. Apply at the rate of 2 gallons of emulsion per 10 linear feet of footing, using a nozzle pressure of less than 25 psi. When using this treatment, access holes must be drilled below the sill plate and should be as close as possible to the footing as is practical. Treatment of voids in block or rubble foundation walls must be closely examined: Applicators must inspect areas of possible runoff as a precaution against application leakage in the treated areas. Some areas may not be treatable or may require mechanical alteration prior to treatment.

All leaks resulting in the deposition of termiticide in locations other than those prescribed on this label must be cleaned up prior to leaving the application site. Do not allow people or pets to contact contaminated areas or to reoccupy the contaminated areas of the structure until the clean-up is completed.

Note: When treating behind veneer do not to drill beyond the veneer. If concrete blocks are behind the veneer, both the blocks and the veneer may be drilled and treated at the same time.

Not for use in voids insulated with rigid foam insulation.

Excavation Technique: Follow the procedure below if treatment must be made in difficult situations such as along fieldstone or rubble walls, along faulty foundation walls, and around pipes and utility lines which lead downward from the structure to a well or pond:

1. Trench and remove soil to be treated onto impervious surface such as heavy plastic sheeting or similar material.
2. Treat the soil at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth of the trench. Mix the emulsion thoroughly into the soil and do not allow liquid to run off the liner.
3. After the treated soil has absorbed the liquid emulsion, place the soil back in the trench.

Attention: When application of UP-Star EC TT&O is made in a confined area, the user should wear unvented goggles and a MSHA/NIOSH approved respirator during application.

Foam Applications

Rate: use a 0.06 to 0.12 % emulsion converted to a foam with expansion characteristics from 2 to 40 times.

Localized Application

Foam Applications: The emulsion may be converted to a foam and the foam used to control or prevent termite infestations.

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

Foam and liquid application must be consistent with volume and active ingredient instructions in order to insure proper application has been made. The volume and amount of active ingredient are essential to an effective treatment. At least 75% of the labeled liquid emulsion volume of product must be applied, with the remaining percent delivered to appropriate areas using foam application. Refer to label and use recommendations of the foam manufacturer and the foaming equipment manufacturer.

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

Application Under Slabs or to Soil in Crawlspaces

Application may be made using UP-Star EC TT&O foam alone or in combination with liquid emulsion. Apply the equivalent of at least 4 gallons (1.28 ounces of UP-Star EC TT&O concentrate) of 0.06% emulsion per 10 linear feet (vertical barrier), or at least 1 gallon (0.32 ounces of UP-Star EC TT&O concentrate) of 0.06% emulsion per 10 square feet (horizontal barrier) either as emulsion, foam, or a combination. For a foam only application,

apply UP-Star EC TT&O concentrate in sufficient foam concentration and foam volume to deposit 1.28 ounces of concentrate per 10 linear feet or 0.32 ounces of concentrate per 10 square feet. For example, 2 gallons of 0.12% emulsion generated as foam to cover 10 linear feet is the same as the application of 4 gallons of 0.06% emulsion per 10 linear feet.

Sand Barrier Installation and Treatment

Termites are capable of building mud tubes over treated surfaces if they have access to untreated soil and do not have to move treated soil. Cracks and spaces should be filled in with builder's or play box sand and the sand treated with UP-Star EC TT&O. The sand should be treated according to the soil instructions, following the termiticide rate.

Retreatment for subterranean termites can only be performed if there is clear evidence of reinfestation or disruption of the barrier due to construction, excavation, or landscaping and/or evidence of the breakdown of the termiticide barrier in the soil. These vulnerable or reinfested areas may be retreated in accordance with application techniques described in this product's labeling. The timing and type of these retreatments will vary depending on factors such as termite pressure, soil types, soil conditions and other factors which may reduce the effectiveness of the barrier.

Annual retreatment of the structure is prohibited unless there is clear evidence that reinfestation or barrier disruption has occurred.

APPLICATION IN CONJUNCTION WITH THE USE OF FIRSTLINE® TERMITE BAITS

As part of the integrated pest management (IPM) program for termite control, UP-Star EC TT&O may be applied to critical areas of the structure including plumbing and utility entry sites, bath traps, expansion joints, foundation cracks and areas with known or suspected infestations at a rate of 0.06% as a spot treatment or complete barrier treatment. Applications may be made as described in the Postconstruction treatment section of this label.

PEST CONTROL SPECIALTY APPLICATIONS

Underground Services (including cables, conduits, pipes, utility lines, wires, etc.) which are found on the outside of structures, in right-of-way areas, or in long range installation of these services.

Soil treatments to control Termites and Ants: Apply using a 0.06 to 0.12% UP-Star EC TT&O emulsion. Apply 2 gallons of emulsion per 10 linear feet to the bottom of the trench. Allow emulsion to soak into the soil, lay the services on top of the treated soil and then fill the trench with soil. To complete the barrier treatment, make another application of 2 gallons per 10 linear feet over the top of the soil surface. For best control in wide trenches, only treat the soil around the services.

For non-porous soils, adjust the volume to 1 gallon of 0.12% UP-Star EC TT&O per 10 linear feet of trench. Treat both to the bottom of the open trench and the soil placed over the top of the services.

Treat the soil at the point where the service sticks out of the ground by trenching/rodding. Do not use more than 1 to 2 gallons of emulsion.

Precautions: Electrically active underground services must not be treated.

Posts, Poles, and Other Constructions

To control insect damage to wooden constructions such as signs, fences and landscape ornamentation, apply a 0.06% emulsion. Treat on all sides to create an insecticidal barrier in the soil around the wooden construction.

For poles and posts previously installed, use a sub-surface injection or apply the emulsion by gravity-flow to the soil around all sides of the pole or post. If poles and posts are less than a half-foot in diameter, apply 1 gallon of emulsion per foot of depth. If poles are larger than a half-foot in diameter, apply 1.5 gallons of emulsion per foot of depth. Make sure that the emulsion reaches a depth of 6 inches below the bottom of the wood. If treatment of larger constructions is desired, use an application rate of 4 gallons per 10 linear feet per foot of depth.

Wood-in-Place UP-Star EC TT&O controls the following insects in infested wood in and around structures: Ants, Carpenter Ants, wood-infesting beetles (such as Old House Borer and Powder Post), and Termites. Apply by painting on, spot spraying or fan spraying a 0.06% emulsion of UP-Star EC TT&O to voids and galleries in damaged wood, and in spaces between wooden members of a structure, and between wood and foundations where wood is exposed. Place plastic sheeting immediately below overhead areas that are treated; no sheeting is required when treating the surface of soils in crawl spaces. Areas that are not easily accessed can be treated by drilling, and then injecting the emulsion using a crack and crevice injector into the damaged wood or void spaces. Use this method of application in addition to soil treatment or other methods to control extensive infestation of wood-infesting insects.

Termite carton nests in trees or building voids: Carton nest material in building voids should be removed before treatment. Apply directly to the nests using a pointed injection tool with 0.06% emulsion. It may be necessary to inject the nest at different points and depths for complete control.

Bees, Wasps, Hornets, and Yellow Jackets Indoor Treatment: Apply a 0.06% emulsion of UP-Star EC TT&O. For best results, apply as a spot or fan spray in the late evening when pests are at rest. Ensure that sprays contact the pests and reach areas where pests breed such as under rafters in attics. Make a second application if pest pressure is high or if insects reappear.

Important: Before application of UP-Star EC TT&O, locate all heat pipes, ducts, water and sewer lines and electrical conduits so that they can be avoided during application to prevent damage. Applications must not be made directly into electrical fixtures, sockets, or switches.

Do not treat unless all birds and pets are removed prior to treatment. Aquariums must be covered before spraying. Do not permit humans or pets to contact treated surfaces until the spray has dried.

When treating poorly ventilated or overhead areas, wear unvented goggles, gloves and a respirator. Avoid touching sprayed surfaces until spray has completely dried.

Do not use in food/feed areas of food/feed handling establishments, restaurants or other areas where food/feed is commercially prepared or processed. Do not use in serving areas where food 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, cover all food handling surfaces and cover or remove all food and cooking utensils, or wash thoroughly after treatment. Non-food/feed areas of food/feed areas are areas such as garbage rooms, lavatories, floor drains (to sewers) entries and vestibules, offices, locker rooms, machine rooms, boiler rooms, garages, mop closets and storage (after boiling or canning).

Not for use in Federally inspected meat and poultry plants.

Outside of Structures: UP-Star EC TT&O can be used around wood to control wood-infesting insects and other pests. Make applications with a 0.06% emulsion with a fan spray at a maximum of 25 psi to run-off.

If pests are found inside fence posts, trees or utility poles, locate the area of infestation by drilling. Inject a 0.06% emulsion. For treating bees, hornets, wasps, and yellow jackets, direct contact works best; apply in the late evening when pests are at rest. For best results, apply a saturated spray solution directly into the nest in the ground or in bushes, or in crack and crevice areas.

Pests Under Slabs: To control Ants, Cockroaches and Scorpions which live under slab areas, drill and inject 0.06% to 0.12% emulsion per 10 square feet or 1 gallon/10 square feet. One gallon of emulsion must be used. Application may also be made by horizontal rodding and then injection of 1 gallon of this emulsion.

Attention

Do not apply to pets, crops, or sources of electricity.

Firewood is not to be treated.

Use only in well ventilated areas.

During any application to overhead areas of structure, cover surfaces below with plastic sheeting or similar material.

Do not allow spray to contact food, foodstuffs, food contacting surfaces, food utensils or water supplies.

Thoroughly wash dishes and food handling utensils with soap and water if they become contaminated by application of this product.

Do not treat areas where food is exposed.

During indoor surface applications do not allow dripping or run-off to occur.

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

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

LAWN AND ORNAMENTALS

General Applications Instructions

UP-Star EC TT&O may be applied in the following areas to control a wide spectrum of insects and mites:

Interiorscapes (such as hotels, shopping malls, office buildings)

Outdoor landscapes (such as around residential dwellings, ornamental gardens, parks, institutional buildings, recreational areas, athletic fields and home lawns)

UP-Star EC TT&O may be applied to the following plants:

Trees, Shrubs, Foliage plants, Non-bearing fruit and nut trees (that is, perennial crops that will not produce a harvestable raw agricultural commodity during the season of application), Flowers.

UP-Star EC TT&O Insecticide formulation mixes readily with water and other aqueous carriers. Use UP-Star EC TT&O as a tank-mix with other pesticides, including insect growth regulators. If applying as a tank mix, all precautions and limitations on each separate product label must be followed.

Tank mix compatibility testing: A jar test is recommended prior to tank mixing to ensure compatibility of UP-Star EC TT&O and other products. Use a clear glass quart jar with lid and mix the tank mix ingredients in their relative proportions. Always use water from the intended source. Invert the jar containing the mixture several times and observe the mixture for approximately 1/2 hour. Evaluate the solution for uniformity and stability. If the mixture balls-up, forms flakes, sludges, gels, oily films or layers, or other precipitates, it is not compatible and the tank mix combination must not be used.

Tank Mix Preparation: To prepare a new tank mix, add the products listed to the tank mix in the order given. After addition of each product, agitate the tank mix before adding the next product: (1) wettable powders; (2) liquids and flowable concentrates; (3) emulsifiable concentrates.

When using tank mixes, observe all restrictions and precautions which appear on the labels of these products. Provide constant agitation to keep the mixture in solution.

APPLICATION INSTRUCTIONS

LAWNS: Apply UP-Star EC TT&O Insecticide as a broadcast treatment in volumes of up to 10 gallons per 1000 square feet for uniform coverage of grass foliage.

For low water volume usage, less than 2 gallons/1000 square feet, addition of a non-ionic or silicone based surfactant (0.25% v/v) is recommended to ensure good penetration of spray to soil thatch matrix. Immediate irrigation of treated area with at least 0.25 inches of water following application will help to ensure efficacy on sub-surface pests such as, but not limited to, mole crickets. Pay special attention to ensure that run-off or puddling does not occur.

LAWN APPLICATION RATES

Pest	UP-Star EC TT&O	Instructions
Ants Armyworms Billbugs Crane Flies Crickets Cutworms Earwigs Fall Webworms Fleas (adults, larvae) Grasshoppers Mites Mole Crickets* Sod Webworms Spittlebugs	0.07 to 0.15 fl. ozs. per 1000 square feet	*For control of overwintered Mole Crickets apply the lower rate in early Spring. For the control of adult Mole Crickets in late-Summer or early Fall, apply the higher rate. Delay watering or mowing for 24 hours after application to ensure optimum control of Armyworms, Cutworms and Sod Webworms.
Japanese Beetles (adult)	0.07 to 0.30 fl. ozs. per 1000 square feet	
Crane Flies	0.15 fl. ozs. per 1000 square feet	Treatments can be made to control early to mid-season larvae (approximately August to February) as they feed on plant crowns. Treatments made to late-season larvae (approximately March, April) may only provide suppression.
Chinch Bugs	0.07 to 0.30 fl. ozs. per 1000 square feet	Treatments can be made to control early to mid-season larvae (approximately August to February) as they feed on plant crowns. Treatments made to late-season larvae (approximately March, April) may only provide suppression.

In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch).

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

Do not apply when wind conditions favor downwind drift to nearby water bodies.

Do not apply when wind velocity exceeds 10 miles per hour.

Avoid application when wind gusts approach 10 mph.

Apply using nozzles that provide the largest droplet size compatible with adequate coverage.

ORNAMENTALS AND TREES (FOLIAR APPLICATIONS): For ornamental applications, dilute 0.26 to 1.28 fluid ounces of UP-Star EC TT&O per 10 gallons of water and apply 10 gallons per 4,356 square feet. One gallon of finished spray will treat 435 square feet. If a higher volume application is required for plant canopy coverage, dilute UP-Star EC TT&O in large volumes of water without exceeding the maximum label rate of 1.28 fluid ounces per 4,356 square feet. UP-Star EC TT&O may be applied through low volume equipment by dilution with water and so long as the maximum label rate (1.28 fluid ounces per 4,356 square feet) is not exceeded.

ORNAMENTAL APPLICATION RATES

Pest	Rate		Instructions
	lb. a.i./10 Gallons	fl.oz./10 Gallons	
Ants Aphids Bagworms Black Vine Weevil (adults) Brown Soft Scales Broad Mites Budworms California Red Scale (crawlers) Centipedes Clover Mites Crickets Cutworms Earwigs Elm Leaf Beetles Fall Webworms Flea Beetles Fungus Gnats (adults) Grasshoppers Lace Bugs Leafhoppers Leaf feeding Caterpillars Mealybugs Millipedes Mole Crickets* Orchid Weevil Pillbugs Pine Needle Scales (crawlers) Plant Bugs (incl. <i>Lygus</i> spp.) San Jose Scales (crawlers) Sowbugs Spiders Spittlebugs Tent Caterpillars Tip Moths Weevils Whiteflies	0.004 to 0.02	0.26 to 1.28	Apply the specified rate as a full coverage foliar spray. Repeat as necessary to achieve control using higher rates as pest pressure and foliage area increases. Repeat application should be limited to no more than once per seven days. <u>To control Bagworm:</u> Apply when larvae begin to hatch. Spray larvae directly. Applications made when larvae are young will be most effective. <u>To control Scale Crawlers and Twig Borers:</u> Treat trunks, stems, and twigs in addition to plant foliage. Certain cultivars may be sensitive to the final spray solution. A small number of plants should be treated and observed for one week prior to application to the entire planting. Use of an alternate class of chemistry in a treatment program is recommended to prevent or delay pest resistance. Use sufficient water to obtain uniform coverage. Typical use rates are 10 gallons of spray per 4,356 square feet. <u>To control Black Vine Weevil and Fungus Gnat Larvae:</u> Apply as a drench at the rate of approximately 8 ounces of finished spray per 6 inch pot. *For control of overwintered Mole Crickets apply the lower rate in early Spring. For the control of adult Mole Crickets in late-Summer or early Fall, apply the higher rate.
Citrus Thrips Beet Armyworm Diaprepes (larvae, adult) European Red Mite Leafrollers Spider Mites Thrips Twig Borers	0.006 to 0.02	0.38 to 1.28	
Japanese Beetles (adult) Leafminers Pecan Leaf Scorch Mite Black Vine Weevil (larvae) Fungus (larvae)	0.01 to 0.02	0.64 to 1.28	

TRUNK SPRAYS TO ORNAMENTAL TREES

Pest	Rate	Instructions
<i>Dendroctonus</i> bark beetles such as Mountain Pine Beetle, Southern Pine Beetle, Western Pine Beetle, Black Turpentine Beetle, and Engraver Beetles (<i>Ips</i> spp.)	1.0 to 2.0 pints per 100 gallons (0.25 to 0.5 lbs. a.i./100 gallons)	<p><u>For preventative control:</u> using a hydraulic sprayer, apply to the trunk of the tree. Apply in spring or when threat of infestation is noted. Direct the spray onto the main trunk from the base of the tree to at least halfway into the live crown, spraying till bark is thoroughly wet (approx. 1 to 4 gallons spray/tree).</p> <p>Repeat application may be needed if reinfestation is likely. Since application rates and timing may differ according to the target pest and other factors, consult your local State Extension specialist or other qualified expert for specific recommendations.</p> <p>Do not apply more than 0.2 lbs. a.i. (12.8 fl. oz.) per acre.</p>
	2.0 pints per 100 gallons	<p><u>To control emerging brood in infested trees:</u> Apply to trees that still have beetles in the bark, using a spray directed to the main trunk from the base of the tree to at least halfway into the live crown. Spray until the bark is thoroughly wet (approx. 1 to 4 gallons spray/tree).</p> <p>Only spray trees if infestation has been confirmed. To confirm, scrape off the outer bark. If live infestations remain in the trunks, fell the trees and cut into sections. Spray large limbs and the trunk, turning so that all surfaces can be treated. If all needles have turned brown, the tree is likely to have been vacated and there would be no need for treatment.</p> <p>Do not apply more than 0.2 lbs. a.i. (12.8 fl. oz.) per acre.</p>
Bark beetles such as Ambrosia Beetles, Elm Bark Beetles, Emerald Ash Borer	1.0 to 2.0 pints per 100 gallons (0.25 to 0.5 lbs. a.i./100 gallons)	<p><u>For preventative control:</u> using a hydraulic sprayer, apply to the trunk, scaffolding, and limbs of the tree. Apply in early spring or before adult beetle flight and tree infestation. Spray until bark is thoroughly wet (approx. 6 to 12 gallons spray/tree).</p> <p>Repeat application may be needed if reinfestation is likely. Since application rates and timing may differ according to the target pest and other factors, consult your local State Extension specialist or other qualified expert for specific recommendations.</p> <p>Do not apply more than 0.2 lbs. a.i. (12.8 fl. oz.) per acre.</p>

OTHER BORERS ON ORNAMENTAL TREES

Pest	Rate	Instructions
Clearwing Moth Borers Ash Borer, Banded Ash Clearwing, Dogwood Borer, Lesser Peachtree Borer, Lilac Borer, Oak Borer	6.4 to 12.8 fl. oz. per 100 gallons	Apply to the lower branches and trunks prior to adult emergence. Spray until the bark is thoroughly wet (approx. 1 to 4 gallons of spray per tree). Do not apply more than 100 gallons of diluted spray mixture to trees on a treated acre. Since application rates and timing may differ according to the target pest and other factors, consult your local State Extension specialist or other qualified expert for specific recommendations.
Coleopteran Borers Bronze Birch Borer, Flatheaded Appletree Borer	6.4 to 12.8 fl. oz. per 100 gallons	
For maximum residual control of the above listed pests.	12.8 fl. oz. per 100 gallons	

Pest Control on Outside Surfaces and Around Buildings

Pests Controlled:

Ants (including Carpenter Ants)	Grasshoppers
Armyworms	Hornets
Bees	Millipedes
Centipedes	Mosquitoes
Chiggers	Moths
Chinch Bugs	Roaches (including Cockroaches)
Clover Mites	Scorpions
Crickets	Sod Webworms
Cutworms	Sowbugs (Pillbugs)
Dichondra Flea Beetles	Spiders (including Black Widow Spiders)
Earwigs	Springtails
European Craneflies	Wasps
Fleas	
Flies	

Apply 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.

Make applications of UP-Star EC TT&O as a 0.03 to 0.06% emulsion. For 0.03% emulsion, mix 1/6 fluid oz. of UP-Star EC TT&O per gallon of water. For 0.06% emulsion, mix 1/3 fluid oz. UP-Star EC TT&O per gallon of water (1 fluid oz. = 2 tablespoons). Do not use household utensils to measure UP-Star EC TT&O. Use the higher rate for heavy pest infestation, quicker knockdown or longer residual control. Repeat treatment as necessary to maintain effectiveness, but not more than once every seven days.

Perimeter Treatment: Apply using a spray volume between 2 and 10 gallons of emulsion per 1000 square feet. Apply to a band of soil and vegetation 6 to 10 feet wide around and next to the structure. Also treat the foundation up to 2 to 3 feet. Note that if mulch or leaf litter is present, or foliage is dense, higher volumes of water may be needed. If Gypsy Moth adults or caterpillars, Boxelder Bugs, Elm Leaf Beetles, Earwigs, or Silverfish are present, house siding may be treated.

Ant Mounds: for best control of ant mounds, use UP-Star EC TT&O as a 0.06% emulsion as a drench. Apply 1 to 2 gallons of emulsion to each mound area by sprinkling the mound until it is wet. Also treat a 6 foot diameter circle around the mound. If mounds are larger than 12", use the higher rate. For best results apply in cool weather, such as in early morning or late evening hours, and not in the heat of the day.

Application to Home Lawns: Apply UP-Star EC TT&O as a broadcast treatment in 2 to 10 gallons of carrier per 1000 square feet. Use higher volumes to get uniform coverage when treating dense grass foliage.

Attention: Keep children and pets off treated areas following application until the spray has dried.

IMPORTANT INFORMATION READ BEFORE USING PRODUCT

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

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

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

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