

93.03.08

DURSBAN* 4E Insecticide

Emulsifiable Insecticide

Contains Chlorpyrifos

For use by Pest Control Operators only to control numerous pests of household, turf, ornamental plants and industrial and institutional locations; for agricultural use to control cutworms in tobacco; and for use by municipalities to control the Native Elm Bark Beetle.

COMMERCIAL

DANGER POISON

READ THE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

GUARANTEE: Chlorpyrifos.....480 g/L

REGISTRATION NO. 10637

PEST CONTROL PRODUCTS ACT

NET CONTENTS: 110 L

DOWELANCO CANADA INC.
17705 Leslie Street
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L3Y 3E3
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PRECAUTIONS

MAY BE FATAL IF SWALLOWED
MAY BE ABSORBED THROUGH SKIN
DANGER - EYE IRRITANT
CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY
MAY CAUSE SKIN IRRITATION

Do not get in eyes, on skin or clothing. Avoid breathing vapours and spray mist. Wear protective clothing, chemically resistant gloves and chemical worker's goggles when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Remove contaminated clothing and wash before reuse. This product has been shown to be a skin sensitizer in laboratory animal studies. Repeated exposure may cause allergic reaction in sensitive individuals. If this should happen, discontinue use and consult a physician. Discard contaminated leather articles, including shoes. Handle concentrate in a ventilated area. The use of a respirator is recommended when using this product in confined areas.

FIRST AID

IF IN EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Get medical attention.

IF ON SKIN: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash clothing before reuse. Destroy contaminated shoes.

IF SWALLOWED: Contains a petroleum distillate solvent. Do not induce vomiting. Call a physician and/or transport to medical facility.

IF INHALED: Remove to fresh air if effects occur. Call a physician and/or transport to medical facility.

TOXICOLOGICAL INFORMATION

Contains a petroleum distillate solvent. The decision of whether to induce vomiting or not should be made by an attending physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as Pralidoxime Chloride, may be therapeutic if used early; however, use only in conjunction with atropine. Supportive care. Treatment based on judgment of the physician in response to reactions of the patient.

For further information consult THE MATERIAL SAFETY DATA SHEET.

NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. It is an offence under the Pest Control Products Act to use a control product under unsafe conditions.

NOTICE TO BUYER: Seller's guarantee shall be limited to the terms set out on the label and subject thereto. The buyer assumes the risk to persons or property arising from the use or handling of this product and accepts the product on that condition.

AGRICULTURAL CHEMICAL

Do Not Ship or Store with Food, Feeds, Drugs or Clothing

USE DIRECTIONS

PESTS INDOORS

General Information: Use DURSBAN 4E Insecticide to control the pests indicated in the areas listed below by application as a 0.24% or 0.48% chlorpyrifos spray. Use the 0.24% spray to control light infestations and the 0.48% spray to quickly reduce heavy infestations or as directed. To prepare the spray, dilute DURSBAN 4E with water or with a suitable base oil as shown in the following SPRAY DILUTION CHART. Repeat the treatment as needed.

SPRAY DILUTION CHART

Litres of Spray Mixture Desired	mL of DURSBAN 4E to Use	
	0.24 % Spray	0.48% Spray
Water-Base Spray		
1	5	10
2	10	20
4	20	40
8	40	80
25	125	250

Oil Base Spray		
1	4	8
2	8	16
4	16	32
8	32	64
25	105	210

APPLICATION WITHIN FOOD HANDLING ESTABLISHMENTS IN WHICH FOOD IS HELD, PROCESSED, PREPARED OR SERVED, INCLUDING BUT NOT LIMITED TO RESTAURANTS, GROCERY STORES, BAKERIES, BOTTLING PLANTS, Canneries AND GRAIN MILLS. IN FOOD PROCESSING, PREPARATION AND SERVING AREAS USE ONLY DURING CLOSE DOWN PERIODS.

Use as a spot treatment to control cockroaches (including strains resistant to certain other insecticides), ants, crickets, firebrats, silverfish and spiders in and around both food and non food areas by application as a coarse, low pressure (150 kPa or less) spray to localized areas where the above pests have been seen or are suspected of hiding or entering. Apply only enough spray to thoroughly cover the surfaces treated using special care to avoid unnecessary runoff. Do not introduce the spray into the air or allow the spray to contact food or food-contacting surfaces. Areas treated may include dark corners of rooms and closets; along and behind baseboards; beneath and behind stoves, refrigeration units and similar food preparation areas and equipment; floor drains; and around plumbing and other utility installations.

For ants apply to ant trails and wherever these pests may find entrance. Spot treatment may encompass crack and crevice treatment by applying small amounts of material directly into openings leading to voids and hollow spaces in walls, equipment legs and bases or at points between different elements of construction or between equipment and floors. The use of chlorine based cleaning materials will significantly reduce the residual effect of DURS BAN 4E. 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), DURS BAN 4E MAY BE APPLIED AFTER 2 DAYS FROM LAST TREATMENT BUT EMERGENCY USE SHOULD BE LIMITED TO ONCE PER MONTH. Remove or cover all food, packaging materials and utensils before spraying. After spraying wash all surfaces that may contact food and rinse thoroughly with potable water before re-use for food processing, preparation or serving.

APPLICATIONS OF THIS PRODUCT IN FOOD HANDLING ESTABLISHMENTS OTHER THAN AS A SPOT AND/OR CRACK AND CREVICE TREATMENT ARE NOT PERMITTED.

APPLICATION WITHIN FOOD AND NONFOOD AREAS OF RESIDENTIAL BUILDINGS INCLUDING HOMES AND APARTMENT BUILDINGS AND WITHIN INDUSTRIAL, INSTITUTIONAL, COMMERCIAL BUILDINGS INCLUDING HOSPITALS, STORES, MANUFACTURING PLANTS AND WAREHOUSES. Apply as a coarse spray or with a paint brush to localized areas where cockroaches (including strains resistant to certain other insecticides), ants, crickets, firebrats, silverfish and spiders are found or normally occur including dark corners of rooms and closets; cracks and crevices in walls, along and behind baseboards; beneath and behind sinks, stoves, refrigerators and cabinets; around plumbing and other utility installations. For ants apply to trails, also around doors and windows and wherever else these pests may find entrance.

Note: A period of 4 to 7 days is normally required for maximum effect on cockroaches.

In homes or dwellings remove or cover all food before application. Do not make application in areas of hospitals where (convalescing) patients may be present. Do not apply in dwellings where occupants are ill. For control of carpet beetles, thoroughly apply as a 0.48% 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.

For control of brown dog ticks and fleas, thoroughly apply as a 0.48% spray as a spot treatment to infested areas such as pet beds and resting quarters; nearby cracks and crevices; along and behind baseboards, window and door frames and localized areas of floor and floor covering where these pests may be present. Old bedding of pets should be removed and replaced with clean, fresh bedding after treatment. Do not treat pets with this product.

Attention (Pests Indoors): Do not apply water-base sprays of this product in conduits, motor housings, junction and switch boxes or other electrical equipment because of possible shock hazard. If there is a 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 use in poultry houses or other animal buildings. Do not allow spray to contact food, feedstuffs and 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 and do not apply to areas where they are likely to make frequent contact with the deposit. Remove pets and cover fish

bowls (tanks) before spraying.

PESTS OUT-OF-DOORS

General Information: Use DURSBAN 4E to control certain pests of lawns and ornamental plants. Consult the following directions for dosage and application details to control the pests listed.

Pests of Lawns and other Ornamental and Recreational Turf Grass Areas: Use DURSBAN 4E to control the pests listed in the following table by application at the recommended dosages and in accordance with the directions given below. Dilute DURSBAN 4E in enough water to obtain complete and uniform coverage of pest infested areas 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.

PEST CONTROL AROUND BUILDINGS

Apply DURSBAN 4E Insecticides as a residual spray around the outside of buildings including porches, window frames, eaves, patios, garages, fences, refuse dumps and other areas where pests congregate or have been seen. Do not allow persons or pets in the area until treatment has dried.

PEST	AMOUNT OF PRODUCT PER 100 M2	SPECIFIC DIRECTIONS
Ants Crickets Earwigs Millipedes Sowbugs (pillbugs)	22.5 mL	To help prevent infestation of buildings treat a band of soil 2 to 3 metres wide around and adjacent to the building foundation to a height of 50 cm to 1 m or use as a spot treatment where pests are active and may find entrance. Dilute in enough water to obtain complete and uniform coverage and apply as a coarse spray to thoroughly wet the band area.

PEST	SPRAY DILUTION	SPECIFIC DIRECTIONS
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Spiders Carpenter Ants Wasps Hornets Bees Box Elder Bugs Cluster Flies	0.48% solution (see spray and dilution chart)	Close all windows (including neighbours) and remove furniture, barbecues, children's toys, bicycles, potted plants. Apply DURSBAN 4-E by hand held, backpack or hydraulic sprayer to nesting sites and other localized areas where pests congregate. In order to minimize drift, apply a course spray thoroughly wetting the surface but not allowing runoff to occur. This can best be achieved by utilizing low gun pressures to generate large droplets. Avoid repeat applications at intervals less than 50 days.
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DOSAGES AND DIRECTIONS FOR USE ON TURF

Pest	Dosage DURSBAN 4E per 100 m ²	Remarks
Ants Chinch bugs Cutworms	22.5 mL*	Spray when pests first appear, repeat when needed.
Crane fly larvae (Leatherjackets)	20-25 mL	Apply as drenching spray in water in late fall after the flight of adult crane flies has ceased for the year.
Sod Webworms	22.5 mL	For sod webworms delay watering or mowing the treated area for 12 to 24 hours after treatment.
Turfgrass (Hyperodes) Weevil (Annual Bluegrass Weevil)	45 mL	Spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Representative.

White Grubs including European Chafer (larvae) Japanese Beetle (larvae)		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 Representative. Immediately after spraying irrigate the treated area with 1 to 2 cm of water to wash the insecticide into the underlying soil.
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*22.5 mL/100 m² = 112.5 mL/500 m² = 225 mL/1000 m² or 2.25 L/ha.

NOTE: To help prevent infestation of buildings by ants, crickets, earwigs, millipedes and sowbugs (pillbugs), either treat a band of soil 2 to 3 metres wide adjacent to the building and the building foundation to a height of 50 cm to 1 m or use as a spot treatment where pests are active and may find entrance. Use the same dosage and dilution recommended for ant control on turf as shown in the above table. Apply as a coarse spray to thoroughly and uniformly wet the band area. Do not allow children or pets to contact treated areas until spray has dried.

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

NOTE - Do not use on azaleas, camellias, poinsettias, rose bushes, geraniums, oxalis, coleus or Variegated ivy because of possible injury to these plants.

DOSAGES AND DILUTIONS FOR USE ON ORNAMENTAL PLANTS

PEST CONTROLLED	HOST PLANTS	DOSAGES AND DILUTIONS FOR USE
Eastern & Forest Tent Caterpillar	Ash, Birch	500 mL/1000 L

Mites such as Two-Spotted Spider Mite, European Red Mite, Spruce Spider Mite, Red Oak Mite, Clover Mite, Honey Locust Mite	Arborvitae Juniper	375 mL/1000 L
Aphids	Beech, Birch, Elm, Hickory, Linden, Maple, Oak, Pine, Flowering Cherry, Flowering Plum, Spruce, Tulip Tree, Viburnum, Willow, Spirea, Nasturtium	375 mL/1000 L
Grasshoppers	Various Ornamental Plants	500 mL/1000 L
European Pine Sawfly Red Headed Pine Sawfly	Conifers Mountain Ash	500 mL/1000 L
Spittlebugs such as Meadow Spittlebug	Various Ornamental Plants	88-150 mL/1000 L
Whiteflies	Various Ornamental Plants	550 mL/1000 L
Leafhopper such as Potato and Six Spotted Leafhoppers	Various Ornamental Plants	1 L/1000 L
Thrips	Various Ornamental Plants	500 mL/1000 L
Borers such as Ash and Lilac Borer	Locust, Birch, Mountain Ash, Willow, Lilac	500m L/1000 L
Scale Insects such as Lecanium, Cottony Maple, San Jose, Oystershell	Various Ornamental Plants	2 L/1000 L

500 mL is equivalent to 240 g of chlorpyrifos per 1000 L

1 L is equivalent to 480 g of chlorpyrifos per 1000 L

2 L is equivalent to 960 g of chlorpyrifos per 1000 L

NOTE: Mosquitoes coming to rest on areas treated for control of turf pests will be killed for varying periods of time (1 to 3 weeks) after treatment, depending on exposure of treated areas to weathering conditions.

Attention (Lawn and Ornamental Plant Pests): Keep children and pets off

treated areas until spray has dried. Keep out of lawn and garden fishpools and other bodies of water.

Cutworms in Tobacco: Dark-sided cutworms may feed on the cover crop before spring ploughdown. Apply 1.2 L/ha DURSBAN 4E to the area planted to tobacco and a strip about 15 m into nearby covercrop and fence rows. Application should be made in mid to late April, 4 to 5 days before ploughdown. When the rye cover crop is about 15 cm tall, the cutworm larvae will be at the right stage for the best control.

In the event of failure to apply the cover crop treatment, or if there is no cover crop, or where cool temperatures have delayed cutworm hatching until after the application of the cover crop treatment resulting in poor cutworm control, DURSBAN 4E may be applied to the soil surface.

Apply about three to five days before planting preferably before mid-May. A rate of 2.4 L/ha DURSBAN 4E should be applied except under low soil moisture conditions. If the top 1 cm or more of soil is dry 4.8 L/ha DURSBAN 4E may be necessary to give desired control.

Dilute DURSBAN 4E insecticide in water and apply as a broadcast spray. Volumes of 200-400 L/ha and nozzle pressures of 200-350 kPa are recommended. Best results will be obtained when the spray is applied during the afternoon or early evening. Do not make more than one soil application of DURSBAN per year.

USE RATES OF DURSBAN 4E TO CONTROL DARK-SIDED CUTWORMS IN TOBACCO

AREA TO BE TREATED	AMOUNT OF DURSBAN 4E/ HECTARE	AMOUNT OF CHLORPYRIFOS/ HECTARE
Cover Crop	1.2 L	576 g
Soil Surface	2.4 L	1.15 kg
Soil Surface Dry Conditions (see directions for use)	4.8 L	2.30 kg

Cereals grown for cover crop treated with DURSBAN 4E insecticide should not be harvested for human or animal consumption if treated within 60 days of harvest.

NATIVE ELM BARK BEETLE

Prevention of Overwintering: To prevent the adult beetle from overwintering

in uninfected trees and to reduce beetle populations in disease free areas, apply DURSBAN 4E insecticide as a 0.48% mixture of chlorpyrifos in water to the bottom 2.5 m of the trunk. Wet the trunk thoroughly, but do not spray to run off. Care should be taken to apply the spray right to the base of the root flare. Applications can be made with either back pack mist blower or a hydraulic pressure sprayer from spring through to the early fall. Make only one application per season.

Prevention of Branch and Twig Feeding on High Value Elm Trees: To reduce the twig and branch feeding on uninfected trees deemed to be high in value, apply a 0.48% chlorpyrifos 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. Make only one application per season.

The following spray dilution chart indicates the proper proportion of DURSBAN 4E insecticide to water to give a 0.48% chlorpyrifos solution.

WATER TO MAKE	DURSBAN 4E
5 L	50 mL
10 L	100 mL
100 L	1 L
1000 L	10 L

For best results, the use of DURSBAN 4E insecticide should be incorporated into a total integrated Dutch Elm disease control program, to include both chemical treatment and necessary sanitation techniques.

NOTICE TO USER: This control product is to be used only in accordance with the directions on this label. It is an offence under the Pest Control Products Act to use a control product under unsafe conditions.

NATURE OF RESTRICTION

This product is to be used only in the manner authorized. Contact local pesticide regulatory authorities about appropriate use permits which may be required.

RESTRICTED USES

MOSQUITOES: DURSBAN 4E emulsifiable insecticide mixes readily with water or oil such as kerosene or no.2 diesel fuel oil. DURSBAN 4E should be thoroughly mixed with the amount of water or oil required to give uniform coverage and applied to non-crop areas with suitable equipment such as hand or power sprayers, mist applicators or by aerial application. Use at rates given in the table.

LARVAL CONTROL: For larval control apply uniformly to standing water such as pools, shallow ponds, marshes and swamps. Spot applications may be made to catch basins, culverts, and similar areas where mosquitoes may breed. Application should be made when larvae are first noticed. Spray equipment must be properly calibrated to deliver the required amount of DURSBAN 4E/ha. Application equipment giving medium to coarse spray droplets should be used for mosquito larval control. The highest rate of DURSBAN 4E should be used only when the organic matter level in the water is high or where the vegetation cover is dense. The lower rate of DURSBAN 4E is adequate in open areas with little vegetation cover and where the water is low in organic matter. Retreat as required, not more often than every 2 weeks.

ADULT CONTROL: DURSBAN 4E should be applied to wet grassy or wooded areas when adults first become a nuisance. Application equipment giving fine sprays, mists or aerosol droplets will give best results. Retreat as required.

SPECIFIC APPLICATION EQUIPMENT: For mistblowers, calculate application rates as in this example. For mistblowers calibrated to deliver 350 L per hour covering a spray swath of 100 m at a vehicle speed of 9 km per hour, use 5 to 10 L of DURSBAN 4E in 350 L of water. Use the higher rate where vegetation is dense. Where vegetation is too dense to permit adequate penetration, the spray swath should be reduced to 50 m. (See Table for rate of application.)

For aircraft, calibrate application rates as in this example. For aircraft equipped to deliver 2.5 L of fuel oil or 5 L of water per hectare, mix 2.75 to 11.5 L of DURSBAN 4E to give 250 L of fuel oil mixture or 500 L of water emulsion and apply to 100 hectares. (See Table for rate of application.) If regulations permit, spraying can be done at flight altitudes of 15 to 20 metres, covering a spray swath of 20 to 30 metres. Aerial applications should be made during early morning or evening when calm.

WARNING (Mosquito Control): DURSBAN 4E is toxic to shrimp, crabs and fish. Do not apply to water containing valuable crustaceans and fish. Apply only in accordance with Federal, Provincial and local laws and regulations governing chemical treatment of bodies of water for control of mosquitoes.

AMOUNT TO USE PER HECTARE

CONDITIONS OF AREA TO BE TREATED	DURSBAN 4E (mL)	CHLORPYRIFOS (g)
LARVAL CONTROL None to medium vegetative cover or Low organic matter	28-55	13-26

Medium to heavy vegetative cover or High organic matter	55-110*	26-53*
ADULT CONTROL Light to medium vegetative cover	55	26
Medium to heavy vegetative cover	110*	53*

The higher dosage of DURSBAN 4E should be used only where vegetative cover is dense or where larval aquatic areas are high in organic matter. The use of this rate under conditions of little or no vegetation cover or low water organic content is harmful to fish or crustaceans and should be used where kill of these species can be tolerated.

FORESTRY - RESTRICTED USE

Mountain Pine Beetle: For ground use only to control small infestations of mountain pine beetle in lodgepole pine forest stands. Monitor stand in the period mid-June to mid-July to determine the trees which are infested. Apply treatment to infested trees within a few weeks of the expected beetle emergence, usually early July, in order to kill the adult beetles. Avoid spraying when conditions favour drift from spray area.

Use 1 L of DURSBAN 4E in 24 L of water (42 L in 1000 L of water) to make a spray containing 2% active ingredient by weight. Apply at a rate of 1 L spray/m bark prior to adult beetle emergence. Treat boles from ground level up to a height of at least 3 metres or until a bole diameter of 12.5 cm is reached.

ENVIRONMENTAL AND USE PRECAUTIONS

This product is highly toxic to bees exposed to direct treatment or residues on plants. Do not apply this product or allow it to drift to blooming crops or weeds while bees are actively visiting the treatment area. DURSBAN 4E insecticide is highly toxic to fish, birds and other wildlife. Fish and crustaceans may be killed at application rates recommended on this label. Do not apply where these are important resources. Do not apply where runoff is likely to occur. Do not apply when weather conditions favour drift from areas treated. Avoid spraying tree crown before mid-morning. Do not apply when birds are nesting in trees to be treated. Do not contaminate water by cleaning of equipment or disposal of wastes.

COMBUSTIBLE - Do not use or store near heat or open flame. Do not cut or

weld container.

STORAGE

Do not contaminate water, food or feed by storage or disposal. Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 38'C for extended periods of time. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.

DISPOSAL:

1. Rinse the emptied container thoroughly and add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on the disposal of unused, unwanted product and the cleanup of spills, contact the regional office of Environmental Protection, Environment Canada.

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