



PM19 0271-11
LABELING 1.1.26

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 2 1993

Robert F. Bischoff
DOWELANCO
QUAD IV 9002 PURDUE ROAD
INDIANAPOLIS, IN. 46268

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

Subject: Label Amendment Submission of 06/23/93 In Response to PR Notice 93-7
EPA Reg. No. 62719-11
DURSBAN 4E INSECTICIDE

Dear Registrant:

The labeling cited above and submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is accepted subject to the comments reflected on the enclosed sheet. A copy of your proposed labeling stamped "ACCEPTED WITH COMMENTS" is enclosed.

WHAT THIS ACCEPTANCE MEANS:

Based on your certification, the Agency has accepted the labeling changes that are necessary to comply with the Worker Protection Standard (WPS) labeling requirements of 40 CFR part 156, subpart K, described in PR Notices 93-7 and 93-11. Any other labeling changes submitted in connection with this amendment application but not directly related to compliance with the WPS have not been reviewed or accepted by the Agency. If you wish to make such changes, you must submit a separate amendment application proposing them. If your product is currently suspended, the acceptance of this labeling amendment does not affect the suspension in any way.

WHAT YOU NEED TO DO NEXT:

By the next label printing make all the specified changes to your labeling. Send to EPA one (1) copy of the final printed labeling:

- BEFORE selling or distributing any product bearing the final printed labeling
- AND
- WITHIN one year from date of this acceptance.

BEST AVAILABLE COPY



Recycled/Recyclable
Printed with SoyCarnole Ink on paper that
contains at least 60% recycled fiber

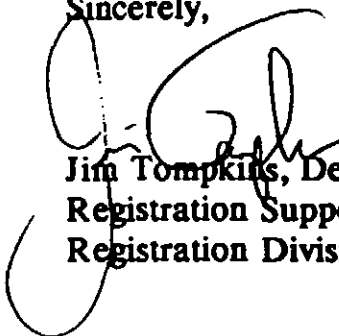
Submit the final printed labeling via the U.S. Postal Service to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs (7505C)
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460-0001

Hand or courier deliveries of final printed labeling may be made to:

Document Processing Desk (FIN-LABEL)
Office of Pesticide Programs
Room 266A, Crystal Mall 2
1921 Jefferson Davis Highway
Arlington, VA 22202

Sincerely,



Jim Tompkins, Deputy Chief
Registration Support Branch
Registration Division (7505W)

Attachment

(Editor's Note: Deleted text indicated by strike-through and added text underlined. EPA copy dated 5/30/91 and worker protection standard.)

ACCEPTED
with COMMENTS
in EPA Letter Dated

(Base label):

(logo) DowElanco

Dursban* 4E

DEC 2 1993

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

62719-11

To be applied only by or under the direct supervision of commercial applicators responsible for insect control programs. Sale to or use by persons owning or occupying a dwelling is strictly prohibited.

Active Ingredient:

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

Inert Ingredients. 55.1%

Contains 4 pounds of chlorpyrifos per gallon.

Contains xylene range aromatic solvents.

Precautionary Statements

Hazards to Humans and Domestic Animals

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.)

May Be Fatal If Swallowed • Absorption Through Skin May Be Fatal • Causes Substantial But Temporary Eye Injury • Causes Skin Irritation

Do not get in eyes, on skin or clothing. Avoid breathing vapors and spray mist. Handle concentrate in a ventilated area. ~~When handling concentrate wear eye protection and protective clothing such as long-sleeved shirt, long-legged pants, rubber gloves and footwear, i.e. neoprene or nitrile butadiene rubber, resistant to aromatic solvents. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. Keep away from food, feedstuffs and water supplies.~~

Personal Protective Equipment (PPE)

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 selections chart.

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading

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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, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should:

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

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First Aid**An organophosphate insecticide/miticide.**

If swallowed: Call a physician or Poison Control Center immediately. Do not induce vomiting. Contains an aromatic petroleum solvent. Do not give anything by mouth to an unconscious person.

If on skin: Immediately wash with plenty of soap and water. Get medical attention.

If in eyes: Flush with plenty of water for 15 minutes. Get medical attention.

If inhaled: Remove to fresh air if symptoms of cholinesterase inhibition appear and get medical attention immediately.

Note to physician: 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.

Environmental Hazards

This pesticide is toxic to birds and wildlife, and extremely toxic to fish and aquatic organisms. Do not apply directly to water. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Cover or incorporate spills. Do not contaminate water when disposing of equipment washwaters. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

Physical or Chemical Hazards

Combustible - Do not use or store near heat or open flame. Do not cut or weld container.

Refer to label booklet for additional precautionary information including Personal Protective Equipment (PPE), and Directions for Use including Agricultural Use Requirements and Storage and Disposal.

Notice: Read the entire label. Use only according to label directions. Before buying or using this product, read "Warranty Disclaimer" and "Limitation of Remedies" in the enclosed label booklet.

In case of emergency endangering health or the environment involving this product, call collect 517-636-4400.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

EPA Reg. No. 62719-11
26006

EPA Est. 464-MI-1
900-00xxxx

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DowElanco • Indianapolis, IN 46268, U.S.A.

Specialty Insecticide

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(Cover)

(logo) DowElanco

Dursban® 4E

To be applied only by or under the direct supervision of commercial applicators responsible for insect control programs. Sale to or use by persons owning or occupying a dwelling is strictly prohibited.

Active ingredient:

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

Inert ingredients. 55.1%

Contains 4 pounds of chlorpyrifos per gallon.

Contains xylene range aromatic solvents.

Keep Out of Reach of Children

WARNING

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EPA Reg. No. 62719-11
26006

EPA Est. 464-MI-1
900-001440

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Specialty Insecticide

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Precautionary Statements

Hazards to Humans and Domestic Animals**Keep Out of Reach of Children****WARNING****AVISO**

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Personal Protective Equipment (PPE)

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

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves such as Barrier Laminate or Viton
- Chemical-resistant footwear plus socks
- Protective eyewear
- Chemical-resistant headgear for overhead exposure
- Chemical-resistant apron when cleaning equipment, mixing, or loading

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, use detergent and hot water. Keep and wash PPE separately from other laundry.

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Physical or Chemical Hazards

Combustible - Do not use or store near heat or open flame. Do not cut or weld container.

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Directions for Use

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

Read all Directions for Use carefully before applying.

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

Do not formulate this product 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 exemptions 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) of 12 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:

- **Coveralls over short-sleeved shirt and short pants**
- **Chemical-resistant gloves such as Barrier Laminate or Viton**
- **Chemical-resistant footwear plus socks**
- **Protective eyewear**
- **Chemical-resistant headgear for overhead exposure**

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STORAGE AND DISPOSAL

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

Storage: Store in original container in secured dry storage area. Prevent cross-contamination 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 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: 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.

Metal Container 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.

Plastic Container Disposal: Triple rinse (or equivalent). Then 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.

Reusable Portable Container Disposal: Do not rinse or put any other material into container. When returning reusable portable container, seal all openings and return to DowElanco.

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General Information

Dursban® 4E insecticide is an emulsifiable concentrate designed for use as a spray to control various pests injurious to trees, turf and ornamental plants. The pests controlled are listed in the accompanying tables. Dursban 4E 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.

Attention: Do not allow adults, children or pets on treated areas until spray has dried. Keep out of fishpools 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 hay for livestock bedding. Do not use in poultry houses.

Pest Control Indoors

Use Dursban 4E to control pests listed in the following table by applying at the recommended dosages. Use a 0.25% spray to control light infestations and a 0.5% spray to quickly reduce heavy infestations or as directed. To prepare the spray, dilute Dursban 4E with water or with a suitable base oil. Use only deodorized kerosene for oil-based sprays in food handling establishments.

Applications may be made within residential buildings, including homes and apartment buildings. Applications may also be made within mausoleums and nonfood areas of industrial, institutional, and commercial buildings, including hospitals, stores, manufacturing plants, and warehouses. Applications may be made within food handling establishments. This includes, but is not limited to, restaurants, grocery stores, bakeries, bottling plants, canneries, and grain mills.

Apply as a coarse, low pressure spray (20 psi or less) or with a paint brush to localized areas in and around both food and non-food areas. Treat where insects are found or normally occur, including dark corners of rooms and closets; floor drains; cracks and crevices in walls; along and behind baseboards; beneath and behind sinks, stoves, refrigerators, refrigerator units, and cabinets; and around plumbing and other utility installations.

In food-handling establishments use only as a spot treatment. Spot treatment may encompass crack and crevice treatments by applying small amounts of material directly into openings leading to voids and hollow spaces in walls, equipment legs and bases, or which occur at points between different elements of construction, or between equipment and floors. Equipment capable of delivering a pinstream of spray should be used. Repeat treatment as needed, but not more often than once every 7 days in restaurants and similar food service establishments, or more often than once every 14 days in other types of food-handling establishments. In case of emergency (call back), Dursban 4E may be applied after 2 days from last treatment, but emergency use should be limited to once per month. Applications of this product in food-handling establishments other than as a spot and/or crack and crevice treatment are not permitted.

Note: Where quick "knockdown" and/or "flushing action" is desired, pyrethrins may be added to the spray mixture containing Dursban 4E. For best results, use pyrethrins at 0.25% in water-based sprays and 0.05% in oil-based sprays. Consult labeling for pyrethrin products used to determine the amount needed to give the desired spray concentration. Also read and observe all use and handling precautions for these products.

Do not apply water-based sprays of this product in conduits, motor housings, junction and switch boxes, or other electrical equipment because of possible shock hazard. If there is need to treat such areas, use only oil-based sprays. Prior to application, de-energize electrical equipment. After application allow time for oil to evaporate before starting motors or placing switches in the "on" position.

Do not allow spray to contact food, feedstuffs, 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 allow children or pets to contact treated surfaces until spray has dried. Remove pets and cover fish bowls (tanks) before spraying. Do not introduce the spray into the air or allow the spray to contact food or food-contacting surfaces.

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Use Dursban 4E to control the pests listed below by application as a 0.25% or 0.5% spray.

Pest†	Amount of Dursban 4E to Make								Specific Directions			
	1 Gallon of Water-Based Spray				1 Gallon of Oil-Based Spray							
	0.25% Spray		0.5% Spray		0.25% Spray		0.5% Spray					
	fl oz	ml	fl oz	ml	fl oz	ml	fl oz	ml				
Ants ¹		2/3		20	1 1/3	40	1/2		15	1	30	<p>Use the low rate (0.25%) to control light infestations and the high rate (0.5%) to quickly reduce heavy infestations or for extended residual control.</p> <p>1. For ants, apply to ant trails and around doors and windows and wherever else the pest may find entrance Crickets</p> <p>2. A period of 4 to 7 days is normally required for maximum effect on cockroaches.</p>
Cockroaches ²												
(American)												
(Brownbanded)												
(German)												
(Oriental)												
(Smoky brown)												
Confused flour beetles												
Earwigs												
Firebrats												
Indian meal moths												
Mediterranean flour moths												
Millipedes												
Red flour beetles												
Rice weevils												
Saw-toothed grain beetles												
Silverfish												
Spiders												
Brown dog ticks ¹					1 1/3	40				1	30	<p>1. For the control of brown dog ticks, thoroughly apply the spray as a spot treatment to infested areas, such as pet beds and resting quarters; nearby cracks and crevices; along baseboards, windows and door frames, and localized areas of floor and floor coverings where these pests may be present. Old bedding should be removed and replaced with clean, fresh bedding after treatment. Do not treat pets with this product.</p> <p>2. For the control of carpet beetles, thoroughly apply the spray as a spot treatment along baseboards and edges of carpeting, under carpeting, rugs and furniture, in closets and on shelving, and wherever else these insects are seen or suspected.</p>
Carpet beetles ²												
Clover mites												

†Superscripts refer to Specific Directions.

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Turf and Other Outdoor Uses

Use Dursban 4E to control the pests listed in the following table by applying at the recommended dosages and in accordance with the directions given below. Dilute Dursban 4E in water and apply as a coarse, low-pressure spray using suitable application equipment. Thoroughly water immediately after treatment to wash the insecticide into the turf, except as noted. For best results, the lawn should be moist at time of treatment. Spray when pests first appear; re-treat when needed.

Pest†	Amount of Dursban 4E in Water to Make		Specific Directions
	1 gal	100 gal	
Ticks ¹ (American dog) (Cattle fever) (Gulf coast) (Lone star)	1/4 fl oz	1 1/2 pt	1. For control of ticks infesting corrals, stockyards, holding pens and other outdoor livestock areas. Treat soil in corrals and pens, especially in corners, under and around fences, grassy areas, protected areas under feeders and shelters and other areas likely to serve as harborage sites for ticks that have removed themselves from their host. Spray surfaces to be treated until wet, but do not create excessive runoff. Note: This application is intended as a premise spray only. Do not use as a direct spray on livestock. Take care to avoid creating mist or drift which may come into contact with feed, water or livestock. Livestock should not be allowed in treated areas until spray deposits have dried.

Pest†	Amount of Dursban 4E per		Specific Directions
	1000 Sq Ft	Acre	
Ants (including foraging fire ants) Armyworms (Beet) (Fall) (Yellowstriped) Centipedes Chiggers ¹ Chinch bugs Clover mites Cutworms Crickets Earwigs Fiery skipper Fire ants (mounds) ² Fleas Gnats Grasshoppers Greenbugs June beetles Leafhoppers Lucerne moths Millipedes Mites	3/4 fl oz	1 qt	1. Use Dursban 4E for area control of ticks and chiggers infesting non-cropland areas such as roadsides, footpaths and trails, picnic and camping sites, parks and other recreational 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 Dursban 4E in water at the rate of 1/2 pint/acre (equivalent to 1/2 fl oz / 2,700 sq ft) using a hydraulic sprayer, mist applicator, knapsack sprayer, or other suitable hand- or power-operated spray equipment. Treat low underbrush, grassy areas, weeds, and ground surface and debris using enough spray volume to obtain thorough coverage, usually 40 - 100 gal/acre. 2. For individual fire ant mounds, apply Dursban 4E as a drench, diluted at the rate of 1 fl oz (30 ml) per 4 gal of water.

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(Clover)
 (Fornula grass)
 (Winter grain)
 Mosquitoes³
 Sod webworms⁴
 (lawn moths)
 Sowbugs
 Springtails
 Ticks¹

Gently sprinkle a total of 1 gal of the diluted emulsion over the surface of each mound using a gentle spray (such as a sprinkler can). Thoroughly wet mound and surrounding areas to a 4 ft diameter (12 sq ft). For best results, apply in cool weather, 65-80°F, 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.

3. Mosquitoes coming to rest on areas treated for control of turf pests will be killed for varying periods of time after treatment, depending on exposure of treated areas to weathering conditions.

4. For sod webworms, delay watering and mowing the treated area for 12 - 24 hours after treatment.

European crane fly	1 fl oz	1 1/2 qt	
Turfgrass weevil (<i>Hyperodes</i>) ¹	1 1/2 fl oz	2 qt	1. Spray suspected problem areas in mid-April and again in mid-May or as recommended by your local agricultural extension service specialist.
White grubs ¹ (Black turfgrass ataenius) (European chafer) (Southern masked chafer) (Japanese beetle larvae)	1 1/2 - 3 fl oz	2 qt - 1 gal	1. 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. Immediately after spraying, irrigate the treated area with 1/2 to 1 inch of water to wash the insecticide into the underlying soil.
Bluegrass billbugs ¹	3/4 - 3 fl oz	1 qt - 1 gal	1. For bluegrass billbugs, spray early in the season when adults first appear. Re-treat as needed.

†Superscripts refer to Specific Directions.

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Residential Citrus

Use Dursban 4E to treat grapefruit, lemon, orange and other citrus trees or tree fruit in residential areas. Use lower rates for light infestations, higher rates for heavy infestations. Treat when insects become a problem or in accordance with the normal spray schedule recommended by your State Extension Service Specialist. Do not apply to citrus if temperature exceeds 95°F. Dursban 4E is highly toxic to bees exposed to direct treatment. Do not apply to drought, heat stressed, or flowering trees.

Restrictions: Do not make more than two applications per year. Do not make a second application within 30 days of the first application. Do not pick fruit for consumption until 21 days after application.

Pest	Amount of Dursban 4E in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Aphids	1/10 - 1/5 fl oz	1/4 - 1/2 fl oz	1/2 - 1 pt	Use directions apply in all states.
Katydid				
Lepidopterous larvae				
Citrus thrips	1/10 - 1/5 fl oz	1/4 - 1/2 fl oz	1/2 - 1 pt	Use directions apply in Florida only. In California, apply as outside foliar coverage for citrus thrips and mealy bug, through coverage of entire tree for scale insects.
Mealybugs				
Scale insects				
(Black)				
(Brown soft)				
(California red)				
(Snow)				
(Chaff)				
Citrus rust mite	1/10 - 1/5 fl oz	1/4 - 1/2 fl oz	1/2 - 1 pt	Use directions apply in Florida only.

Pest Control on Outside Surfaces and Around Buildings

Apply Dursban 4E as a residual spray to outside surfaces of buildings including porches, window frames, eaves, patios, garages, refuse dumps and other areas where pests congregate or have been seen. Repeat treatment as needed to maintain effectiveness.

Pest†	Amount of Dursban 4E in Water to Make			Specific Directions
	1 gallon	10 gallons	50 gallons	
Ants		For Band Treatment ¹		<p>1. To help prevent infestation of buildings, treat a band of soil 6-10 ft wide around and adjacent to buildings, also the building foundation to a height of 2-3 ft, where pests are active and may find entrance. Use 4 fl oz of Dursban 4E per 50 gal of water and apply as a coarse spray at the rate of about 10 gal spray mixture per 1,000 sq ft to thoroughly and uniformly wet the band area.</p> <p>2. For scorpions, treat or remove accumulations of lumber, firewood, and other materials which serve as insect harborage sites.</p>
Bees				
Carpenter ants	1/12 fl oz	3/4 fl oz	4 fl oz	
Clover mites				
Cockroaches††				
Crickets				
Earwigs		For Outside Surfaces		
Fleas	1 1/3 fl oz	13 1/3 fl oz	2 qt	
Flies				
Hornets				
Millipedes				
Mosquitoes				
Scorpions ²				
Silverfish				
Sowbugs				
Spiders				
Ticks				
Wasps				
Yellowjackets				

†Superscripts refer to Specific Directions.

††Controls American and smokey brown cockroaches.

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Ornamentals (Soil Treatment)

Use Dursban 4E to treat potted, containerized, and balled and burlapped nursery stock to control the insects in the soil attached to the roots of these plants. Completely submerge the ball of soil in a tank containing diluted Dursban 4E. 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.

Note: Wear rubber gloves, boots, and apron during this operation. Application should be made in a well-ventilated area.

Note: Environmental factors significantly affect phytotoxicity. Dursban 4E has been tested on numerous ornamental plants without causing serious phytotoxicity. However, because of the numerous varieties grown, it is recommended that a small group of plants be treated at the recommended rate under the anticipated growing conditions and observed for phytotoxic symptoms for at least 7 days, before a large number of plants are treated.

Pest†	Amount of Dursban 4E in Water to Make		Specific Directions
	1 gallon	100 gallons	
Fire ants ¹	1/4 fl oz	4 fl oz	1. An alternate treatment to submerging potted plants is to dilute 4 fl oz of Dursban 4E in 100 gal of water. This dilution should be applied to the point of runoff on a twice-daily schedule for three consecutive days. Do not remove burlap wrap or container from plants prior to treatment.
Grubs Weevils	2/3 fl oz	2 qt	

†Superscript refers to Specific Directions.

Ornamentals (Outdoor and Nursery)

Use Dursban 4E to treat flowers, shrubs, evergreens, vines, shade and flowering trees found to be infested with pests listed in the following table. Dilute Dursban 4E with water according to directions given in the table and apply using suitable hand- or power-operated spray equipment in a manner to provide complete and uniform coverage. For best results, apply a coarse spray to thoroughly wet both upper and lower leaf surfaces and infested limb and trunk areas. Attempt to penetrate dense foliage, but avoid overspraying to the point of excessive runoff. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

Consult your state agricultural experiment station or extension service specialist for application timing and other specific use information.

Note: Environmental factors have significant effects on phytotoxic expression. Dursban 4E has been tested on numerous ornamental plants without causing serious phytotoxicity. However, do not use on azaleas, camellias, poinsettias, rose bushes, or variegated ivy because of possible injury to these plants.

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Pest†	Amount of Dursban 4E in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Adelgids (Cooley) (Eastern spruce galls) (Pine bark)	1/12 fl oz	1/4 fl oz	8 fl oz	<p>1. For bagworms, treat when insects are in the crawler stage.</p> <p>2. For effective control of leafrollers, spray should be applied before leaves are tightly rolled.</p> <p>3. For effective control of maple leafcutters on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production.</p> <p>4. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 - 5 days in the south or 7 - 10 days in the north after initial treatment to control newly-hatched nymphs.</p>
Ants (including foraging fire ants)				
Aphids (Apple) (Chrysanthemum) (Cottonwood) (Elm leaf) (Peach) (Rose) (Spirea) (Woolly)				
Armyworms (Fall) (Yellowstriped)				
Bagworms ¹				
Boxelder bugs				
Cankerworms				
Catalpa sphinx				
Chiggers				
Citrus mealy bugs				
Cockroaches (American) (Brownbanded) (German) (Oriental) (Smoky brown)				
Elm spanworms				
Fall webworms				
Grasshoppers				
Green fruitworms				
Hornworms				
Jackpine budworms				
Juniper webworms				
Katydid				
Lace bugs				
Leafhoppers				
Leafrollers ²				
Maple leafcutters ³				
Mites ⁴ (Clover) (Red spider) (Southern red)				
Oleander caterpillars				
Orange tortrix				
Periodical cicada				
Plant bugs				
Poplar tentmaker				
Psyllids				

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Puss caterpillars
 Rose chafers
 Sawflies, exposed
 (Pine)
 (Pin oak)
 (Redheaded)
 Sowbugs
 Spittlebugs
 Spring elm caterpillars
 Springtails
 Spruce budworms
 Tent caterpillars
 (Eastern)
 (Forest)
 (Western)
 Thornbug
 Walnut caterpillars
 Western spruce budworms
 Whiteflies
 Yellownecked caterpillars

†Superscripts refer to Specific Directions.

Pest†	Amount of Dursban 4E In Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Armyworms (Beet)	1/6 fl oz	1/2 fl oz	1 pt	1. To reduce twig and branch feeding by bark beetles, applications should be made in the spring or early summer. 2. To kill migrating and invading gypsy moth larvae, treat trunks and foliage. 3. Blackvine weevils are night feeders. Late afternoon spraying will give control in some areas.
Beetles (Fuller rose) (Native elm bark) ¹				
Cutworms Leafhoppers Mahogany webworms Mealybugs Mimosa webworms Moths (Browntail) (Cypress tip) (Douglas fir tussock) (European pine shoot) (Gypsy) ² (Holly bud) (Nantucket pine tip) (Pandora) (Pitch pine tip) (Subtropical pine tip) (Tussock) Oakworms (California) (Orangestriped) (Redhumped) Redhumped caterpillars Thrips (exposed) Weevils (Blackvine) ³				

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(Yellow poplar)
(Pine reproduction)

Beetles

(Cottonwood leaf) ¹	1/6 to 1/3 fl oz	1/2 to 1 fl oz	1 pt to 1 qt
(Elm leaf)			
(Flea)			
(Willow leaf)			

1. For cottonwood leaf beetles, use Dursban 4E in water to control larvae and adults infesting cottonwoods. Make the treatment when field counts indicate damaging beetle populations are developing or present.

Borers¹:

Clearwing moths (Ash) (Dogwood) (Lesser peachtree) (Lilac) (Oak) (Rhododendron)	1/3 fl oz	1 fl oz	1 qt
Metallic wood (Bronze birch) (Flatheaded apple tree) (Twolined chestnut)			
Longhorned beetles (Locust) (Red oak)			

1. For borers, apply Dursban 4E to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your state agricultural experiment station or extension service specialist for proper time to treat. Apply uniformly as a coarse low-pressure spray.

Leafminers**Needleminers**

(Jeffrey pine)
(Lodgepole pine)
(Spruce)

Scale crawlers

(Cottonycushion)
(Cottonymaple)
(Euonymus)
(Fletcher)
(Florida wax)
(Golden oak)
(Hemispherical)
(Lecanium)
(Magnolia)
(Oak kermes)
(Oystershell)
(Pine needle)
(San Jose)
(Tea)
(White birch)

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Borers

(Cottonwood) (Peachtree) ¹	1 fl oz	3 fl oz	3 qt
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1. For peachtree borers, apply Dursban 4E in water to flowering trees and shrubs of the genus *Pirus* as a trunk spray before newly-hatched larvae enter the trees. Apply as a coarse, low-pressure spray. Thoroughly wet all bark areas from

ground level to scaffold limbs.

Beetles¹

(Ambrosia)
 (Anobiidae)
 (Black turpentine)
 (Cottonwood leaf)
 (Elm leaf)
 (European elm bark)
 (Flea)
 (Fuller rose)
 (Japanese)
 (June)
 (Native elm bark)
 (Southern pine)
 (Willow leaf)

2 2/3 fl oz

8 fl oz

2 gal

1. For preventive treatment, apply the spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees.

For remedial treatment, apply the spray to the main trunk of infested trees when damage occurs but before adult beetles begin to emerge.

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[†]Superscripts refer to Specific Directions.

Tree and Forest Pests (Nurseries, Plantations, and Felled Trees)

Use Dursban 4E to treat shade and flowering trees, plantation trees, transplant trees, and evergreens found to be infested with pests listed in the following table. Felled trees, such as elms, should be treated as necessary. Dilute Dursban 4E with water according to directions given in the table and apply using suitable hand- or power-operated spray equipment in a manner to provide complete and uniform coverage. For best results, apply a coarse spray to thoroughly wet both upper and lower leaf surfaces and to infested limb and trunk areas. Attempt to penetrate dense foliage, but avoid overspraying to the point of excessive runoff. **Attention:** For felled trees, treat after cutting; do not handle until spray has dried or wear suitable protective clothing. Do not treat bearing fruit and nut trees with Dursban 4E except as indicated in the Dormant Spray section. Treat when pests appear and repeat at 7 to 10 day intervals, if needed.

Consult your state agricultural experiment station or extension service specialist for application timing and other specific use information.

Pest [†]	Amount of Dursban 4E In Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Adelgids				
(Cooley)	1/12 fl oz	1/4 fl oz	8 fl oz	1. For bagworms, treat when insects are in the crawler stage.
(Eastern spruce gall)				
(Pine bark)				2. For effective control of leaftrollers, spray should be applied before leaves are tightly rolled.
Aphids				
(Apple)				
(Chrysanthemum)				
(Cottonwood)				
(Elm leaf)				
(Peach)				3. For maple leaftrollers on maple trees, apply spray to larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production.
(Rose)				
(Spirea)				
(Woolly)				
Bagworms ¹				
Boxelder bugs				
Cankerworms				
Catalpa sphinx				
Citrus mealybugs				
Elm spanworms				
Fall webworms				4. For effective control of spider mites, when large numbers of eggs are present, apply a second spray after 3-5 days in the south

Greenstriped mapleworms
 Jackpine budworms
 Juniper webworms
 Katydid
 Lace bugs
 Leafhoppers
 Leafrollers²
 Maple leafcutters³
 Mites⁴
 (Clover)
 (Red spider)
 (Southern red)
 Oak skeletonizers
 Poplar tentmakers
 Puss caterpillars
 Sawflies, exposed
 (Pine)
 (Pin oak)
 Spring elm caterpillars
 Spruce budworms
 Tent caterpillars
 (Eastern)
 (Forest)
 (Western)⁵
 Walnut caterpillars
 Western spruce budworms
 Yellownecked caterpillars

or 7 - 10 days in the north
 after initial treatment to
 control newly-hatched nymphs.

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†Superscripts refer to Specific Directions.

Pest†	Amount of Dursban 4E In Water to Make			Specific Directions
	1 gallon 1/6 fl oz	3 gallons 1/2 fl oz	100 gallons 1 pt	
Beetle (Fuller rose) (Native elm bark) ¹				1. To reduce twig and branch feeding by bark beetles, applications should be made in the spring or early summer.
Leafhoppers				
Mahogany webworms				2. To kill migrating and invading gypsy moth larvae, treat trunk and foliage.
Mealybugs				
Mimosa webworms				3. Blackvine weevils are night feeders. Late afternoon spraying will give control in some areas.
Moths				
(Browntail)				
(Cypress tip)				
(Douglas fir tussock)				
(European pine shoot)				
(Gypsy) ²				
(Holly bud)				
(Nantucket pine tip)				
(Pandora)				
(Pitch pine tip)				
(Subtropical pine tip)				
(Tussock)				
Oakworms (California)				

(Orangestriped)
 (Redhumped)
 Redhumped caterpillars
 Thrips (exposed)
 Weevils
 (Blackvine)³
 (Yellow poplar)
 (Pine reproduction)

Beetles			
(Cottonwood leaf) ¹	1/6 - 1/3 fl oz	1/2 - 1 fl oz	1 pt - 1 qt
(Elm leaf)			
(Flea)			
(Willow leaf)			

1. For cottonwood leaf beetles, use Dursban 4E in water to control larvae and adults infesting cottonwoods. Make the treatment when field counts indicate damaging beetle populations are developing or present. For seedlings, use 8 - 20 gal of spray volume per acre.

Borers ¹ :	1/3 fl oz	1 fl oz	1 qt
Clearwing moths			
(Ash)			
(Dogwood)			
(Lesser peachtree)			
(Lilac)			
(Oak)			
(Rhododendron)			
Metallic wood			
(Bronze birch)			
(Flatheaded apple tree)			
(Twolined chestnut)			
Longhorned beetles			
(Locust)			
(Red oak)			
Cranberry girdler larvae ²			
Leafminers			
Needleminers			
(Jeffrey pine)			
(Lodgepole pine)			
(Spruce)			
Scale crawlers			
(Cottonycushion)			
(Cottony maple)			
(Euonymus)			
(Fletcher)			
(Florida wax)			
(Golden oak)			
(Hemispherical)			
(Lecanium)			
(Magnolia)			
(Oak kermes)			
(Oystershell)			
(Pine needle)			
(San Jose)			
(Tea)			
(White birch)			

1. For borers, apply Dursban 4E to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your local state agricultural experimental station or extension service specialist for proper time to treat. Apply uniformly as a coarse low-pressure spray.

2. For cranberry girdler larvae infesting Douglas fir seedlings, apply 1 quart of Dursban 4E per acre. Direct spray at the lower crown and stems using 50 gal of water per acre. Irrigate immediately after application for soil penetration of 1 - 2 inches. Treat after egg laying during the summer.

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Borers (Cottonwood) (Peachtree) ¹	1 fl oz	3 fl oz	3 qt	1. For peachtree borers, apply Dursban 4E in water to flowering trees and shrubs of the genus <i>Purus</i> as a trunk spray before newly-hatched larvae enter the trees. Apply as a coarse low-pressure spray. Thoroughly wet all bark areas from ground level to scaffold limbs.
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†Superscripts refer to Specific Directions.

Pest†	Amount of Dursban 4E in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Beetles¹ (Cottonwood leaf) (Elm leaf) (Flea) (Fuller rose) (Native elm bark) ² (Willow leaf)	1 1/3 fl oz	4 fl oz	1 gal	<p>1. For preventive treatment, apply the spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees or logs when damage occurs but before adult beetles begin to emerge. For plantation trees, apply to individual trees using suitable hand- or power-operated spray equipment.</p> <p>2. To prevent native elm bark beetles from overwintering in uninfested trees, apply Dursban 4E in water to the bottom 9 feet of the 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. Application can be made with either a backpack mistblower or a hydraulic pressure sprayer from spring through to early fall. To reduce the twig and branch feeding on uninfested trees deemed to be of high value, apply a water spray to the tree crown. Application should be made in the spring or early summer using a sprayer that will give thorough coverage to the tree crown.</p>

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Beetles ¹ (Ambrosia) (Anobiidae) (Black turpentine) (Blister) (European elm bark) (Japanese) (June) (Southern pine) (Spruce)	2 2/3 fl oz	8 fl oz	2 gal	1. For preventive treatment, apply the spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees or logs when damage occurs or before adult beetles begin to emerge. For plantation trees, apply to individual trees using suitable hand- or power- operated spray equipment.
Carpenter ants Termites				
Weevils ¹ (Northern pine) (Pales) (Pitch-eating) (Twig)	5 1/3 fl oz	1 pt	4 gal	1. For southern pine seedlings, treat immediately after transplanting. Treat each seedling with enough spray to thoroughly wet the foliage and stems to the point of runoff but do not use more than 6 gal of spray dilution per acre.

¹Superscripts refer to Specific Directions.

Dormant Spray (Tree and Forest Pests)

Use Dursban 4E as a dormant or delayed dormant spray at the rates indicated to control the listed insects. Spray the entire tree to runoff using suitable ground spray equipment. Use the higher dosage of Dursban 4E for severe infestations. Use oil as recommended by your state agricultural experiment station or extension service specialist.

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

Pest	Amount of Dursban 4E in Water to Make			Specific Directions
	1 gallon	3 gallons	100 gallons	
Aphids (Mealy plum) (Rosy apple) (Woolly apple)	1/12 - 1/8 fl oz	1/4 - 1/2 fl oz	1/2 - 1 pt	Tank mix with 1 - 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water.
Borers (Peach twig)				
Cutworms (Climbing)				
Leafrollers (Pandemis)				
Pear psylla adults				
Plant bugs				
Scale (San Jose)				

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Mosquitoes

Apply Dursban 4E to mosquito infested, non-crop areas according to the conditions and rates shown in the following table. Mix Dursban 4E with either water or oil, such as kerosene or No. 2 fuel oil, using sufficient spray volume to give uniform coverage of area treated. Apply the spray using suitable application equipment, such as hand or power ground sprayers, mist applicators, and aerial spray equipment.

WARNING: Read complete Environmental and Use Precaution sections and consult your State Fish and Game Department before using this product for mosquito control.

Pest	Condition of Area to be Treated	Amount to Use Per Acre		Number of Acres 1 gallon of Dursban 4E will treat	Specific Directions
		Dursban 4E (Fluid Ounces)	Chlorpyrifos (Pounds)		
Mosquito adults	Light to medium vegetative cover	0.8	0.025	160	The higher dose will also give faster knockdown and longer residual control where there is little or no vegetative cover.
	Medium to heavy vegetative cover	1.8	0.05	80	

Warranty Disclaimer

DowElanco warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. DOWELANCO MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

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- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

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