RESTRICTED USE PESTICIDE
For retail sale and use by Certified Applicators or persons under their direct supervision and only those uses covered by the Certified Applicator's Certification.

MICRO FLO
CHLORPYRIFOS 2E
INSECTICIDE
ORGANOPHOSPHATE

For control of various pests on golf course turf, turf and ornamental plants around industrial plant sites and road medians, fire ant treatment on nursery stock, and as a non-structural wood treatment.

ACTIVE INGREDIENT:	
Chlorpyrifos (0,0-diethyl 0-(3,5,6-trichloro-2-pyridinyl) phosphorothioate)	24.66%
INERT INGREDIENTS:	75.34%
TOTAL	100.00%

Contains 2 pounds of chlorpyrifos per gallon.
Contains petroleum distillates.

ACCEPTED
APR 8 2002
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 51036-152

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 this label, find someone to explain it to you in detail.)

FIRST AID
Organophosphate

IF SWALLOWED: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
NOTE TO PHYSICIAN: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. Atropine only by injection is an antidote. This product is an organophosphorus ester that inhibits cholinesterase.

See Additional Precautionary Statements Elsewhere On Label

EPA Reg. No. 51036-152 EPA Est. No. 51036-GA-1

Manufactured By:
MICRO FLO COMPANY LLC
P.O. BOX 772099
MEMPHIS, TN 38117

PRECAUTIONARY STATEMENTS
Hazards To Humans And Domestic Animals

WARNING

May be fatal if swallowed. Harmful if absorbed through skin or inhaled. Wash thoroughly with soap and water after handling. Causes substantial but temporary eye injury. Avoid contact with skin, eyes or clothing. Avoid breathing of vapors or spray mists. Do not get in eyes or on clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Keep away from food, feedstuffs and water supplies.

EMERGENCY TELEPHONE NUMBERS: Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact:

- (800) 424-9300 CHEMTREC (transportation and spills)
- (800) 900-4044 Poison Control Center (human health)
- (800) 345-4735 ASPCA (animal health)

PERSONAL PROTECTIVE EQUIPMENT

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

WPS USES: Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard [40 CFR Part 170] -- in general, only agricultural-plant uses are covered -- must wear:

1. Coveralls over short-sleeved shirt and short pants
2. Chemical-resistant gloves, such as barrier laminate or viton
3. Chemical-resistant footwear plus socks
4. Protective eyewear (goggles, faceshield, or safety glasses with front, brow, and temple protections).

Exception: Applicator's who submerge containerized or balled/burlapped plants in tanks must wear:

1. Coveralls over short-sleeved shirt and short pants
2. Chemical-resistant gloves, such as barrier laminate or viton
3. Chemical-resistant footwear plus socks
4. Chemical resistant apron
5. Protective eyewear (goggles, faceshield, or safety glasses with front, brow, and temple protections).

NON-WPS USES: Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard [40 CFR Part 170] -- in general, only agricultural-plant uses are covered -- must wear:

1. Long-sleeved shirt and long pants
2. Chemical-resistant gloves, such as barrier laminate or viton

3. Shoes plus socks
4. Protective eyewear (goggles, faceshield, or safety glasses with front, brow, and temple protections)

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 and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS

Users should:

1.Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

2.Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to fish, birds, and other wildlife. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

PHYSICAL AND CHEMICAL HAZARDS

COMBUSTIBLE: 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.
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 and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 24 hours.

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:

1. Coveralls over short-sleeved shirt and short pants
2. Chemical-resistant gloves, such as barrier laminate or viton
3. Chemical-resistant footwear plus socks
4. Protective eyewear (goggles, faceshield, or safety glasses with front, brow, and temple protections).

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides [40 CFR Part 170]. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep children, pets and other unprotected persons out of the treated area until sprays have dried.

STORAGE AND DISPOSAL

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

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

CHEMIGATION PROHIBITION

Do not apply this product through any type of irrigation system.

GENERAL PEST CONTROL - EXTERIOR SURFACE AND PERIMETER TREATMENTS

Directions for Perimeter Treatments:
Chlorpyrifos 2E is intended to be mixed with water and applied outdoors with pressurized sprayers as a general surface spray.

Precautions for Perimeter Treatments:
Keep out of fish pools and other bodies of water.
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 treated hay for livestock bedding.

Treatment Sites:
When used in accordance with label directions Chlorpyrifos 2E may be applied around localized exterior surfaces and as a soil applied perimeter treatment of industrial plant sites, manufacturing plants, food processing plants and warehouses.

Note: Phytotoxicity: Environmental factors and varietal differences may affect phytotoxic expression. In situations where phytotoxicity potential is of concern, it is recommended that a small group of plants be sprayed and observed for 7 to 10 days to determine phytotoxic potential before treating large numbers of those plants.

Dosage Rates:
Applications of 0.03% to 0.5% Chlorpyrifos 2E can be made depending on pest species and method of application. See "Application Methods" for additional information.

Mixing Directions:
To make a 0.03% water based spray, add 1 2/3 fl oz Chlorpyrifos 2E per 10 gallons of spray. To make a 0.5% water based spray add 2 2/3 fl oz Chlorpyrifos 2E per each gallon of spray.

A stable emulsion of Chlorpyrifos 2E can be formed by first adding approximately one-half the water to the spray tank followed by adding the proper amount of Chlorpyrifos 2E. Close the tank and agitate for 5 to 10 seconds. Add remaining water slowly to avoid excess foam.

Tank Mixing:
Unless prohibited by a product's label, users, at their own discretion, can tank mix pesticides currently labeled for similar use patterns. It is always recommended that a small jar compatibility test using proper proportions of chemicals and water be run to check for physical compatibility prior to tank mixing. Do not tank mix this product with products containing dichlorvos (DDVP).

Application Methods:
This product may be applied outdoors as a general surface spray. Treat

where pests are found or normally occur.

Low Volume Directed Sprays:
Application of low volume, high concentration (0.5%) sprays to localized exterior surfaces can quickly reduce localized heavy pest infestations on outside surfaces. Use a low pressure system with a pinpoint or variable pattern nozzle, such as a 1 gallon hand pump sprayer, and apply the spray mixture to specific areas such as cracks and crevices along walkways, patios, under eaves, windows and door frames or other areas where insects may congregate or can gain entrance to the structure.

High Volume Broadcast Sprays:
Application of high volume, low concentration (0.03%-0.12%) perimeter sprays, such as with power spraying equipment, can help prevent infestation of buildings by reducing pests in outdoor areas. Longer residual is achieved at the higher rates (about 0.12%). To make a 0.03% water based spray, mix 8 fl oz of Chlorpyrifos 2E per 50 gallons. To make a 0.12% dilution, mix 32 fl oz of Chlorpyrifos 2E per 50 gallons of water. This type of treatment provides more thorough coverage over large areas than low volume directed sprays. Treat by applying spray mixture directly to areas such as junctions of soil and structural walls, along base of fences. To help prevent infestation of buildings, treat a band of soil 6 to 10 feet wide around and adjacent to buildings, also the building foundation to a height of 2 to 3 feet, where pests are active and may find entrance. Apply as a coarse spray at the rate of about 7 gallons spray mixture per 1000 square feet. Thoroughly and uniformly wet the treated area.

Pests Controlled by Perimeter Treatments of Chlorpyrifos 2E:

Ants
Bees
Beetles
Boxelder bugs
(or other true bugs)
Carpenter ants
Centipedes
Clover mites
Cockroaches
(American)
(Asian)
(Brownbanded)
(German)
(Oriental)
(Smokybrown)
Crickets
Earwigs
Elm leaf beetles
(adults)
Fire ants (1)
Fleas
Flies
Hornets
Millipedes
Mosquitoes
Pillbugs
Scorpions (2)
Sowbugs
Spiders
Springtails
Ticks
Wasps
Yellowjackets
and other outdoor insects

Numbers refer to "Specific Outdoor Use Directions."

Specific Use Directions for Perimeter Treatments:
1. Fire ant mounds may be controlled by applying Chlorpyrifos 2E as a

drench. Dilute 2 fl oz per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2-foot diameter. For best results, apply in cool weather, 65 to 80F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.

2. Scorpions may be controlled by removing accumulations of lumber, firewood and other materials serving as harborage sites. Before stacking firewood or lumber, apply Chlorpyrifos 2E as a localized spray to surfaces immediately below such materials. Broadcast sprays outdoors may assist in reducing pests migrating from surrounding areas.

GENERAL CONTROL OF WOOD-INFESTING INSECTS

Directions for General Use to Control Wood-Infesting Insects:
Chlorpyrifos 2E is intended to be mixed with water and applied as a general surface or localized injection treatment with pressurized sprayers or other equipment suitable for applying insecticides to localized areas.

Treatment Sites:
When used according to label directions Chlorpyrifos 2E can be applied to non-residential outdoor control of wood-infesting insects. Permitted areas of use include:

fence posts
utility poles
railroad ties
landscape timbers
logs
pallets
wooden containers
poles
posts
processed wood products

Dosage Rates:
Applications of 0.5% to Chlorpyrifos 2E can be made depending on pest species and method of application. Expect increased residual control at higher rates. See "Specific Use Directions For Control of Wood-Infesting Insects" for additional information.

Mixing Directions:
To make a 0.5% water based spray mix 2 2/3 fl oz of Chlorpyrifos 2E per each gallon of spray mixture. A stable emulsion of Chlorpyrifos 2E can be formed by first adding approximately one-half the water to a spray tank followed by adding the proper amount of Chlorpyrifos 2E. Close the tank and shake vigorously for 5 to 10 seconds. To avoid excess foam, slowly add the remaining water.

Tank Mixing:
Unless prohibited by a product's label, users, at their own discretion, can tank mix pesticides currently labeled for similar use patterns. It is always recommended that a small jar compatibility test using proper proportions of chemicals and water be run to check for physical

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compatibility prior to tank mixing. Do not tank mix this product with products containing dichlorvos (DDVP).

Application Methods:
This product may be applied either as a coarse spray or by brushing onto targeted surfaces. Equipment capable of delivering a coarse, low-pressure (about 20 psi) spray is recommended for treatment of large or overhead areas. Use sufficient amount of spray dilution to cover the area to the point of wetness but avoid applying to the point of runoff.

Wood-Infesting Insects Controlled by Chlorpyrifos 2E:

Beetles (1)
(Anobiidae)
(Bostrichidae)
(Cerambycidae)
(Lyctidae)
Carpenter ants and other wood-infesting ants (2)
Carpenter bees
Termites (3)
Numbers refer to "Specific Use Directions for Control of Wood-Infesting Insects."

Specific Use Directions for Control of Wood-Infesting Insects:

Beetles may be controlled by applying spray mixture to infested areas, or areas where infestations are likely to occur. Use the following guidelines to determine appropriate rates of application:

New Wood (typically less than 10 years of age), apply at about 1 gallon of dilution per 150 square feet.

Old Wood (typically greater than 10 years of age), apply at about 1 gallon of dilution per 100 square feet.

Wood-Infesting ants may be controlled by applying spray mixture around doors and windows, cracks or crevices, or other areas where ants may enter, crawl, or hide on the exterior of industrial plants, manufacturing plants, food processing plants, warehouses. Primary colonies are typically found outside through an exterior inspection. Corrections of sanitation and structural deficiencies or landscape modifications may be necessary for effective control.

GENERAL PEST CONTROL- Turf in Golf Courses, Turf and Ornamentals in Industrial Plant Sites and Road Medians

General Information:
Chlorpyrifos 2E is an emusifiable concentrate for use to control pest injurous to a) turf in golf courses and b) turf and ornamentals in industrial plant sites and road medians and are not used for human or livestock consumption are considered ornamental and may be treated. The pests controlled are listed in the accompanying tables. Chlorpyrifos 2E is compatible with insecticides, miticides and fungicides commonly recommended except for alkaline materials such as Bordeaux mixture and lime. A small amount of spray mixture should be prepared to check for compatibility before a large volume of spray is mixed.

Precautions for Golf Course Turf, Ornamental found in Nurseries, Road Medians, and Industrial Plant Sites

- Do not exceed 1 lb. of ai/acre
- Keep out of fish pools and other bodies of water.
- 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 or use hay for livestock bedding.
- It is always recommended that a small jar compatibility test using proper proportions of chemicals and water be run to check for physical compatibility prior to tank mixing.

Turf in Golf Courses, Industrial Plant Sites, and Road Medians (Not Registered for Use in California):
Use Chlorpyrifos 2E to control the pests listed in the following table by application at the recommended dosages. Dilute Chlorpyrifos 2E in water and apply using suitable application equipment. For best results, turf should be moist at time of treatment.

Pest	Amount of Chlorpyrifos 2E per	
	1000 sq.ft.	Acre
Ants Gnats Armyworms (Such Grasshoppers as: Beet, Fall, Greenbug aphids Yellowstriped) Green June beetle grubs Centipedes Leafhoppers Chiggers (1) Lucerne moth Chinch bugs Millipedes Crickets Mites (Such as: Clover, Cutworms Bermudagrass stunt, Deer ticks (2) Winter grain) Earwigs Mosquitoes (4) European crane fly Pillbugs larvae Sod webworms (lawn Fiery skipper moths) (5) Fire ants (foraging Sowbugs workers) Ticks (1) Fire ants (mounds) (3) Fleas	¾ fl. oz	1 qt.
Billbug adults (Such as: Bluegrass, Denver, Hunting) (6)	¾ fl.oz.	1 qt.
Annual bluegrass weevil (Hyperodes) (7) Black turfgrass ataenius adults (8) Mole crickets (9)	¾ fl.oz.	1 qt.
Mole crickets (10)	¾ fl.oz.	1 qt.

Pest	Amount of Chlorpyrifos 2E per	
	1000 sq.ft.	Acre
White grubs (Such as: Black turfgrass ataenius, European chafer, Japanese beetle larvae, and Northern and Southern masked chafers) (11)	¾ fl.oz.	1 qt.

Specific Directions:

1. Use Chlorpyrifos 2E for area control of ticks and chiggers infesting non-cropland areas such as golf course turf and grassy areas where these pests are present and create a nuisance or a possible public health problem. Do not allow public use of treated areas during application or until spray has dried. Apply Chlorpyrifos 2E insecticide in water at the rate of 1 pint per acre (1/3 fl oz per 1000 sq. ft.) using a hydraulic sprayer, mist applicator, backpack sprayer, or other suitable hand or power operated spray equipment.
2. For control of deer ticks apply Chlorpyrifos 2E in water at the rate of 1 quart per acre or ¾ fl oz per 1000 square feet. Treat low underbrush, turf, grassy areas, weeds, and ground surface and debris, using enough spray volume to obtain thorough coverage.
3. For individual fire ant mounds apply Chlorpyrifos 2E as a drench. Dilute 2 fl oz per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2 foot diameter. For best results, apply in cool weather, 65-80F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.
4. Mosquitoes coming to rest on areas treated for control of turf pests will be controlled for varying periods of time after treatment depending on exposure of treated areas to weathering conditions.
5. For sod webworms, watering or mowing of the treated area should be delayed for 12 to 24 hours after treatment.
6. 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.
7. 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.
8. 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.
9. To control mole crickets in turfgrass, apply Chlorpyrifos 2E through high-pressure injection or other suitable subsurface placement application equipment. Depending on the application equipment used, follow the manufacturer's recommendation 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.
10. To control mole crickets in turfgrass, apply Chlorpyrifos 2E using broadcast or suitable hand-held application equipment. Application

should be in a minimum of 50 gallons of water per acre. Golf course turf must be irrigated within 24 hours after treatment to wash the insecticide into the area of insect activity. Apply when early stage nymphs are active. Effectiveness may be enhanced by spraying late in the afternoon or early evening and irrigating the turf within 24 hours prior to and following application to move mole crickets near the soil surface and wash the insecticide into the zone of insect activity.

11. 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 areas with 1/2 to 1 inch of water to wash the insecticide deep into the thatch or underlying soil.

ORNAMENTALS (for industrial plant site and road median use only):
Use Chlorpyrifos 2E to treat flowers, shrubs, evergreens, vines, shade and flowering trees, and non-bearing fruit, nut and citrus trees found to be infested with the types of pests listed in the following tables. Dilute Chlorpyrifos 2E with water according to directions given in the tables and apply using suitable hand or power-operated spray equipment in a manner to provide complete and uniform coverage. Attempt to penetrate dense foliage, but avoid over-spraying to the point of excessive runoff. Uniform coverage is critical for effective insect and mite control.

Consult your State Agricultural Experiment Station or Extension Service specialist for application timing and other specific use information.

Note: Phytotoxicity: Environmental factors and varietal differences may affect phytotoxic expression. In situations where phytotoxicity potential is of concern, it is recommended that a small group of plants be sprayed and observed for 7 to 10 days to determine phytotoxic potential before treating large numbers of those plants

Ornamentals in Nurseries: Use Chlorpyrifos 2E to treat non-bearing nusery stock found to be infested with the types of pests listed in the following tables. Dilute Chlorpyrifos 2E with water according to directions given in the tables and apply using suitable hand or power-operated spray equipment in a manner to provide complete and uniform coverage. Attempt to penetrate dense foliage, but avoid over-spraying to the point of excessive runoff. Uniform coverage is critical for effective insect and mite control.

Sucking Insects and Mites

Do not exceed 1 lb. ai/acre.

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Adelgids (Such as: Cooley and Eastern spruce gall, Pine bark) Aphids (Such as: Apple, Balsam twig, Black pecan, Chrysanthemum, Cottonwood, Crape myrtle, Elm leaf, Melon, Peach, Rose, Spirea, White pine, Woolly, Woolly apple, Yellow pecan) Boxelder bugs Lace bugs (Such as: Hawthorn) Periodical cicada Plant bugs Psyllids Spittlebugs Thornbug Whiteflies	1/6 - 1/3 fl.oz.	1 pt. - 1 qt.
Leafhoppers Mealybugs (Such as: Citrus, Taxus) Mites (Such as: Clover, Red spider, Southern Red, Spruce spider, Twospotted spider) (1) Thrips (exposed)	1/3 fl.oz.	1 qt.
Scale insects (Such as: Cottony cushion, Cottony maple, Dearness, Euonymus, Fletcher, Florida wax, Golden oak, Hemispherical, Lecanium, Magnolia, Oak kermes, Oak lecanium, Oystershell, Pine needle, San Jose, Tea, White birch) (2)	2/3 fl.oz.	2 qt.

Specific Directions:

1. For effective control of spider mites when large numbers of egg are present, apply a second spray 3 to 5 days in the South or 7 to 10 days in the North after initial treatment to control newly hatched nymphs.
2. Time applications for control of scale insects when crawlers or first two stages of settled nymphs are present.

Defoliators and Leafminers

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Armyworms (Such as: Oleander caterpillars Fall, Yellowstriped) Orange tortrix Bagworms (1) Poplar tentmaker Cankerworms Puss caterpillars Catalpa sphinx Rose chafers Elm spanworms Sawflies, exposed Fall webworms (2) (Such as: European Grasshoppers pine, Pine, Pin oak, Greenstriped Redheaded) mapleworms Spring elm caterpillars Green fruitworms Springtails Hornworms Spruce budworms (Such as: Jackpine budworms Eastern, Western) Juniper webworms Tent caterpillars (Such as: Katydids Eastern, Forest, Leafrollers (3) Western) Maple leafcutters (4) Walnut caterpillars Oak skeletonizers Yellownecked caterpillars	1/6 - 1/3 fl.oz.	1 pt. - 1 qt.

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Balsam gall midge Mahogany webworms Beet armyworms Mimosa webworms Beetles (Such as: Nantucket pine tip moth Fuller rose) (5) Browntail moth Oakworms (Such as: Cutworms California, Cypress tip moth Orangestriped, Douglas-fir tussock Redhumped) moth Pandora moth European pine shoot moth Pitch pine tip moth Redhumped caterpillars Gypsy moth (6) Subtropical pine tip moth Holly bud moth Tussock moth	1/3 fl.oz.	1 qt.
Beetles (Such as: Cottonwood leaf (7), Elm leaf, Flea, Willow leaf)	1/3 - 2/3 fl.oz.	1 - 2 qt.
Leafminers Needleminers (Such as: Jeffrey pine, Lodgepole pine, Spruce) Pine needle midge Rhododendron gall midge	2/3 fl.oz.	2 qt.

Specific Directions:

1. For bagworms, treat when larvae are small and actively feeding.
2. For effective control of fall webworms, direct spray into web and immediately surrounding foliage.
3. For effective control of leafrollers, spray should be applied before leaves are tightly rolled.
4. For maple leafcutter on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production.
5. To reduce foliar feeding on twigs and branches by beetles, applications should be made in the spring or early summer.
6. To control migrating and invading gypsy moth larvae, treat trunks and foliage.

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For cottonwood leaf beetles, spray larvae and adults infesting cottonwoods. Applications should be made when damaging beetle populations are developing or present.

Borers, Bark Beetles, and Weevils

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Weevils (Such as: Black vine (1), Cranberry girdler (2), Pine reproduction, Yellow poplar)	1/3 fl.oz.	1 qt.
Borers: Clearwing moths (Such as: Ash, Dogwood, Lesser peachtree, Lilac, Oak, Peachtree, Rhododendron), Longhorned beetles (Such as: Cottonwood, Locust, Red oak), Metallic wood (Such as: Bronze birch, Flatheaded appletree, Twolined chestnut) (3) Pales weevil adults Zimmerman pine moth	2/3 fl.oz.	2 qt.
Northern pine weevil (4) Pales weevil (4)	2 fl.oz.	6 qt.
Beetles (5) (Such as: Ambrosia, Anobiidae, Black turpentine, Blister, Cottonwood leaf, Elm leaf, European elm bark, Fuller rose, Japanese, June, Mountain pine, Native elm bark (6), Southern pine, Spruce, Western pine, Willow leaf)	5 1/3 fl.oz.	4 gal.
Weevils (Such as: Northern pine, Pitch eating, Twig) (7)	10 2/3 fl.oz.	8 gal.

Specific Directions:

1. Black vine weevils are night feeders. Late afternoon spraying will maximize control.
2. For cranberry girdler larvae infesting Douglas-fir seedlings, direct spray at lower crown and stems following egg laying during summer and irrigate immediately after application to move the insecticide into the top 1 to 2 inches of soil.
3. For borers, spray trunks and lower limbs of trees and shrubs when adults begin to emerge. For peachtree borers, spray flowering trees and shrubs of the genus Prunus as a trunk spray before newly-hatched larvae enter the trees and thoroughly wet all bark areas from ground

level to scaffold limbs. Pheromone traps may aid in detection of adult clearwing moths. Consult your State Agricultural Experiment Station or Extension Service specialist for proper time to treat.

4. For control of northern pine and pales weevil larvae, apply as a cut stump spray or drench in winter or early spring.
5. For preventive treatment, spray the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, spray the main trunk of infested trees or logs before adult beetles begin to emerge.
6. To prevent native elm bark beetles from over-wintering in uninfested trees, apply using a dilution of 2 gal per 100 gallons of water (2 2/3 fl oz per gallon) as a spray to the bottom 9 feet of trunk. Wet the trunk thoroughly but do not spray to runoff. Care should be taken to apply the spray right to the base of the root flare. Applications can be made from spring to early fall. To reduce twig and branch feeding on trees deemed to be of high value, apply as a spray to the tree crown using a dilution of 2 gal per 100 gallons of water (2 2/3 fl oz per gallon). Applications should be made in the spring or early summer using a sprayer that will give thorough coverage to the tree crown.
7. For pine seedlings, treat immediately after transplanting. Treat each seedling with enough spray to thoroughly wet the foliage and stem to the point of runoff.
8. Do not exceed 1 lb ai/acre.

Ants, Termites, and Miscellaneous Pests

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Ants Cockroaches (Such as: American, Asian, Brownbanded, German, Oriental, Smokybrown, Wood) Fire ants (foraging workers) Fire ants (mounds) (1) Sowbugs Springtails	1/3 fl.oz.	1 qt.
Carpenter ants (2) Termites	5 1/3 fl.oz.	4 gal.

Specific Directions:

1. For individual fire ant mounds apply Chlorpyrifos 2E as a drench. Dilute 2 fl oz per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2-foot diameter. For best results, apply in cool weather, 65-80F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.

2. If possible, locate carpenter ant nests and drench thoroughly.

Imported Fire Ant:
Treatment of potted, containerized and balled burlapped nursery stock: Use Chlorpyrifos 2E to control imported fire ants in soil attached to roots of these plants by completely submerging the ball of soil in a tank containing Chlorpyrifos 2E diluted at the rate of 8 fl. oz. per 100 gallons of water. Do not remove burlap wrap or plastic containers with drain holes prior to submerging. Keep soil submerged until complete saturation has occurred, normally about 30 seconds. An alternate treatment to submerging potted plants is to apply a solution containing Chlorpyrifos 2E (8 oz per 100 gallons of water) as a substitute for plain water during routine watering activities. This solution should be applied to the point of run-off on a twice daily schedule for three consecutive days. Do not remove burlap wrap or container from plants prior to treatment. Application should be made in a well-ventilated area.

Ornamentals (Dormant Spray of Tree Pests):
Use Chlorpyrifos 2E as a dormant or delayed dormant spray at the rates indicated to control the listed insects. While Chlorpyrifos 2E may be used without oil, oil is recommended to control additional pests such as European red mite.

For high volume (dilute) sprays (200 to 600 gallons of spray mixture per acre), tank mix the specified dosage with 1 to 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water. Spray the entire tree to runoff using suitable ground spray equipment.

For low volume (concentrate) sprays (less than 200 gallons of spray mixture per acre), use the same amount of Chlorpyrifos 2E as for a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use oil as recommended by your State Agricultural Experiment Station or Extension Service specialist.

Precautions: Because cold dry conditions may cause Chlorpyrifos 2E plus oil to infuse trees resulting in bud damage or drop, do not apply until rain or irrigation have replenished soil moisture such that bark and twigs are not desiccated.

Restrictions: Make only one application during the dormant season. Do not allow meat or dairy animals to graze in treated areas.

Pest	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Aphids (Such as: Mealy plum, Rosy apple, Woolly apple) Borers (Such as: Peach twig) Cutworms (Such as: Climbing) Leafrollers (Such as: Obliquebanded, Pandemis) Pear psylla adults Scale insects (Such as: San Jose)	1/6 - 1/3 fl.oz.	1 pt. - 1 qt.

Fruit, Nut, and Citrus Trees Not Intended for Human **or Livestock** Consumption: For use only on fruit, nut, and citrus trees not intended for human or livestock consumption and growing in industrial plant sites or road medians only. Use Chlorpyrifos 2E to treat non-residential almond, apple, cherry, filbert, nectarine, peach, pecan, plum, walnut and citrus trees or tree fruit (such as: grapefruit, lemon, orange) not grown for human or livestock consumption of fruit by spraying to the point of runoff. When treating citrus trees only, a petroleum spray oil recommended for use on citrus trees may be added to spray mixtures only at rates of up to 1.8 gallons per 100 gallons of water to improve control of aphids, mealybugs, scale insects and thrips. Treat when insects become a problem or in accordance with the local spray schedule recommended by your State Extension Service specialist.

Precautions: Do not apply as a foliar spray to sweet cherries because contact of spray solution with leaves may result in premature leaf drop. Observe local use directions for tank mix combinations especially with applications of Chlorpyrifos 2E plus spray oil. Do not apply Chlorpyrifos 2E in combination with oil to walnuts. Dry or cold conditions may cause Chlorpyrifos 2E plus oil to infuse trees resulting in bud damage or drop; do not apply until rain or irrigation have replenished soil moisture such that
bark and twigs are not desiccated. Do not apply when trees are stressed by drought.

Restrictions:
Almonds, Filberts, Walnuts: Make only one dormant/delayed dormant spray application and no more than three foliar spray applications on almonds per season, one dormant/delayed dormant spray application and no more than two foliar spray applications on walnuts per season, and no more than three foliar spray applications on filberts per season.

Apples: Rate applied must not exceed 2/3 fl oz per gallon or 2 qts. per 100 gallons. Make no more than 8 applications per season. Do not apply last two treatments closer than 21 days apart. Post bloom use on apple trees is prohibited. For use as a dormant/delayed dormant treatment only.

Citrus (Such as: Grapefruit, Lemon, Orange): Rate applied must not exceed 1/3 fl oz per gallon or 1 qt per 100 gallons. Do not apply to flowering trees. Do not apply when temperature exceeds 95F. Do not apply more than 2 applications per fruit year. Do not make a second application within 30 days of the first application.

Nectarines, Peaches (trunk sprays only): Do not allow spray to contact fruit. Make only one application per season.
Pecans: Rate applied must not exceed 2/3 fl oz per gallon or 2 qts. per 100 gallons. Make no more than 5 applications per season.

Sour cherries: Make no more than 8 applications per season.

Sweet cherries (trunk and lower limb sprays only): Rate applied must not exceed 2/3 fl oz per gallon or 2 qt per 100 gallons. Avoid spray contact with foliage (leaves) since premature leaf drop may result. Make only three applications per year.

Pests	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Aphids (Such as: Apple, Lesser appleworm Black cherry,Black Lygus sp. pecan, Filbert, Rosy Mealybugs apple, Woolly apple, Mineola Moth Yellow pecan) Mites (Such as: Citrus Apple maggot rust, European red, Borers (Such as: Pecan leaf scorch, American plum, Twospotted Dogwood, Lesser peach-spider) (2) tree, Pacific flatheaded, Navel orangeworm Peach twig, Peachtree, Oriental fruit moth Shothole) Pecan nut casebearer Cherry fruit fly Pecan weevil Climbing cutworm Periodical cicada Codling Moth Phylloxera sp. European apple sawfly Plum curculio European corn borer Potato leafhopper	1/3 - 2/3 fl.oz.*	1 - 2 qt.

Pests	Amount of Chlorpyrifos 2E per	
	1 gallon	100 gallons
Eyespotted bud moth Rose chafer Fall webworm Scale insects (Such as: Filbert worm European fruit Grasshoppers (Such as: lecanium, San Jose, Lubber) (1) Walnut) Green fruitworm Spittlebug Hickory shuckworm Spotted tentiform Katydids leafminer Leaf rollers and Stinkbug tiers (Such as: Tarnished plant bug Avocado leafroller, Thrips (Such as: Citrus) Filbert leafroller, Tufted apple budmoth Fruittree leafroller, Walnut husk fly Obliquebanded Western tussock moth leafroller, Omnivorous White apple leafhopper leaftier, Orange Winter moth tortrix, Pandemis leafroller, Redbanded leafroller, Variegated leafroller) Lepidopterous larvae	1/3 - 2/3 fl.oz.*	1 - 2 qt.
Scale insects (Such as: Black scale, Brown soft scale, California red scale, Chaff scale, Florida red scale, Long scale, Purple scale, Snow scale)	2/3 - 1 1/3 fl.oz.	2 - 4 qt.

*Note: Rate applied to citrus must not exceed 1/3 fl oz per gallon or 1 qt per 100 gallons. Rate applied to apples, pecans, or sweet cherries must not exceed 2/3 fl oz per gallon or 2 qt per 100 gallons.

Specific Directions:

1. Lubber grasshoppers must be controlled when they are small (less than 1 inch in length) by direct contact with spray.
2. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days in the South or 7 to 10 days in the North after initial treatment to control newly hatched nymphs.
3. Time applications for control of scale insects when crawlers or first two stages of settled nymphs are present.

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