

# Tengard<sup>®</sup>

## SFR One Shot

TERMITICIDE  
INSECTICIDE

For control of subterranean termites: 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 pest control regulatory agency of your state prior to use of this product.

For use as an insecticide on ornamentals grown in interiorscapes, for perimeter insect control on lawns, ornamental trees and shrubs around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields, treatment of preconstruction lumber and logs, and for use on buildings/structures. Treatment of preconstruction lumber and logs, and for use on buildings/structures may only be done by PCOs.

<b>ACTIVE INGREDIENT:</b>	
Permethrin*	36.8%
<b>OTHER INGREDIENTS**:</b>	63.2%
<b>TOTAL:</b>	100.0%
* <i>cis/trans</i> ratio: Max. 42% (±) <i>cis</i> and min. 58% (±) <i>trans</i>	
** Contains petroleum distillates.	
Contains 3.2 pounds permethrin per gallon as an emulsifiable concentrate.	

EPA Reg. No. 70506-6

KEEP OUT OF REACH OF CHILDREN  
CAUTION

FIRST AID	
IF SWALLOWED	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give any liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
IF ON SKIN OR CLOTHING	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
IF IN EYES	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
IF INHALED	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>NOTE TO PHYSICIAN:</b> Contains petroleum distillates – vomiting may cause aspiration pneumonia. For emergency medical assistance, contact the Rocky Mountain Poison Control Center at 1-866-673-6671.	

**NOTICE:** Before using this product, read the entire Precautionary Statements, Conditions of Sale and Warranty, Directions for Use, Use Restrictions and Storage and Disposal instructions inside booklet. If the Conditions of Sale and Warranty are not acceptable, return the product unopened within thirty days of purchase to the place of purchase.

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

## PRECAUTIONARY STATEMENTS

### Hazards to Humans & Domestic Animals

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

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are barrier laminate and Viton. If you want more options, follow the instructions for category G on an EPA chemical-resistance category selection chart.

Applicators using ULV cold foggers or fog/mist generators in indoor spaces must wear:

- Coveralls over long-sleeved shirt and long pants,
- Chemical-resistant gloves,
- Chemical-resistant footwear plus socks, and
- Chemical-resistant headgear, if overhead exposure.

Applicators using ULV cold foggers and/or fog/mist generators in outdoor spaces must wear:

- Long-sleeve shirt and pants,
- Shoes plus socks, and
- Chemical-resistant gloves.

All other mixers, loaders, applicators, and other handlers must wear:

- Long-sleeve shirt and pants,
- Shoes plus socks, and
- Chemical-resistant gloves for all handlers except for applicators using motorized ground equipment,
- Chemical-resistant apron for mixers/loaders, persons cleaning equipment, and person exposed to the concentrate and for handlers performing animal dip applications.

### USER SAFETY REQUIREMENTS

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

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

#### USER SAFETY RECOMMENDATIONS

- User should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- User should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- User should 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.

### Environmental Hazards

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

This product is highly toxic to bees exposed to direct treatment on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area.

## RESTRICTIONS

When used in dairy barns or facilities: Close milk bulk tank lids to prevent contamination from spray and from dead or falling insects. Remove or cover milking utensils before application. Wash teats of animals before milking.

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;
4. Applications to underside of eaves, soffits, doors, or windows permanently protected from rainfall by covering, overhang, awning, or;
5. Applications around potential pest entry points into building when limited to a surface band not to exceed one inch in width;
6. Applications made through the use of a coarse, low pressure spray to only those portions of surfaces that are directly above bare soil, lawn, turf, mulch, or other vegetation, as listed on this label, and not over an impervious surface, drainage, or other condition, that could result in runoff into storm drains, drainage, ditches, gutters, or surface waters, in order to control occasional invaders or aggregating pests.

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

Do not use in aircraft cabins.

Not for broadcast use on indoor residential surfaces.

## ATTENTION

Do not apply to sources of electricity.

Do not allow people or pets on treated surfaces, such as carpets until the spray has dried.

Do not use concentrate or emulsion in fogging equipment.

Firewood is not to be treated.

Use only in well ventilated areas.

During any application to overhead areas of structure, cover surfaces below with plastic sheeting or similar material (except where exempt).

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 product to any rooms while occupied by patients, the elderly or infirm.

Do not use in aircraft cabins. For use in cargo areas only.

Do not apply when occupants are present in the immediate area in institutions such as libraries, sport facilities, etc.

Do not apply to classrooms when in use.

Do not touch treated surface until dry.

**Dealers Must Sell in Original Packages Only.**

## Physical/Chemical Hazards

Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

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

States may have more restrictive requirements regarding qualifications of persons using this product. Consult your State Pest Control Regulatory Agency prior to use of this product.

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

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 use as a surface spray:

Except when applying to pets, do not allow others to enter until sprays have dried.

For use as a space spray:

Except when applying to pets, do not enter or allow others to enter until vapors, mists, and aerosols have dispersed and the treated area has been thoroughly ventilated.

Except when applying to pets, do not apply this product that will contact workers or other persons either directly or through drift.

Except when applying to pets, only protected handlers may be in the area during application.

Do not breathe dusts, vapors, or spray mist.

## PRODUCT USE INFORMATION

### Important

Tengard SFR is toxic to fish. Exercise care when making applications near ponds, lakes, streams, reservoirs and other aquatic environments where fish are present.

Tengard SFR may also be used as a broadcast or spot application in crawl spaces and indoors to carpeting, wood, tile, concrete or other structural building materials as a crack and crevice injection, or paint-on treatment. Consult tables for specific use instructions.

Tengard SFR can be applied to interior landscapes, and landscape ornamental gardens including parks, lawns and grounds.

For advice concerning current control practices with relation to specific local conditions, consult your local State Cooperative Extension or regulatory agencies.

Tengard SFR is formulated as an emulsifiable concentrate (EC) formulation and is to be diluted with water and applied as an emulsion. When tank mixing as an emulsion with other products, observe all precautions and limitations on the labels of each product in the mixture.

Tengard SFR can be tank-mixed with pyrethrin-containing products or Insect Growth Regulators (IGRs). Do not tank mix with dichlorvos (DDVP) or other fumigant products. Do not tank mix when applied as a soil termiticide.

## Applications for the Control of Subterranean Termites

### Product Application Instructions

Tengard SFR acts as an insecticidal barrier to control and prevent subterranean termite (*Coptotermes*, *Heterotermes*, *Reticulitermes* and *Zootermopsis*) infestations in and around structures. For effective control the insecticide emulsion must be adequately dispersed in the soil to establish a barrier between the structure and the termites in the soil. To establish an effective insecticidal barrier with this product the proper control practices and application techniques should be selected by a trained service technician familiar with current termite control practices.

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.

When applying Tengard SFR indoors, procedures should include structural design consideration and variable post-application effects from heating, ventilation and air conditioning systems (HVAC).

Outdoor application procedures should include consideration of such variable factors effected by soil type, soil compaction, grade conditions, utilities and, location and type of domestic water supply.

Contamination of public and private water supplies must be avoided by using anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies.

Do not contaminate wells or cisterns.

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

**Application Rate:** Use a 0.5% emulsion for subterranean termites. For other pests on the label use specific listed rates.

The dilute pesticide emulsion must be adequately dispensed in the soil to establish a barrier between the wood and the termites in the soil. As a good practice: 1) all non-essential wood and cellulose-containing materials should be removed from around foundation walls, crawl spaces and porches; 2) eliminate termite access to moisture by repairing faulty plumbing and/or construction grade. Soil around untreated structural wood in contact with soil should be treated as described below.

To establish an effective insecticidal barrier with this product, the service technician must be familiar with current termite 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. These techniques must be correctly employed to prevent or control infestations to subterranean termites such as *Coptotermes*, *Heterotermes*, *Reticulitermes*, and *Zootermopsis*. The biology and behavior of the species involved should be considered by the service technician in determining which control practices to use to eliminate or prevent termite infestation.

#### Important:

Contamination of public and private water supplies must be avoided by following these procedures: Use anti-backflow equipment or procedures to prevent siphonage of insecticide into water supplies. Do not contaminate cisterns or wells.

Do not treat soil that is water saturated or frozen or in any conditions where runoff or movement from the treatment area (site) is likely to occur.

Do not treat while precipitation is occurring.

Do not apply to drainage systems such as sumps, french drains, leach beds or other effluent discharge systems.

Follow all State and Local specifications for recommended treatment distances of wells and aquatic habitat.

All holes in commonly occupied areas into which material has been applied must be plugged. Plugs must be of a non-cellulose material or covered by an impervious, non-cellulose material.

**Note:** Crawlspace are considered inside of structure.

**Critical Areas:** Critical areas include areas where the foundation is penetrated by utility services, cracks and expansion joints, bath traps and areas where cement constructions have been poured adjacent to the foundation such as stairs, patios, and slab additions.

## Mixing Directions

**Mixing Instructions:** To produce an emulsion, mix Tengard SFR with water only. For the desired application rate, use the chart below to determine the amount of product required for a given volume of finished emulsion.

**Tengard SFR Rate/Volume Conversion Chart**

Desired Gallons of Finished Emulsion	Emulsion Concentration (Tengard SFR + Water)		
	0.5%	1.0%	2.0%
1	1 2/3 fl. oz. + 126 1/3 fl. oz. water	3 1/3 fl. oz. + 124 2/3 fl. oz. water	6 2/3 fl. oz. + 121 1/3 fl. oz. water
5	8 1/3 fl. oz. + 4 gal., 119 2/3 fl. oz. water	16 2/3 fl. oz. + 4 gal., 111 1/3 fl. oz. water	33 1/3 fl. oz. + 4 gal., 94 2/3 fl. oz. water
10	16 2/3 fl. oz. + 9 gal., 111 1/3 fl. oz. water	33 1/3 fl. oz. + 9 gal., 94 2/3 fl. oz. water	66 2/3 fl. oz. + 9 gal., 61 1/3 fl. oz. water
19	0.25 gal. + 18.75 gal. water	0.5 gal. + 18.5 gal. water	1.0 gal. + 18 gal. water
38	0.50 gal. + 37.5 gal. water	1.0 gal. + 37 gal. water	2.0 gal. + 36 gal. water
58	0.75 gal. + 57.25 gal. water	1.5 gal. + 56.5 gal. water	3.0 gal. + 55 gal. water
96	1.25 gal. + 94.75 gal. water	2.5 gal. + 93.5 gal. water	5.0 gal. + 91 gal. water
192	2.5 gal. + 189.5 gal. water	5.0 gal. + 187 gal. water	10.0 gal. + 182 gal. water

\* See Application Volume Considerations section for Pre- & Post-Construction Applications below.

Common Units of Measure:

1 pint = 16 fluid ounces (oz.)

1 gallon = 4 quarts = 8 pints = 128 oz.

Mix the termiticide use dilution in the following manner:

1. Fill tank 1/4 to 1/3 full.
2. Start pump to begin by-pass agitation and place end of treating tool in tank to allow circulation through hose.
3. Add appropriate amount of Tengard SFR. (See Rate/Volume Conversion Chart)
4. Add remaining amount of water.
5. Let pump run and allow recirculation through the hose for 2 to 3 minutes.

**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.

## Pre- and Post-Construction Applications

**Application Volume Considerations:** Adjustments to application volumes are often needed to ensure thorough and complete coverage in different soil types while keeping the application rate as close as possible to the specified labeled use rate. Certain types of soils, such as clay, require lower volumes of water due to their low permeability characteristics. In such cases reduced volumes of emulsion can be used while still delivering the necessary concentration of termiticide to the soil (see Rate/Volume Conversion Chart above).

**Application Volume Adjustments:** Where necessary to reduce the application volume for pre- and post-construction treatments, the volume of a 1.0% emulsion may be reduced by 1/2 the labeled volume or a 2.0% emulsion may be applied at 1/4 the labeled volume (see Volume Adjustments for Horizontal and Vertical Applications).

## Pre-Construction Treatment

**Do not apply this product as a pre-construction treatment in the state of Florida.**

Tengard SFR may be applied as a vertical and/or horizontal insecticidal barrier to control or prevent infestation of subterranean termites using a 0.5% emulsion.

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.

**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.**

The treatment site must be covered prior to a rain event in order to prevent runoff of the pesticide into non-target areas.

The applicator must either cover the soil him/herself or provide written notification of the above requirement to the contractor on site and to the person commissioning the application (if different from the contractor). If notice is provided to the contractor or the person commissioning the application, then they are responsible under FIFRA to ensure that 1) if the concrete slab cannot be poured over the treated soil within 24 hours of



application the treated soil is covered with a waterproof covering (such as polyethylene sheeting), and 2) the treated soil is covered if precipitation is predicted to occur before the concrete slab is scheduled to be poured.

Do not treat soil that is water-saturated or frozen.

Do not treat when raining.

Do not allow treatment to run off from the target area.

Do not apply within 10 feet of storm drains. Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes; reservoirs; rivers; permanent streams; marshes or ponds; estuaries; and commercial fish farm ponds).

Do not make on-grade applications when sustained wind speeds are above 10 mph (at application site) at nozzle end height.

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.

**Horizontal Barrier:** Pre-construction horizontal termiticide barrier applications are most commonly made to soil that will be covered (i.e., concrete slabs and footings, porches, stairs and crawl spaces). Using a coarse spray nozzle at low pressure (less than 50 psi) apply 1 gallon of a 0.5% emulsion per 10 square feet. If fill consists of gravel or other coarse material use a rate of 1.5 gallons of a 0.5% emulsion per 10 square feet (see Volume Adjustment Chart below). If more than 24 hours is expected between the time of application and pouring of the concrete, it is recommended that the site be covered with a water proof barrier (polyethylene).

**Vertical Barrier:** Vertical barriers **must** be established in areas such as around the base of foundations, plumbing, utility entrances, backfilled soil against foundation walls, and other critical areas.

For a 0.5% rate, apply 4 gallons of dilution per 10 linear feet per foot of depth or 6.4 fluid ounces of Tengard SFR per 10 linear feet of depth from grade to top of footing in sufficient water (no less than 2 gallons or more than 8 gallons) to ensure complete coverage.

1. When **trenching and rodding into the trench** or trenching, it is important that emulsion reaches the top of the footing. Rod holes **must** be spaced so as to achieve a continuous insecticidal barrier, **but in no case more than 12 inches apart**.
  2. Care should be taken to avoid soil wash-out around footing.
  3. Trenches need not be wider than 6 inches. Emulsion should be mixed with the soil as it is being replaced in the trench.
  4. For a monolithic slab, an inside vertical barrier may not be required.
- Hollow block voids may be treated at a rate of 2 gallons of emulsion per 10 linear feet so that the emulsion will reach the top of the footing.

#### Volume Adjustments for Horizontal and Vertical Tengard SFR Applications

Application Type	Application Rate		
	0.5% Emulsion	1.0% Emulsion	2.0%* Emulsion
Horizontal (gallons per 10 square ft.)	1.0	0.5	0.25
Vertical (gallons per 10 linear ft.)	4.0	2.0	1.0

\* Not recommended for subslab injection

## Post-Construction Treatment

Apply Tengard SFR by injection, rodding and/or trenching as a 0.5% emulsion for post-construction treatment. Do not use excessive pressure (above 25 psi) when injecting to avoid soil wash-out around the foundation.

Do not apply emulsion until location of wells, radiant heat pipes, water and sewer lines, and electrical conduits are known and identified. Care must be taken 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.

**Treating Slabs:** Vertical barrier applications may be established by sub-slab injection within the structure and rodding and trenching/or trenching outside using a treatment rate of 4 gallons of emulsion per 10 linear feet per foot of depth. If necessary, adjust the spacing of the drill holes, or volume required (see Volume Adjustment Chart above) for adequate dispersal of the emulsion in the slab sub-soil.

**Note:** Sub-slab volume adjustments greater than 1% are not recommended. Treatment should not extend below the bottom of the footing. Treat along the outside of the foundation and where necessary beneath the slab on the inside of the foundation walls. Treatment may also be required beneath the slab along both sides of interior footing-supported walls, one side of interior partitions and along all cracks and expansion joints. Horizontal barriers may be established where necessary by long-rodding or by grid pattern injection vertically through the slab. Plug all holes in the interior structure after injection.

1. Drill holes in the slab and/or foundation to allow for the application of a continuous insecticidal barrier no more than 12 inches apart.
2. For shallow foundations (1 foot or less) dig a narrow trench approximately 6 inches wide along the outside of the foundation walls. Do not dig below the bottom of the footing. The emulsion should be applied to the trench and soil at 4 gallons per 10 linear feet per foot of depth as the soil is replaced in the trench.
3. For foundations deeper than 1 foot follow the rates for basements.
4. Exposed soil in bath traps may be treated with a 0.5% emulsion.

## Basements and Crawl Spaces

### Basements

Where the footing is greater than 1 foot in depth from grade to the bottom of the foundation, application must be made by trenching and rodding into this trench, or injecting at the rate of 4 gallons of emulsion per 10 linear feet per foot of depth. When the footing is more than 4 feet below grade, the applicator may trench and rod into the trench, or trench along foundation walls at the rate prescribed for 4 feet of depth. Rod holes must be spaced so as to achieve a continuous termiticide barrier, but in no case more than 12 inches apart. The actual depth of treatment will vary depending on soil type, degree of compaction, and location of termite activity. However, in no case should a structure be treated below the footing. 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 chemical 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 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 sq. ft. overall using a nozzle pressure of less than 25 p.s.i. and a coarse application nozzle (e.g., Delavan Type RD Raindrop, RD7 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 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.

It is highly recommended that prior to treatment, inadequately ventilated crawl spaces be brought into compliance with FHA Minimum Property Standards specifying 1 square foot of ventilator opening per 150 square feet of crawl space area.

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

Wear respiratory protection when treating crawl spaces.

**Masonry or Hollow Block 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 p.s.i. 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. Care should be exercised not to drill entirely through and into the structure. 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 mechan-

ical 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.

In treating voids containing rigid foam insulation, holes must be drilled through the sillplate and through the foam to the base of the footing before the emulsion is applied.

Use low pressure to ensure penetration of the emulsion into the void area between the base of the foam and footer. Slowly remove the spray rod as the emulsion is being delivered, avoiding excess buildup in the foam insulation.

**Note:** When treating behind veneer, care should be taken 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.

**Excavation Technique:** If treatment must be made in difficult situations, such as near wells, cisterns, along fieldstone or rubble walls, along faulty foundation walls, or around pipes and utility lines which lead downward from the structure to a well or pond, application may be made in the following manner:

- a. Trench and remove soil to be treated onto heavy plastic sheeting or similar material.
- b. 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 taking care to prevent liquid from running off the liner.
- c. After the treated soil has absorbed the liquid emulsion, replace the soil in the trench.

Prior to using this technique near wells or cisterns, consult state, local or federal agencies for information regarding approved treatment practices in your area.

#### **Foam Applications**

Tengard SFR emulsion may be converted to a foam, and the foam used to control and prevent termite infestation. When applying the product as either a foam application alone, or in combination with an emulsion treatment, do not exceed the maximum-labeled application rate. Exercise care and safety around electrical utilities. Note location of electrical sources prior to foaming voids to avoid possible shock hazard.

#### Localized Application

Foam may be used to treat voids to control or prevent localized infestations of: termites, ants, bees, wasps or other arthropods harboring in voids. Application may be made to voids such as: behind veneers, piers (concrete or wood), chimneys, into rubble and stone foundations, into block voids, structural voids (i.e., between stud walls), poles, stumps, and wood in crawlspaces using either the foam alone or in combination with liquid emulsion.

Note location of electrical sources prior to foaming voids to avoid possible shock hazards.

#### Application Under Slabs or to Soil in Crawlspaces to Prevent or Control Termites

Application may be made using Tengard SFR foam alone or in combination with liquid emulsion. The equivalent of at least 4 gallons (6.4 oz. of Tengard SFR concentrate) of 0.5% emulsion per 10 linear feet (vertical barrier), or at least 1 gallon (1.6 oz. of Tengard SFR concentrate) of 0.5% emulsion per 10 square feet (horizontal barrier) must be applied either as emulsion, foam, or a combination of both. For a foam only application, apply Tengard SFR concentrate in sufficient foam concentration and foam volume to deposit 6.4 oz. of concentrate per 10 linear feet or 1.6 oz. of concentrate per 10 square feet. For example, 1 gallon of 2% emulsion generated as foam to cover 10 linear feet is equal to the application of 4 gallons of 0.5% emulsion per 10 linear feet.

Foam and liquid application must be consistent with volume and active ingredient instructions in order to ensure 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.

### **Sand Barrier Installation and Treatment**

Termites can build mud tubes over treated surfaces as long as they have access to untreated soil and do not have to move Tengard SFR-treated soil. Fill in cracks and spaces with builder's or play box sand and treat the sand with Tengard SFR. The sand should be treated as soil following the termiticide rates listed on the Tengard SFR label.

### **Retreatment Intervals**

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.

## **Pest Control Specialty Applications**

### **Product Application Instructions**

Tengard SFR has demonstrated excellent plant safety; however, not all cultivars have been tested. Before treating large numbers of plants of a particular cultivar, treat a few plants and observe prior to full scale application. Use the higher rates for heavy pest infestations. Use sufficient volume to cover plant surface. Higher volumes should be used if arid or drought conditions exist. Repeat applications as necessary to maintain control.

Do not apply more than 2.0 lb. a.i./Acre/Year for lawn and ornamental use.

### **Spray Drift Precautions:**

Tengard SFR may be applied by most conventional ground application sprayers. Exercise care not to apply when wind velocity favors non-target movement or temperature inversions.

Do not apply by air.

Do not apply within 25 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, and commercial fish ponds.

### **Underground Structures and Services**

**Posts, Poles, and Other Constructions:** Previously installed poles and posts may be treated by sub-surface injection. Treat on all sides to create a continuous insecticidal barrier around the pole. Use 1 gallon of a 0.5% emulsion per foot of depth for poles and posts less than six inches in diameter. For larger poles, use 1.5 gallons of emulsion per foot of depth. Apply to a depth of 6 inches below the bottom of the wood. For larger diameter constructions, use 4 gallons of emulsion per 10 linear feet per foot of depth.

To control wood infesting insects, such as, termites, ants, carpenter ants, wood infesting beetles (Old House Borer, Powder Post), bees, wasps, hornets and yellow-jackets in posts, poles and other wood constructions in and around structures, paint on, spot spray, or fan spray a 0.5% emulsion to voids and galleries in damaged wood and in spaces between wooden members of a structure and between wood and foundation where wood is vulnerable. Plastic sheeting must be placed immediately below overhead areas that are spot treated except for soil surfaces in crawlspaces. Application may be made to inaccessible areas by drilling, and then injecting emulsion with a crack and crevice injector into the damaged wood or void spaces. This type of application is not intended to be a substitute for

soil treatment, mechanical alteration or fumigation to control extensive infestation of wood-infesting insects.

**Control of Bees and Wasps Indoors:** To control bees, wasps, hornets, and yellow jackets apply a 0.5% emulsion. Application should be made in the late evening when insects are at rest. Spray liberally into hiding and breeding places, especially under attic rafters, contacting as many insects as possible. Repeat as necessary.

Termite carton nests in trees or building voids may be injected with 0.5% to 1.0% emulsion. Multiple injection points to varying depths may be necessary. It is desirable to physically remove carton nest material from building voids when such nests are found.

**Important:** Do not apply emulsion until location of heat pipes, ducts, water and sewer lines and electrical conduits are known and identified. Care must be taken to avoid puncturing and injection into these structural elements. Do not apply into electrical fixtures, switches, or sockets.

**Services:** Tengard SFR may be applied as a soil treatment to control termites and ants from attacking underground services, such as, utility lines, pipes, cables, conduits and wires.

Apply 2 to 4 gallons of a 0.5% emulsion per 10 linear feet to the bottom of the trench and allow to soak into the soil. Lay services on the treated soil and cover with approximately 2 inches of fill soil. Apply another 2 to 4 gallons per 10 linear feet over the soil surface to complete the treatment barrier. Volume adjustments for non-porous soils can be made by using 1 to 2 gallons of a 1.0% emulsion per 10 linear feet of trench.

Do not treat electrically active underground services.

### **Pest Control on Outside Surfaces and Around Buildings**

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, doors, and eaves) are limited to spot and crack-and-crevice applications only.

Not for use in outdoor residential misting systems.

**Broadcast Treatment for Control of Nuisance Pests:** Apply using a 0.5% emulsion as a residual spray to outside surfaces of buildings including, but not limited to, exterior siding, foundations, porches, window frames, eaves, patios, garages, and refuse dumps.

**Lawns:** Tengard SFR can be applied to lawns adjacent to or around private homes, duplexes, townhouses, condominiums, house trailers, apartment complexes, carports, garages, fence lines, storage sheds, barns, residential structures, commercial and institutional buildings, and other areas where pests congregate or have been seen. Repeat treatment as necessary to maintain effectiveness.

**Perimeter Treatment:** Apply a band application 6 to 10 feet wide around and adjacent to the structure. Also, treat the base of the structure to a height of 2 to 3 feet. Use a spray volume of 2 to 10 gallons of emulsion per 1,000 square feet. If mulch or debris is present, a higher volume application rate may be needed to ensure adequate coverage. Treat the base of the structure to prevent insects from entering the structure.

**Pests Under Slabs:** Ants, cockroaches, scorpions and other nuisance pests inhabiting under paved areas may be controlled by drilling and injecting or horizontal rodding and then injecting 1 gallon of a 0.5% to 1.0% emulsion per 10 square feet or 2 gallons per 10 linear feet.

**Pest Control in Crawlspaces:** Tengard SFR may be applied at a rate of 0.5% in crawlspaces to control ants, fleas, roaches, scorpions, or other nuisance insects listed in the table below. For proper termite directions see section on Applications for the Control of Subterranean Termites. Treat surfaces until wet. Keep children and pets off surface until dry.

## Insect Pests Controlled by Tengard SFR

PEST	SPECIFIC APPLICATION INSTRUCTIONS
Ants Ant Mounds <sup>1</sup> Armyworm Bark Beetles <sup>3</sup> Bees Beetles Borers <sup>3</sup> Boxelder Bugs <sup>2</sup> Carpenter Ants Carpenter Bees Centipedes Chinchbugs <sup>4</sup> Cockroaches Cockroaches (Asian) Crickets Earwigs Elm Leaf Beetles <sup>2</sup> Fire Ants <sup>1</sup> Fleas <sup>4</sup> Flies Firebrats Ground Beetles Gypsy Moths (adults & caterpillars) <sup>2</sup> Millipedes Mole Crickets Pillbugs Scorpions Silverfish Sod Webworm Sowbugs Spiders Ticks (including Deer Tick and Western Black-legged Tick which may carry Lyme disease and Rocky Mountain Spotted Fever) <sup>4</sup> Wasps	<p><b>Application:</b> Apply as a pinstream, as a fine/coarse, low pressure spray (20 psi or less), as a spot treatment or with a paintbrush. Treat where pests are found or entry points of the structure such as window and door frames and along the foundation.</p> <p><b><sup>1</sup>Mound Drench Treatment:</b> Apply 1 to 2 gallons of emulsion to each mound area by sprinkling the mound until it is wet and treat a 4 foot diameter circle around the mound. Use the higher volume for mounds larger than 12". For best results, apply in cool weather, such as in early morning or late evening hours, but not in the heat of the day.</p> <p><b><sup>2</sup>Boxelder Bugs, Elm Leaf Beetles and Gypsy Moth Caterpillars:</b> Thoroughly spray tree trunks, building siding or wherever pests congregate, but not to the point of runoff.</p> <p><b><sup>3</sup>Borers and Bark Beetles:</b> To prevent infestation of trees and woody ornamentals, thoroughly spray the bark but not to the point of runoff.</p> <p><b><sup>4</sup>Lawns:</b> Mix 0.4 to 0.8 fl. oz. of Tengard SFR in 4 to 25 gallons of water per 1,000 square feet. Use the higher rate for fast knockdown and increased residual control. Dense or excessive (greater than 3 inches) lawn height and arid conditions may require higher volume application rates. Repeat application if necessary. Application in combination with compatible surfactants or wetting agents may enhance penetration.</p>

## Lawn and Ornamental Applications

### Product Application Instructions

Tengard SFR may be used to control insect pests on ornamentals, lawns, trees, shrubs, and vines in landscape areas around residential, public, institutional, commercial and industrial buildings, and on plants intended for aesthetic purposes in interior gardens and landscapes.

Not for use on plants being grown for commercial sale or on plants grown for seed production.

Tengard SFR has demonstrated excellent plant safety; however, not all cultivars have been tested. Before treating large numbers of plants of a particular cultivar, treat a few plants and observe prior to full scale application.

Use the higher rates for heavy pest infestations. Use sufficient volume to uniformly cover plant surface. Higher volumes should be used if arid or drought conditions exist.

Do not water the treated area to the point of runoff. Do not make applications during rain.

Do not apply more than 2.0 lb. a.i./Acre/Year.

### Application Rates for Ornamental Plants and Trees

PLANT	PEST	TREATMENT RATE	SPECIFIC APPLICATION INSTRUCTIONS
<b>Ornamental Plants,</b> foliage and flowering plants, evergreens, woody and herbaceous non-edible ornamentals and non-bearing plants of fruiting species in landscaped areas around industrial, residential and commercial buildings, non-crop, and, for treatment of plants intended for aesthetic purposes in interior gardens and landscapes.	Ants Aphids Bagworm Beet Armyworm Birch Leafminer Cabbage Looper Cankerworms Citrus Thrips Coneworms* Fungus Gnat Gypsy Moth Caterpillars Heliothis spp. Japanese Beetles Lace Bug Leaf Feeding Caterpillars Leafhoppers Leafminers Leafrollers Lygus Bugs Mealybugs Nantucket Pine Tip Moth* Pine Sawflies Plant Bugs Root Weevils (Adult) Seed Bugs* Tent Caterpillars Webworms Whiteflies Zimmerman Pine Moth	4 to 8 fl. oz. per 100 gallons – or – Broadcast 0.9 to 1.8 fl. oz. per 10,000 sq. ft.	Apply sufficient volume of water to adequately cover foliage. Use higher rate for moderate to high infestations. Direct application to blooms may cause browning of petals. Marginal leaf burn may occur on Salvia, Dieffenbachia and Pteris Fern.  *For control of coneworms, Nantucket pine tip moth and seed bugs in evergreens: Begin application when adults appear. Repeat applications may be made on 5 to 7 day intervals as needed. To control Webbing Coneworms make first application just prior to peak pollen flight. To control other Coneworms and Seed Bugs, make application 30 days following flower closure. Mix 8 oz. in 100 gal. of water and apply 5 to 10 gal. of spray per tree.
	<b>Ornamental Trees</b>	Clearwing Moth Borers Ash Borer, Banded Ash Clearwing, Dogwood Borer, Lesser Peachtree Borer, Lilac Borer, Oak Borer, Peachtree Borer, Rhododendron Borer  Bark Beetles Dendroctonus spp., Ips spp., Elm Bark Beetles, Mountain Pine Beetle, Pine Engravers, Turpentine Beetles, Western Pine Beetle  Coleopteran Borers Bronze Birch Borer, Flatheaded Appletree Borer  For maximum residual control of the above listed pests	1 to 2 quarts per 100 gallons  2 to 5 quarts per 100 gallons  2 to 5 quarts per 100 gallons  5.35 quarts per 100 gallons  Apply to the lower branches and trunks prior to adult emergence. Adult emergence varies according to pest species, host tree, environmental conditions and geographic location. Thorough coverage of bark is required for control.

### Application Rates for Lawns

PLANT	PEST	TREATMENT RATE	SPECIFIC APPLICATION INSTRUCTIONS
<b>Lawns</b> around residential, commercial, industrial, institutional, and public areas	Ants Chinchbugs Pillbugs Fleas Mole Crickets Sod Webworm Ticks (including Deer Tick and Western Black-legged Tick which may carry Lyme disease and Rocky Mountain Spotted Fever) For additional pests controlled, consult the list of pests under Outside Surfaces and Around Buildings.	0.4 to 0.8 fl.oz. per 1,000 square feet	Apply using 4 to 25 gallons of spray volume. <b>Subsurface Injection:</b> For flushing of mole crickets, subsurface injection may be used as a flush treatment in conjunction with an EPA-registered mole cricket control product. Inject 0.2 to 0.8 fluid ounces of Tengard SFR per 1,000 square feet. Observe precautions and restrictions on more restrictive label. Do not exceed label rates for these products. Do not mix products with label prohibitions against such mixing.

### Indoor Applications

**Pest Control Indoors (Non-Food/Feed Areas):** Inside residential homes and the non-food/feed areas of commercial establishments including garbage rooms, lavatories, floor drains (to sewers), entries and vestibules, offices, locker rooms, machine rooms, garages, mop closets, packaged goods storage areas and other non-food/feed areas of Food Handling Establishments. Use Tengard SFR to control pests listed in the following table by application of a 0.5% emulsion. Do not apply directly to sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur, except as directed by this label. Do not use in aircraft cabins.

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 while 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 foods may be prepared or held. In the home, all food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed. Not for use in Federally Inspected Meat and Poultry Plants.

### Common Indoor Insect Pests Controlled by Tengard SFR

PEST	SPECIFIC APPLICATION INSTRUCTIONS
Fleas	Prior to treatment, carpets and furniture should be vacuumed thoroughly and vacuum cleaner bag discarded in an outdoor trash container. Evenly apply a broadcast spray at a rate of 1 gallon per 800 to 1,600 square feet to infested areas such as crawlspaces, rugs, carpets, pet beds and other pet resting areas. Avoid wetting or soaking. For crawlspace applications, the applicator must wear a respirator recommended by NIOSH for filtering spray mists and organic vapors. When treating upholstered furniture take care to treat between and under cushions. Pay particular attention to areas which are frequented by pets. Old pet bedding should be replaced with clean, fresh bedding after treatment. To control the source of flea infestations, pets inhabiting the treated premises should be treated with a flea-control product registered for application to animals.

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### Common Indoor Insect Pests Controlled by Tengard SFR *(continued)*

PEST	SPECIFIC APPLICATION INSTRUCTIONS
Ants (including Carpenter Ants, Fire Ants) Bat Bugs Bed Bugs Bees Boxelder Bugs Brown Dog Ticks Carpenter Bees Carpet Beetles Centipedes Cockroaches, (including Asian) Crickets Earwigs Firebrats Flies (such as Drain, Cluster, House) Ground Beetles Leaf Beetles Millipedes Pantry Pests* (such as: Flour Beetles, Indian Meal Moths, Larder Beetles) Pillbugs Scorpions Silverfish Sowbugs Spiders Ticks (including Deer Tick and Western Black-legged Tick which may carry Lyme disease and Rocky Mountain Spotted Fever) Wasps	<p>Apply to cracks and crevices, as a pinstream, as a fine/coarse, low-pressure spray, spot application or with a paintbrush. Treat where pests are found or normally occur, such as cracks and crevices in walls, in and around kitchen cabinets and drawers **, along baseboards, behind sinks and around plumbing and other utility installations. Ant infested wood may be drilled and injected with Tengard SFR.</p> <p>** Remove all utensils, uncovered foodstuffs (or any having original package opened), shelf paper and other objects before spraying. Allow treated surfaces to dry and cover shelves with clean paper before replacing any utensils, foodstuff or other items. Any foodstuff accidentally contaminated with spray solution should be discarded.</p> <p>For the control of carpet beetles, evenly apply the spray to rugs, carpets, along baseboards and edges of carpeting, under carpeting, rugs and furniture, in closets, on shelving, and wherever else these insects are seen or suspected. Avoid wetting or soaking.</p> <p>For the control of Brown Dog Ticks, evenly apply the spray to infested areas, such as pet beds and resting quarters, nearby cracks and crevices, along baseboards, windows and doorframes, and areas of floor and floor coverings where these pests may be present. Avoid wetting or soaking. Old bedding should be removed and replaced with clean, fresh bedding after treatment.</p>

### Agricultural Structures

Tengard SFR can be used for residual pest control in and on buildings and structures used for agricultural purposes and their immediate surroundings. Pests controlled are listed in the accompanying tables. Tengard SFR may be applied as a space spray or directly to walls and ceilings as a residual surface treatment. When applied as a fog or fine mist, direct the spray toward the ceiling and upper corners until the area is filled with mist. For best results, close doors and windows before spraying and keep them closed for 10 to 15 minutes. Vacate the treated area and ventilate before reoccupying. Animals should be removed from area prior to treatment. Repeat treatment as necessary.

The use of any residual fly spray should be supplemented with proper manure management and general sanitation to reduce or eliminate fly breeding areas.



### As a Surface or Space Spray – Livestock Premises

APPLICATION	PEST	DILUTE	APPLICATION RATE
Dairies, barns, feedlots, stables, poultry houses, swine and livestock houses, animal hospitals, pens and kennels, outside meat processing premises	Beetles (such as Darkling Beetle)	As a spray – 4 fl. oz. to 12.5 gallons water	Spray surfaces until wet or 1 gallon per 750 square feet. (Do not use in milk rooms.)
	House Flies Lesser Mealworm Stable Flies and other manure breeding insects	As a fog or mist – 1.5 to 2.0 fl. oz. to 1 gallon water	Apply until area is filled with mist, using 2 fluid ounces per 1,000 cubic feet of space. (Can be used in milk rooms.)
	Also aids in the reduction of cockroaches, mosquitoes and spiders	Overhead space spray system – 4 fl. oz. to 10 gallons mineral oil	4 fl. oz. spray per 1,000 cu. ft. of air space. (Do not use in milk rooms.)
	Temporary reduction of annoyance from pests mentioned above	Outdoor space spray – 1.5 fl. oz. to 1 gallon water	Fill area with mist. Apply while the air is still and avoid wetting foliage.
	Bedbugs Chicken Mites	As a spray – 4 fl. oz. to 10 gallons water. For severe infestation, it is permissible to use 4 fl. oz. to 4 gallons	Spray crevices of roost poles, cracks in walls and cracks in nest and nest boxes.
	Fleas Ticks (including the Deer Tick)	Indoor spray – 3 fl. oz. to 2 gallons water	Treat around windows, doors, porches, screens, eaves, patios, garages, under stairways and in crawl spaces where these pests may occur. Apply until surface is wet (approx. 1 gallon per 750 to 1,000 sq. ft.).
		Outdoor spray – 4 fl. oz. to 100 gallons water. For longer residual, use up to 8 fl. oz. to 100 gallons water	Use enough finished spray to penetrate foliage, usually 50 to 100 gallons per acre. To prevent infestation of buildings, treat a band of vegetation 6 to 10 feet adjacent to the structure.

Avoid contamination of feed and water. Do not apply dilutions for premise spray directly to livestock or poultry.

When used in dairy barns or facilities: close milk bulk tank lids to prevent contamination.

Do not apply this product in barns or stables where animals intended for slaughter or human consumption will be maintained.

Do not apply when food, feed, or water is present. Do not apply directly to animals.

When using this product installers, and service technicians must comply with the license, certification or registration requirements of the state(s), tribe(s), or local authority(ies) where they are installed.

Do not apply this pesticide when people, pets, and/or food are present.

When applying via a remote activation device, do not apply when people and pets are present. If possible, when applying via automatic timer, set the timing for application when people and pets are unlikely to be present.

Direct nozzles to spray towards the target area and away from areas where people are typically present.

Do not use in an evaporative cooling system. Do not use in misters located within 3 feet of air vents, air conditioner units, or windows.

If used in a system with a reservoir tank for the end use dilution, the system reservoir tank must be locked. Securely attach the end use pesticide label and a dilution statement to the system reservoir tank in a weather protected area or plastic sleeve. The dilution statement must be phrased as follows: this container holds \_\_\_\_ parts Tengard SFR to \_\_\_\_ parts water.

If used in a direct injection system, the pesticide container must be locked. Securely attach the end use label to the pesticide container in a weather protected area or plastic sleeve.

This product must be only be used in system that have been calibrated to apply no more than the maximum application rate of \_\_\_\_.

## Livestock Spray

Consult a veterinarian before using this product on medicated, debilitated, aged, pregnant or nursing animals.

ANIMALS	PEST	DILUTE & USE	APPLICATION RATE
Lactating and non-lactating dairy cattle and goats, beef cattle and sheep	Horn Flies only	4 fl. oz. to 50 gallons water (treats 200 head), 0.025% Active Ingredient (AI). High pressure spray.	1 qt. of coarse spray per animal.
	Black Flies Deer Flies Eye Gnats Face Flies Horn Flies Horse Flies House Flies Lice Mange Mites Scabies Mites Sheep Keds Stable Flies Ticks	4 fl. oz. to 25 gallons water (treats 50 to 100 head), 0.05% AI. High pressure spray.	1 to 2 qt. of coarse spray per animal over whole body surface. For mange, scabies, ticks and lice, thoroughly wet animal. Repeat application 10 to 14 days for mites and lice.
	Ear Ticks Face Flies Horn Flies Lice Stable Flies	4 fl. oz. to 2 1/2 gallons water (treats 64 to 80 head), 0.05% AI. Low pressure spray (hand pump sprayer).	For fly and lice control, spray midline from face to tailhead to point of runoff (4 to 5 fl. oz.). For ear tick control, spray directly into each ear (1/2 fl. oz. each).
	Face Flies Horn Flies Stable Flies	4 fl. oz. to 10 gallons diesel oil or suitable mineral oil, 0.125% AI. Backrubber, self oiler.	Keep rubbing device charged. Results improved by daily forced use.
Poultry	Lice Northern Fowl Mites	1 to 4 fl. oz. to 3 3/4 gallons water (treats 375 birds), 0.08 to 0.33% AI. High pressure spray.	1 gallon of coarse spray per 100 birds, paying particular attention to vent area.
Swine (allow 5 days between last treatment and slaughter)	Lice Mange	4 fl. oz. to 25 gallons water (treats 50 to 100 head), 0.05% AI. Sprayer or dip.	Thoroughly wet or dip animals including ears. For mange, spray pen floors, sides and bedding. Repeat at 14 days.
Horses	Black Flies Eye Gnats Face Flies Fleas Horn Flies Horse Flies House Flies Lice Mange Mites Scabies Mites Stable Flies Ticks	1/4 fl. oz. to 1 pt. water, 0.6257% AI. Low pressure spray.	1 to 2 fl. oz. spray per animal. Spot treat back, face, legs, tail and ears.
		1/4 fl. oz. to 1 1/4 gallons water, 0.0626% AI. Dip wash.	Thoroughly wet animal to skin with sponge or rag. Let drip dry.

### Companion Animals (Dogs Only)

Do not use on dogs under twelve (12) weeks old. Consult a veterinarian before using this product on medicated, debilitated, aged, pregnant or nursing animals. Sensitivities may occur after using any pesticide product on pets. If signs of sensitivity occur, bathe your pet with mild soap and rinse with large amounts of water. If signs continue, consult a veterinarian immediately. Avoid contact with face, eyes, and genitalia. Repeat applications every 2 weeks, if necessary.

ANIMALS	PEST	DILUTE & USE	APPLICATION RATE
Dogs (do not use on cats)	Fleas Ticks	1/4 fl. oz. to 1 pt. water, 0.6257% AI. Low pressure spray.	1 to 2 fl. oz. spray per animal. Spot treat back, face, legs, tail and ears.
		1/4 fl. oz. to 1 1/4 gallons water, 0.0626% AI. Dip wash.	Thoroughly wet animal to skin with sponge or rag. Let drip dry.
		4 fl. oz. to 20 gallons water, 0.0625% AI. Dip wash.	Make sure all areas are soaked to skin. Let drip dry on animal. Do not rinse off.

### Applications for Fruit and Nut Trees Around Residential Sites Only

Apply the appropriate amount of Tengard SFR (see table below) in 100 gallons of water per acre (1 gallon per 436 sq. ft.). Tengard SFR may be diluted and applied in greater volumes of water provided that the maximum application rates listed below are not exceeded on a per acre basis. For example: when attempting to control Navel Orangeworm on almonds using an application volume of 200 gallons per acre (2 gallons per 436 sq. ft.), the maximum legal dilution of Tengard SFR is 8 fluid ounces per 100 gallons (1/2 teaspoon per gallon).

#### Application Rates for Fruit and Nut Trees Around Residential Sites Only

TREE	PEST	RATE	CROP
Almond	Navel Orangeworm Peach Twig Borer	8 to 10 fl. oz. per 100 gal./A or 1/2 to 1 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 3. Minimum retreatment interval is 10 days.  Do not harvest nuts within 7 days after application. Do not apply more than 30 fluid ounces (0.75 lb. a.i./A) per acre per year. Apply in a minimum of 15 gal./A using aerial or ground equipment. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.
Apples	Green Fruitworm Oblique Banded Leafroller Plum Curculio Redbanded Leafroller Rosy Apple Aphid Spotted Tentiform Leafminer Tarnished Plant Bug White Apple Leafhopper	4 to 8 fl. oz. per 100 gal./A or 1/4 to 1/2 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 2. Minimum retreatment interval is 10 days.  Do not apply more than 24 fluid ounces (0.5 lb. a.i./A/season) per acre per year.  Do not apply after petal fall. Apply in a minimum of 25 gal./A using ground equipment. Do not graze livestock in treated areas or feed cover.
Cherries	Green Fruitworm Lesser Peachtree Borer Plum Curculio Redbanded Leafroller Rose Chafer Tarnished Plant Bug	4 to 8 fl. oz. per 100 gal./A or 1/4 to 1/2 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 3. Minimum retreatment interval is 10 days. Do not harvest fruit within 3 days after application. Do not make more than 3 applications per year. Do not make more than 3 applications after petal fall. Do not apply more than 0.6 lb. a.i./A/season. Apply in a minimum of 25 gal./A. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.
Filberts	Filbertworm Oblique Banded Leafroller	8 to 16 fl. oz. per 100 gal./A or 1/2 to 1 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 4.  Do not harvest nuts within 14 days after application. Do not apply more than 64 fluid ounces per acre per year. Do not apply more than 1.6 lb. a.i./A/season. Apply in a minimum of 10 gal./A using ground equipment and 25 to 50 gal./A using aerial equipment. Do not graze livestock in treated areas or feed cover crops from treated orchards to livestock.

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### Application Rates for Fruit and Nut Trees Around Residential Sites Only *(continued)*

TREE	PEST	RATE	CROP
Peaches	Green Fruitworm Lesser Peachtree Borer Oriental Fruit Moth Peach Twig Borer Plum Curculio Rose Chafer Tarnished Plant Bug	4 to 10 fl. oz. per 100 gal./A or 1/4 to 3/4 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 3. Minimum retreatment interval is 10 days.  Do not harvest fruit within 14 days after application. Do not apply more than 30 fluid ounces per acre per year. Do not apply more than 0.75 lb. a.i./A/season. Apply in a minimum of 10 gal./A using aerial equipment and 25 gal./A using ground equipment. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.
Pears	Pear Psylla	8 to 10 fl. oz. per 100 gal./A or 1/2 to 1 tsp. per 1 gal./436 sq. ft.	Minimum retreatment interval is 10 days. Apply only during dormant through delayed dormant growth periods. Do not apply more than 26 fluid ounces per acre per year or 0.65 lb. a.i./A/season. Apply in a minimum of 10 gallons per acre using aerial equipment and 25 gallons per acre using ground equipment. Do not graze livestock in treated areas or feed cover crops from treated areas.
Pistachios	Leaffooted Bugs Navel Orangeworm Peach Twig Borer Plant Bugs Stinkbugs	8 to 12 fl. oz. per 100 gal./A or 1/2 to 1 tsp. per 1 gal./436 sq. ft.	Maximum number of applications = 2. Minimum retreatment interval is 10 days.  Nuts may be harvested on the day of application. Do not apply more than 24 fluid ounces per acre per year. Do not apply after 10 percent hull split. Apply in a minimum of 10 gallons per acre using aerial equipment and 25 gallons per acre using ground equipment. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

1 fl. oz. = 2 tablespoons = 6 teaspoons

Do not use household utensils to measure Tengard SFR.

**Tengard SFR is not for use on commercial fruit and nut trees.**

### Treatment of Preconstruction Lumber and Logs

#### Product Use Information

Tengard SFR must be diluted. To prepare the spray, dilute Tengard SFR as shown in the following spray dilution chart:

GALLONS OF SPRAY MIXTURE DESIRED	GALLONS OF TENGARD SFR FOR 0.5% SOLUTION	GALLONS OF TENGARD SFR FOR 0.75% SOLUTION	GALLONS OF TENGARD SFR FOR 1.0% SOLUTION
40	1/2	3/4	1
80	1	1 1/2	2
200	2 1/2	3 3/4	5
400	5	7 1/2	10
800	10	15	20

#### Directions for Application

To protect unseasoned lumber and logs from wood destroying insects, such as Termites, Carpenter Ants and Beetles (Ambrosia, Powder-post, Old house borers and others), totally treat wood with a 0.5% to 1.0% solution of Tengard SFR. This solution can be applied by various methods including spraying, brushing, dipping, and pressure treatment. Frequent monitoring of dip and pressure systems are necessary to insure that the desired level of Tengard SFR is maintained. Wood can be handled after treatment when dry.

1. For dip treatments, totally submerge the wood in the solution until thoroughly wet and then allow to dry in a suitable location. Agitate dipping solutions to which Tengard SFR has been added before use if left unused for long periods of time. Periodically clean sediment, debris and other deposits from the tank.
2. For pressure treatments the wood must be placed in the treatment chamber, the Tengard SFR solution added and the system pressurized up to 250 psi for up to one hour depending on the density and type of wood treated. After the pressure is released and the system drained, the wood should be placed in a suitable location for drying.
3. For spray treatments, spray the wood thoroughly including back and ends.
4. For brush treatments, thoroughly treat all parts of wood surfaces.

## STORAGE AND DISPOSAL

### Pesticide Storage

Store at temperatures above 40°F (5°C).

Shake container well before using. If crystals form, warm to room temperature by placing container in a room at ambient temperature 70°F (21°C) until crystals dissolve.

Do not use or store near heat, open flame or hot surfaces.

Keep out of reach of children and animals.

Store in a dry place and avoid excess heat in storage. Store in original containers only.

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. To confine spill, dike surrounding area or absorb with sand, cat litter, commercial clay or gel absorbents. 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

Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying.

Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact the Ag Container Recycling Council at [www.acrecycle.org](http://www.acrecycle.org).

Triple rinse container promptly after emptying. If recycling is not available puncture and dispose of in a sanitary landfill or incineration or if allowed by state and local authorities by burning. If burned stay out of smoke.

For containers smaller than 5 gallons, triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

For containers larger than 5 gallons, triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

## 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. To the extent consistent with applicable law, 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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70506-6(081613-4622)



# Safety Data Sheet

United Phosphorus, Inc.

Preparation Date 08-May-2015

Revision date 08-May-2015

Revision Number: 1

## 1. Identification of the Substance/Preparation and of the Company/Undertaking

### Product identifier

**Product Description:** Tengard SFR One Shot

### Other means of identification

**Item#:** 12U-131  
**UN-No** UN1993  
**Synonyms** Not Available  
**Registration number(s)** 70506-6

### Recommended use of the chemical and restrictions on use

**Recommended use** Insecticide, termiticide.  
**Uses advised against** Activities contrary to label recommendation

### Details of the Supplier of the Safety Data Sheet

#### Supplier Address

UPI  
630 Freedom Business Center  
Suite 402  
King of Prussia, PA 19406

#### Emergency telephone number

**Company Phone Number** 1-800-438-6071  
**Emergency telephone number** Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887  
Medical: Rocky Mountain Poison Control Center  
(866) 673-6671 (24hrs)

## 2. Hazards Identification

### Classification

#### **OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin sensitization	Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Aspiration toxicity	Category 1

### Label elements

#### EMERGENCY OVERVIEW

#### **DANGER**

#### **hazard statements**

May cause an allergic skin reaction  
May cause genetic defects  
May cause cancer  
May be fatal if swallowed and enters airways

**appearance** amber**Physical state** liquid**Odor** faint Mild (bad translation) Petroleum**Precautionary Statements - Prevention**

Do not handle until all safety precautions have been read and understood  
 Do not handle until all safety precautions have been read and understood  
 Wear cold insulating gloves/face shield/eye protection  
 Do not get in eyes, on skin, or on clothing  
 Contaminated work clothing should not be allowed out of the workplace  
 Wear protective gloves

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention  
 IF ON SKIN: Wash with plenty of soap and water  
 If skin irritation or rash occurs: Get medical advice/attention  
 Wash contaminated clothing before reuse  
 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
 Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards Not Otherwise Classified (HNOC)****OTHER INFORMATION**

- Very toxic to aquatic life with long lasting effects
- Very toxic to aquatic life

### 3. Composition/information on Ingredients

Chemical name	CAS-No	Weight %	Trade secret
Permethrin technical	52645-53-1	36.8	
Hydrocarbon solvent	Proprietary	>15	

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

### 4. First aid measures

**FIRST AID MEASURES****Eye contact**

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

**Skin contact**

Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Call poison control center or doctor for treatment advice.

**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 physician or poison



control center immediately.

**Ingestion** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

**Protection of First-aiders** Use personal protective equipment.

**Most Important Symptoms and Effects, Both Acute and Delayed**

**Most Important Symptoms and Effects** No information available.

**Indication of Any Immediate Medical Attention and Special Treatment Needed**

**Notes to physician** Treat symptomatically. Treatment should include monitoring for the development of hypersensitivity reactions with respiratory distress. For paresthesia, Vitamin E topical application is highly effective.

## 5. Fire-fighting measures

**Suitable extinguishing media**

Carbon dioxide (CO<sub>2</sub>). Water. Foam.

**Unsuitable extinguishing media** No information available.

**Specific hazards arising from the chemical**

Thermal decomposition can lead to release of irritating gases and vapours.

**Hazardous combustion products** Carbon dioxide (CO<sub>2</sub>). Chlorine. Hydrogen chloride.

**Explosion data**

**Protective equipment and precautions for firefighters**

Use personal protective equipment. As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** Provide adequate ventilation. Avoid contact with the skin and the eyes. Remove all sources of ignition. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling.

**Environmental Precautions**

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

**Methods and material for containment and cleaning up**

**Methods for Clean-Up** Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Ground and bond containers when transferring material. Sweep up and shovel into suitable containers for disposal.

## 7. Handling and Storage

**Precautions for safe handling**

**Handling** Do not eat, drink or smoke when using this product. Remove all sources of ignition. Avoid contact with skin and eyes. Keep away from open flames, hot surfaces and sources of

ignition. Check that all equipment is properly bonded and grounded. Use spark resistant tools. Remove and wash contaminated clothing before re-use.

#### Conditions for safe storage, including any incompatibilities

**Storage** Keep container tightly closed in a dry and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of the reach of children. Store in an area where cross-contamination with pesticides, fertilizers, food or feed could not occur. Static electricity may accumulate when transferring material. All containers must be bonded and grounded during filling and emptying operations.

**incompatible materials** Strong oxidizing agents.

### 8. Exposure Controls/Personal Protection

#### Exposure guidelines

Chemical name	ACGIH TLV	OSHA PEL
Hydrocarbon solvent	TWA: 100 ppm	TWA: 500 ppm TWA: 2900 mg/m <sup>3</sup> (vacated) TWA: 100 ppm (vacated) TWA: 525 mg/m <sup>3</sup>

**Engineering controls** Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

#### Personal protective equipment

##### **Eye/Face Protection**

Use eye protection to avoid eye contact. Where there is potential for eye contact have eye flushing equipment available. Goggles. If splashes are likely to occur, wear: Face-shield.

##### **Skin protection**

Wear protective gloves/clothing. Chemical resistant footwear plus socks.

##### **Respiratory protection**

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection programs must comply with 29 CFR 1910.134.

#### General hygiene considerations

Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wear suitable gloves and eye/face protection. Wash hands before breaks and immediately after handling the product.

### 9. Physical and Chemical Properties

#### Information on basic physical and chemical properties

<b>Physical state</b>	liquid	<b>Odor</b>	faint Mild (bad translation)
<b>appearance</b>	amber		Petroleum
<b>color</b>	No information available		
<b><u>Property</u></b>	<b><u>VALUES</u></b>	<b><u>Remarks/ • Method</u></b>	
pH	4.9		
Melting point/freezing point	5.9 °C / 43 °F		
Boiling Point/Range	No information available		
Flash Point	44 C 111 °F		
Evaporation Rate	No information available		
flammability (solid, gas)	No information available		
Flammability limit in air			
Upper Flammability Limit	No information available		
Lower Flammability Limit	No information available		
vapor pressure	No information available		

Vapor Density	No information available
Specific gravity	1.039 @ 20 C
Water solubility	No information available
Solubility in Other Solvents	No information available
Partition coefficient: n-octanol/water	No information available
Autoignition temperature	No information available
decomposition temperature	No information available
Viscosity, kinematic	No information available
Dynamic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

**OTHER INFORMATION**

Softening point	No information available
molecular weight	1.039 @ 20 C
VOC Content	No information available
density	No information available
Bulk density	No information available

**10. Stability and Reactivity****Reactivity**

no data available

**Chemical stability**

Stable under normal conditions.

**Possibility of hazardous reactions**

None under normal processing.

**Hazardous polymerization**

Hazardous polymerisation does not occur.

**Conditions to avoid**

Heat, flames and sparks.

**Incompatible materials**

Strong oxidizing agents.

**Hazardous decomposition products**

Carbon oxides.

**11. Toxicological Information****Information on Likely Routes of Exposure**

Inhalation	HARMFUL IF INHALED.
Eye contact	Moderately irritating to the eyes.
Skin contact	May be harmful if absorbed through the skin.
Ingestion	HARMFUL IF SWALLOWED.

**Component Information**

Permethrin - has low mammalian toxicity and virtually no allergic side effects and is not a skin or eye irritant. However, prolonged exposure might result in parathesia (tingling sensation), which is reversible within 12 hours. Exposure to permethrin is via dermal contact and inhalation. In repeat patch tests in humans, dermal applications of permethrin at 1% for up to 9 days did not result in irritation or sensitization. The clinical manifestations of inhalation exposure are confined to the upper respiratory tract and include rhinitis, sneezing, cough, and scratchy throat.

Hydrocarbon solvent (Stoddard) - Exposure via inhalation or dermal contact. Humans exposed for 30 minutes to up to 2,400 mg/m<sup>3</sup> of completely vaporized Stoddard solvent had no dose related changes in motor coordination and the exposure level of 2,400 mg/m<sup>3</sup> was considered as the no observed effect level. In a 15 minute period, eye irritation,

characterized as a slight dryness, was reported in one of six volunteers at 150 ppm. At 470 ppm (2,700 mg/m<sup>3</sup>), ocular irritation was reported by all six volunteers. Exposure greater than 525 mg/m<sup>3</sup> have been associated with ocular and dermal irritation, defatting of the skin, and anusea. Acute effects from inhaling large concentrations of Stoddard solvent has been associated with headaches, fatigue, intermittent episodes of inebriation, and memory deficits that generally resolve on discontinuation of exposure. Ingestion of petroleum hydrocarbons are poorly absorbed from the gastrointestinal tract, and do not cause appreciable systemic toxicity by this route unless aspiration has occurred.

Chemical name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hydrocarbon solvent	500	-	-

### Information on Toxicological Effects

**Symptoms** No information available.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**sensitization** No information available.  
**Mutagenic effects** No information available.  
**Carcinogenicity** The information below indicates whether any agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Permethrin technical 52645-53-1	-	Group 3		-

**Reproductive effects** Not Available.  
**STOT - Single Exposure** No information available.  
**STOT - repeated exposure** No information available.  
**Target organ effects** kidney, Respiratory System, EYES, skin, Central Nervous System (CNS).  
**Aspiration hazard** No information available.

### Numerical Measures of Toxicity - No information available

The following values are calculated based on chapter 3.1 of the GHS document . 777 mg/kg (rat) 0 mg/kg (rat) 0 mg/l (mist) (dust) mg/m<sup>3</sup> 0 ml/m<sup>3</sup> (Vapor)

## 12. Ecological Information

Marine Pollutant. (Permethrin).

### ecotoxicity

Permethrin in soil is stable over a wide range of pH values when applied at agricultural use rates. Permethrin has moderate rate of degradation in soil. At termiticidal use rates, permethrin degrades at a slower rate which is governed by soil characteristics such as soil type, microbial population concentration in soil and aerobic conditions of the soil. Due to its high affinity for organic matter, there is little potential for movement in soil or entry into ground water. Permethrin has a low Pow of 6.1 but a low potential to bioconcentrate (BCF=500) due to the ease with which it is metabolized.

Extremely toxic to fish = 0.05 ug/L to 315 ug/L

Extremely toxic to aquatic arthropods LC50 = 0.02 ug/L to 7.6 ug/L

Marine species are often more sensitive than freshwater species. Bacteria, algae, mollusks and amphibians are much more tolerant of permethrin than the fish and arthropods. Care should be taken to avoid contamination of the aquatic environment. Permethrin is slightly toxic to birds and oral L50 values are greater than 3,600 mg/kg. Longer dietary studies showed that concentrations of up to 500 ppm in the diet had no effect on bird reproduction. Permethrin is extremely toxic to fish, aquatic invertebrates and honey bees.

rainbow trout 96 hr LC50 = 2.5 ug/L

Bluegill sunfish 95 hr LC50 = 1.8 ug/L

Japanese quail LD50 = 23,000 mg/kg

Mallard duck LD50 = 11,257 mg/kg

### Persistence/Degradability

No information available.

**Bioaccumulation/ Accumulation**

Bioaccumulative potential.

Chemical name	Log Pow
Permethrin technical 52645-53-1	6.5

**Other Adverse Effects**

No information available

**13. Disposal Considerations****Waste Treatment Methods****Waste Disposal Method**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or 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.

**Contaminated packaging**

Refer to product label.

**14. Transport Information****DOT**

UN-No	UN1993
Proper shipping name	Flammable liquid, n.o.s (Hydrocarbon)
Hazard class	3
Packing group	PG III
Marine Pollutant	Marine Pollutant. (Permethrin).

**TDG****ICAO**

UN-No	UN1993
Proper shipping name	Flammable liquid, n.o.s (hydrocarbon solvent)
Hazard class	3
Packing group	PG III
Description	Marine Pollutant (Permethrin)

**IATA**

UN-No	UN1993
Proper shipping name	Flammable liquid, n.o.s (hydrocarbon)
Hazard class	3
Packing group	PG III
Description	Marine Pollutant (Permethrin)

**IMDG/IMO**

UN-No	UN1993
Proper shipping name	Flammable liquid, n.o.s (hydrocarbon)
Hazard class	3
Packing group	PG III
EmS No.	F-E, S-E
Marine Pollutant	Marine Pollutant

**15. Regulatory Information**

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**signal word** CAUTION

**Ventilation Control** PESTICIDE APPLICATORS & WORKERS THESE WORKERS MUST REFER TO PRODUCT LABELING AND DIRECTIONS FOR USE IN ACCORDANCE WITH EPA WORKER PROTECTION STANDARD 40 CFR PART 170.

**Harmful if inhaled or absorbed through skin. Harmful if swallowed. Keep out of Reach of Children. Causes moderate eye irritation. Extremely toxic to aquatic organisms including fish and invertebrates.**

#### International Inventories

USINV	Not determined
DSL/NDL	Not determined
EINECS/	Does not comply
ELINCS	
ENCS	Does not comply
China	Does not comply
KECL	Does not comply
PICCS	Does not comply
AICS	Does not comply
TSCA	Does not comply

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**ENCS** - Japan Existing and New Chemical Substances

**IECSC** - China Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

#### Federal Regulations

##### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical name	SARA 313 - Threshold Values
Permethrin technical - 52645-53-1	1.0

##### SARA 311/312 Hazardous

##### Categorization

Acute health hazard	yes
Chronic health hazard	NO
Fire hazard	yes
Sudden release of pressure hazard	No
Reactive Hazard	yes

##### CERCLA

**SARA Product RQ** 0

##### RCRA

##### Pesticide Information

Component	FIFRA - Restricted Use	FIFRA - Pesticide Product Other Ingredients	FIFRA - Listing of Pesticide Chemicals	California Pesticides - Restricted Materials

Permethrin technical 52645-53-1 ( 36.8 )			X	
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**State Regulations****State Right-to-Know**

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Permethrin technical	X	X		X	
Hydrocarbon solvent	X	X	X		

**International regulations****U.S. EPA Label information**

EPA Pesticide registration number 70506-6

**16. Other Information****NFPA**

HEALTH 3

flammability 2

Instability 1

Physical hazard -

Preparation Date

08-May-2015

Revision date

08-May-2015

Revision Summary

Update to GHS format

**End of MSDS**