



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**WASHINGTON, DC 20460**

**OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION**

August 11, 2023

Arianna Shorey  
Regulatory Consultant  
Tide International, USA, Inc.  
c/o Pyxis Regulatory Consulting Inc.  
4110 136th St. Ct. NW  
Gig Harbor, WA 98332

**Subject:** Label Amendment – Food Use Removal and Implementation of BiOps Mitigation  
Product Name: Chlorpyrifos 4 EC  
EPA Registration Number: 84229-20  
Application Dates: April 12, 2022 and September 2, 2022  
Decision Number: 583386 and 591652

Dear Arianna Shorey:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. The next label printing of this product must use this labeling unless subsequent changes have been approved. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. “To distribute or sell” is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact Briana Hanlon at (202) 566-2716 or at [hanlon.briana@epa.gov](mailto:hanlon.briana@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "M. Walsh", written in a cursive style.

Michael Walsh  
Product Manager 11  
Invertebrate & Vertebrate Branch 2  
Registration Division  
Office of Pesticide Programs

{Note to reviewer: [Text] in brackets denotes optional text. {Text} in braces denotes where in the final label text will appear and notes to reviewer.}

# RESTRICTED USE PESTICIDE

For retail sale to and use only by Certified Applicators or person under their direct supervision and only for those uses covered by the Certified Applicator's Certification.

CHLORPYRIFOS GROUP 1B INSECTICIDE

## Chlorpyrifos 4 EC

For control of listed insects for use on commercial turfgrass (golf courses (turf only), road medians and industrial plant sites), Christmas Trees (plantations), tobacco, and turfgrass grown for sod.

### ACTIVE INGREDIENT:

Chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate) ..... 44.9%

**OTHER INGREDIENTS:** ..... 55.1%

**TOTAL:** ..... 100.0%

Contains 4 pounds of chlorpyrifos per gallon.

Contains petroleum distillates.

## KEEP OUT OF REACH OF CHILDREN WARNING AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail).

FIRST AID Organophosphate	
<b>If swallowed:</b>	<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 <b>any</b> liquid to the person.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently with water for 15-20 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>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Contains petroleum distillate – vomiting may cause aspiration pneumonia. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.	

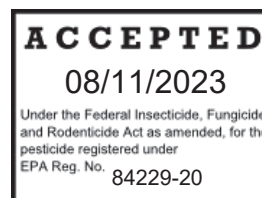
EPA Reg. No. 84229-20

EPA Est. No.

**Manufactured for:**

Tide International USA, Inc.  
21 Hubble  
Irvine, CA 92618

Net Contents:



## **PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS WARNING**

May be fatal if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing.

### **PERSONAL PROTECTIVE EQUIPMENT (PPE)**

**Mixers and loaders** using a mechanical transfer loading system and applicators using aerial application equipment must wear:

- Long-sleeved shirt and long pants
- Shoes and socks

In addition to the above, **mixers and loaders** using a mechanical transfer loading system must wear:

- Chemical-resistant gloves made of barrier laminate or Viton  $\geq$  14 mils
- Chemical-resistant apron
- A minimum of a NIOSH-approved particulate filtering facepiece respirator with any R, or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R, or P filter; OR a NIOSH-approved powered air purifying respirator with HE filters.

See Engineering Controls for additional requirements.

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

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate or Viton  $\geq$  14 mils
- Chemical-resistant apron when mixing or loading or exposed to the concentrate
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure
- A minimum of a NIOSH-approved particulate filtering facepiece respirator with any R, or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R, or P filter; OR a NIOSH-approved powered air purifying respirator with HE filters

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

### **ENGINEERING CONTROLS**

Mixers and loaders supporting aerial applications must use a mechanical transfer system that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)] for dermal protection, and must:

- Wear the personal protective equipment required above for mixers/loaders
- Wear protective eyewear if the system operates under pressure, and
- Be provided and have immediately available for use in an emergency, such as broken package, spill, or equipment breakdown: coveralls, chemical-resistant footwear and chemical-resistant headgear if overhead exposure

Pilots must use an enclosed cockpit in a manner that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(6)].

Use of human flaggers is prohibited. Mechanical flagging equipment must be used.

When handlers use closed cab motorized ground application equipment that meets the requirements listed in the WPS for agricultural pesticides [40 CFR 170.240(d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

## USER SAFETY RECOMMENDATIONS

### Users should:

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

## ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, small mammals and birds. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

## PHYSICAL OR CHEMICAL HAZARDS

**Combustible.** Do not use or store near heat or open flame.

## DIRECTIONS FOR USE

### Restricted Use Pesticide

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

This product cannot be reformulated or repackaged into other end-use products.

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

## AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI). The REI for each crop is listed in the directions for use associated with each crop.

**Exception:** If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances allows workers to enter the treated area if there will be no contact with anything that has been treated.

Certified crop advisors or persons entering under their direct supervision under certain circumstances may be exempt from the early reentry requirements pursuant to 40 CFR Part 170.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is:

- Coveralls over short-sleeved shirt and long pants
- Chemical-resistant gloves made of barrier laminate or Viton  $\geq$  14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure.

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

## PRODUCT INFORMATION

Chlorpyrifos 4 EC insecticide is an emulsifiable concentrate for use in crops listed on this label. Chlorpyrifos 4 EC can also be used to control various insect pests injurious to turfgrass grown for sod, on golf courses, in roadway medians or around industrial buildings. This product resists washoff once it is dry. Target pests and application rates are provided in the accompanying tables.

### Use Precautions

- Insect control may be reduced at low spray volumes under high temperature and wind conditions.
- Some reduction in insect control may occur under unusually cool conditions.

### Use Restrictions

- Use as a wide area/general outdoor treatment for ants and other miscellaneous pests (excludes wide-area mosquito adulticide use) is prohibited.
- This product is not for outdoor residential use on lawns, turf, ornamentals, home gardens, flowers, shrubs, or trees. This restriction applies to all uses listed on this label.
- **DO NOT** aerially apply this product in Mississippi.
- **DO NOT** treat vegetable gardens.
- **DO NOT** allow livestock to graze in treated areas.
- **DO NOT** feed treated grass cuttings (hay) or seed screenings to livestock nor use hay for livestock bedding.
- **DO NOT** use in poultry houses or greenhouses.
- **DO NOT** aerially apply this product unless specified in crop-specific directions in this label.
- **DO NOT** apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, wetlands or natural ponds, estuaries, and commercial fish farm ponds).
- **DO NOT** apply directly to, or allow the product to enter sewers or storm drains, or to any area like a drain or gutter where drainage to sewers, storm drains, water bodies, or aquatic habitat can occur.
- **DO NOT** apply directly to impervious horizontal surfaces such as sidewalks, driveways, and patios except as a spot or crack-and-crevice treatment.
- **DO NOT** apply to vertical surfaces directly above pervious or impervious surfaces that drain into ditches, storm drains, gutters, or surface waters.
- **DO NOT** apply or irrigate to the point of runoff.
- **Chemigation: DO NOT** apply this product by chemigation. **DO NOT** apply to labeled areas through any other type of irrigation system.
- Keep product out of fishpools and other bodies of water.
- **Flood irrigation:** To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours following a soil surface or foliar application of Chlorpyrifos 4 EC.

### Endangered Species Protection Requirements

It is a Federal offense to use any pesticide in a manner that results in an unauthorized “take” (e.g., kill or otherwise harm) of an endangered species and certain threatened species under the Endangered Species Act section 9. When using this product, you must follow the measures contained in the Endangered Species Protection Bulletin for the area in which you are applying the product. You must obtain a Bulletin no earlier than six months before using this product. To obtain Bulletins, consult <http://www.epa.gov/espp/>, call 1-844-447-3813, or email [ESPP@epa.gov](mailto:ESPP@epa.gov). You must use the Bulletin valid for the month in which you will apply the product.

Reporting Ecological Incidents: To report ecological incidents, including mortality, injury, or harm to plants and animals, call 949-679-3535.

## RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, Chlorpyrifos 4 EC contains a Group 1B insecticide/acaricide. Any insect/mite population may contain individuals naturally resistant to Chlorpyrifos 4 EC and other Group 1B insecticides/acaricides. The resistant individuals may dominate the insect/mite population if this group of insecticides/acaricides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay insecticide/acaricide resistance, take the following steps:

- Rotate the use of Chlorpyrifos 4 EC or other Group 1B insecticides/acaricides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides/acaricides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
  - Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
  - Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
  - When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
  - Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
  - The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide/acaricides use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Tide International USA, Inc. at 949-679-3535.

### Spray Drift Management

Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland sites, woodlands, pastures, rangelands, or animals.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making the decision to apply this product.

Observe the following precautions when spraying Chlorpyrifos 4 EC adjacent to permanent bodies of water such as rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds.

The following treatment setbacks or buffer zones must be utilized for applications around the above-listed aquatic areas with the following application equipment:

Application Method	Required Setback (Buffer Zone)(feet)
Ground boom	25
Aerial (fixed wing or helicopter)	150

The buffer distances specified in the below table are the distances in feet that must exist to separate sensitive sites from the targeted application site. Buffers are measured from the edge of the sensitive site to the edge of the application site.

Sensitive sites are areas frequented by non-occupational bystanders (especially children). These include residential lawns, pedestrian sidewalks, outdoor recreational areas such as school grounds, athletic fields, parks and all property associated with buildings occupied by humans for residential or commercial purposes. Sensitive sites include homes, farmworker housing, or other residential buildings, schools, daycare centers, nursing homes, and hospitals. Non-residential agricultural buildings, including sheds, and outhouses are not included in this prohibition.

Application rate (lb ai/A)	Nozzle Droplet Type	Required Setback (Buffer Zones) (feet)	
		Aerial	Ground
>0.5 - 1	coarse or very coarse	10	10
>0.5 - 1	medium	25	10
>1 - 2	coarse or very coarse	50	10
>1 - 2	medium	80	10
>2 - 3	coarse or very coarse	80 <sup>1</sup>	10
>2 - 3	medium	100 <sup>1</sup>	10
>3 - 4	medium or coarse	NA <sup>2</sup>	10
>4	medium or coarse	NA	10

<sup>1</sup>Aerial application of greater than 2 lb ai/A is only permitted for Asian Citrus Psylla control, up to 2.3 lb ai/A.

<sup>2</sup>NA is not allowed.

Only pesticide handlers are permitted in the setback area during application of this product. Do not apply this product if anyone other than a mixer, loader, or applicator, is in the setback area. Exception: Vehicles and persons riding bicycles that are passing through the setback area on public or private roadways are permitted.

Making applications when wind is blowing away from sensitive areas is the most effective way to reduce the potential for adverse effects.

The following spray drift **best management practices** are recommended to avoid off-target drift movement from applications.

#### Aerial Application

- The boom width must not exceed 75% of the wingspan or 90% of the rotor blade.
- Nozzles must always point backward, parallel with the air stream, and never be pointed downward more than 45 degrees.
- Nozzles must produce a medium or coarser droplet size (255 to 340 microns volume median diameter) per ASABE Standard 572 under application conditions. Airspeed, pressure, and nozzle angle can all effect droplet size. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
- Applications must not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.
- Use upwind swath displacement and apply only when wind speed is 3 to 10 mph as measured by an anemometer. Do not apply product when wind speed exceeds 10 mph.
- If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.



Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

### **Aerial Drift Reduction Advisory**

**This section is advisory in nature and does not supercede the mandatory label requirements.**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent adverse effects from drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

#### **Controlling Droplet Size:**

- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.
- Nozzle orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator should compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 1.5 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud

(under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

### **Ground Boom Application**

The following mandatory spray drift **best management practices** are required to reduce the likelihood of off-target drift movement from ground applications.

- Choose only nozzles and pressures that produce a medium or coarse droplet size (255 to 400 microns volume median diameter) per ASABE Standard 572. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
- Apply with nozzle height no more than 4 feet above the ground or crop canopy.
- Do not apply product when wind speed exceeds 10 mph as measured by an anemometer.

### **Application Directions**

**Broadcast Foliar Application:** Apply with conventional power-operated spray equipment using nozzles and spray pressures specified for insecticides. Apply Chlorpyrifos 4 EC in a spray volume of not less than 2 gallons per acre (gpa) for aerial application equipment (fixed wing or helicopter) or not less than 10 gpa for ground equipment, unless otherwise specified. Increase spray volume to ensure adequate coverage with increased density and height of crop canopy.

**Ground Application:** Orient the boom and nozzles so that uniform coverage is obtained. The swath width should not be wider than the boom. Follow nozzle manufacturer's recommendations for insecticide nozzles with respect to nozzle type, pressure, and spacing.

**Broadcast Soil Application:** Apply with conventional power-operated spray equipment that will apply the product uniformly to the soil surface. Use nozzles that produce medium or coarse droplets (235 to 400 microns). Unless otherwise indicated, a spray volume of 10 gpa or more is needed. For band application, use proportionately less spray volume.

**Aerial Application:** Use a minimum spray volume of 2 gpa. Marking of swaths by mechanical flagging, permanent markers or use of GPS equipment is recommended.

### **Mixing Directions**

**It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.**

To prepare the spray, add a portion of the required amount of water to the spray tank and, with the spray tank agitator operating, add Chlorpyrifos 4 EC. Complete filling the tank with the balance of water needed. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture.

Chlorpyrifos 4 EC is compatible with insecticides, miticides, and fungicides and non-pressure fertilizer solutions commonly recommended except for alkaline materials such as Bordeaux mixture and lime. It is always recommended that a small jar compatibility test be run prior to tank mixing. Prepare tank mixtures in the same manner as directed above for use of Chlorpyrifos 4 EC alone. When tank mixing Chlorpyrifos 4 EC with herbicides, add wettable powders first, flowables second, and emulsifiable concentrates last. When a fertilizer solution is involved, it is strongly recommended that a fertilizer pesticide compatibility agent such as Unite or Complex be used. Maintain a constant agitation during both mixing and application to ensure uniformity of the spray mixture. Do not allow spray mixtures to stand overnight.

**Tank Mix Compatibility Test:** Test compatibility of the intended tank mixture before adding Chlorpyrifos 4 EC to the spray or mix tank. Add proportional amounts of each tank mix ingredient to a pint or quart jar,

cap, shake, and let set for 15 minutes. Formation of precipitates that do not readily re-disperse indicates an incompatible mixture that should not be used.

## USES

### Christmas Trees (Plantations)

(Not for use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Unless otherwise indicated, apply as a foliar spray using power-operated ground equipment. Thorough coverage of foliage is essential. Use a minimum 10 gpa of finished spray with ground equipment. Use higher volume of finished spray, 20 gpa or more, when foliage is dense and/or pest density is high and/or under high temperature and wind conditions.

Target Pests		Chlorpyrifos 4 EC
ants (4) aphids adelgids (cooley) (eastern spruce gall) Douglas fir needle midge European pine sawfly European pine shoot moth grasshoppers gypsy moth mites (1) (European red spider) (two spotted spider)	pales weevil (adult) pine needle midge pine spittlebug plant bugs scale (2) (black pine) (pine needle) (pine tortoise) (spruce bud) (striped pine) spittlebugs spruce budworm spruce needleminer	1 quart/acre
pales weevil (3)		3 quarts/100 gal

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

1. When large numbers of **spider mite** eggs are present at the first application, a second application after 7 to 10 days may be required to control newly hatched nymphs and maintain effective control. **Not for control of mites in Washington and Oregon.**
2. For scale control, apply when scale crawlers are active.
3. Apply as a cut stump drench.
4. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants, and pharaoh ants.

#### Specific Use Precautions:

**Phytotoxicity:** Do not apply under conditions of extreme heat or drought stress. Environmental factors and varietal differences significantly influence potential phytotoxic expression. **Testing has shown that Chlorpyrifos 4 EC may be used at specified rates on the following conifer species without serious phytotoxicity: balsam fir, concolor fir, Douglas fir, eastern white pine, Fraser fir, grand fir, noble fir, Scotch pine, white spruce.** Before treating large numbers of other conifer species, treat a small block of plants and observe them 7 to 10 days for symptoms of phytotoxicity. **Note:** The user assumes responsibility for determining if it is safe to treat other conifer species with Chlorpyrifos 4 EC under commercial growing conditions.

#### Specific Use Restrictions:

- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.

- Do not make second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 7 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

## Tobacco

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Apply as a preplant broadcast spray to reduce the feeding damage caused by listed pests. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. Before broadcast application of Chlorpyrifos 4 EC onto existing beds, knock down beds to final shape for transplanting. Use PTO-driven implements that will incorporate Chlorpyrifos 4 EC to a depth of 4 inches.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
cutworms flea beetles mole crickets root maggots wireworms	2

To control the above listed pests and suppress populations of rootknot nematodes in all tobacco growing regions, use Chlorpyrifos 4 EC in a tank mix with Nematicur 3 at the rate of 2 pints of Chlorpyrifos 4 EC plus 4 quarts of Nematicur 3 nematicide per acre. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for Nematicur 3 used in combination with Chlorpyrifos 4 EC. Apply the specified rate(s) to the soil surface in a spray volume of 10 gpa or more 24 to 48 hours before bedding and transplanting. Immediately following application, incorporate into the soil to a depth of at least 4 inches using suitable equipment. Where the nematode species *Meloidogyne arenaria* or *M. javanica* are present or high populations of *M. incognita*, apply [Telone® II (95290-1; telone)] [telone] soil fumigant at the specified label rate.

{Note to Reviewer: For tank mix partners, trade names or active ingredients may be used.}

### Specific Use Restrictions:

- Do not make more than one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not aerially apply this product in Mississippi.

## Turfgrass (Grown for Sod)

(Not for use in Mississippi)

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

Dilute Chlorpyrifos 4 EC in water and apply to turfgrass grown for sod using suitable application equipment. For best results, turfgrass should be moist at time of treatment.

Pests		Amount of Chlorpyrifos 4 EC per	
		fl oz/1000 sq ft	quart/acre
ants (1)	greenbug aphids	0.75	1
armyworms (such as: beet, fall, yellowstriped)	green June beetle grubs		
centipedes	leafhoppers		
	Lucerne moth		

chiggers chinch bugs crickets cutworms deer ticks earwigs European crane fly larvae fiery skipper fleas gnats grasshoppers	millipedes mites (such as: clover, Bermudagrass stunt, winter grain) mosquitoes pillbugs springtails sod webworms (lawn moths) (2) sowbugs ticks		
billbug adults (such as: bluegrass, Denver, hunting) (3)		0.75 – 1.5	1 – 2
annual bluegrass weevil ( <i>Hyperodes</i> ) (4) black turfgrass ataenius adults (5) mole crickets (6)		1.5	2
white grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, and northern and southern masked chafers) (7)		1.5 – 3	2 - 4

Numbers in parenthesis (-) refer to Specific Use Directions below.

#### Specific Use Directions:

1. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants and pharaoh ants.
2. For **sod webworms**, watering or mowing of the treated area should be delayed for 12 to 24 hours after treatment.
3. For **billbugs**, spray early in the season just prior to or coinciding with first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
4. To control **annual bluegrass weevil**, spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Extension Service Specialist.
5. For **black turfgrass ataenius** adults, spray early in the season as recommended by your local Agricultural Extension Service Specialist. A repeat application may be needed 1 to 2 weeks later.
6. To control **mole crickets** in turfgrass, apply Chlorpyrifos 4 EC through high-pressure injection or other suitable subsurface placement application equipment. Depending upon the application equipment used, follow the manufacturer's directions for calibration and the volume of spray per acre needed to provide control or as recommended by your local Agricultural Extension Service Specialist. For best results, apply when young nymphs are active.
7. For **white grubs**, spray when grubs are young and actively feeding near the soil surface, usually during late July and August, or as recommended by your local Agricultural Extension Service Specialist. For best results, soil should be moist prior to treatment. **For best results, immediately after spraying, irrigate the treated area with ½ to 1 inch of water to wash the insecticide into the thatch and underlying soil.**

### Commercial Turfgrass

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.

#### Specific Use Precautions:

To prevent repeated skin exposure to treated sod, wear elbow-length chemical-resistant gloves in addition to the PPE listed elsewhere on this label.

**For golf courses (turf only), road medians and industrial plant sites (see separate directions for turfgrass grown for sod).**

Use Chlorpyrifos 4 EC to control the pests listed in the following table at the rates indicated. Dilute Chlorpyrifos 4 EC in water and apply using suitable application equipment. For best results, turf should be moist at time of treatment.

Pests	Amount of Chlorpyrifos 4 EC (fl oz) per	
	1000 sq ft	Acre
ants (7) armyworms (such as: beet, fall, yellowstriped) chinch bugs crickets cutworms earwigs European crane fly larvae fiery skipper gnats grasshoppers greenstriped mapeworms greenbug aphids	green june beetle grubs leafhoppers lucerne moth millipedes mites (such as: clover, Bermudagrass stunt, winter grain) pillbugs sod webworms (lawn moths) (1) sowbugs	3/4 32
billbug adults (such as bluegrass, Denver, hunting) (2)		
annual bluegrass weevil ( <i>Hyperodes</i> ) (3)		
black turfgrass ataenius adults (4)		
mole crickets (5)		
white grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, northern and southern masked chafers) (6)		

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Sod webworms:** Delay watering or mowing of the treated area for 12 to 24 hours after treatment.
2. **Billbugs:** Spray early in the season just prior to or coinciding with, the first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
3. To control **annual bluegrass weevil**, spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Extension Service Specialist.
4. **Black turfgrass ataenius** adults: Spray early in the season as recommended by your local Agricultural Extension Service Specialist. Re-treat as needed 1 to 2 weeks later.
5. **Mole crickets:** Apply through high pressure injection or other suitable subsurface application equipment. Follow the manufacturer's recommendations for calibration and the volume of spray per acre needed to provide control, or as recommended by your local Agricultural Extension Service Specialist. Apply when young nymphs are active. Efficacy may be enhanced by spraying late in the afternoon or early evening and irrigating the turf prior to treatment to move mole crickets to the soil surface.
6. **White grubs:** Spray when grubs are young and actively feeding near the soil surface, usually during late July and August, or as recommended by your local Agricultural Extension Service Specialist. For best results, soil should be moist prior to treatment. Irrigate immediately after application with 1/2 to 1 inch of water to move the insecticide into the top 1 to 2 inches of soil.
7. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants, and pharaoh ants.

**Certification Period:** 42 days from day of application.

## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Store in original container in secured dry storage area. Prevent cross-contaminate with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

(Nonrefillable container ≤ 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

(Nonrefillable > 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

## 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.

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[EPA ACCEPTANCE DATE]