

CANADIAN LABEL

GROUP

1B

INSECTICIDE



Pyrate 480EC INSECTICIDE

For Non-Food Uses

This product is not to be used in and around homes or other residential areas such as parks, school grounds, playing fields. It is not for use by homeowners or other uncertified users.

Restricted Uses to Control: Termites, Adult and Larval Mosquitoes, Mountain Pine Beetle in forestry situations. To be applied only under the direct supervision of Commercial Applicators responsible for Pest Control Programs.

Do not formulate this product into other end-use products.

GUARANTEE

Chlorpyrifos480 g/L

REGISTRATION NO. 23704

PEST CONTROL PRODUCTS ACT

READ THE LABEL BEFORE USING

DANGER  POISON

KEEP OUT OF REACH OF CHILDREN

Net Contents: 10L



Makhteshim Agan of North America, Inc.
551 Fifth Avenue / Suite 1100
New York, NY 10176
1-212-661-9800

Specimen Label

PRECAUTIONS

**KEEP OUT OF REACH OF CHILDREN
MAY BE FATAL IF SWALLOWED
MAY CAUSE SKIN IRRITATION
DANGER EYE IRRITANT**

Do not get in eyes, on skin or on clothing. Avoid breathing vapour or spray mist. Handle only with adequate ventilation. Wear protective clothing, impervious gloves and chemical worker's goggles when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Immediately remove contaminated clothing and wash before reuse. Destroy contaminated leather articles, including shoes. Do not apply this product in such a manner as to directly or through drift expose workers or other persons.

ENVIRONMENTAL AND USE PRECAUTIONS

Spilled material should be soaked up with absorbent material and disposed of in an approved manner. This pesticide is toxic to birds and wildlife and extremely toxic to fish and aquatic organisms. Fish and crustaceans may be killed at application rates recommended on this label. Do not apply where these are important resources. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent aquatic sites. Do not apply where runoff is likely to occur. Do not apply where weather conditions favor drift from areas treated. Do not contaminate water by cleaning of equipment or disposal of waste. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Avoid use when bees are actively foraging. Avoid spraying tree crown before mid-morning. Do not apply when birds are nesting in trees to be treated.

This product contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning equipment.

FIRST AID

IF IN EYES: Immediately flush with plenty of water. Get medical attention if irritation persists.

IF SWALLOWED: Call a physician or Poison Control Centre 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 irritation persists.

IF INHALED: Remove victim to fresh air. If symptoms of cholinesterase inhibition appear (i.e., headache, dizziness, weakness, incoordination, muscle twitching, tremor, nausea, abdominal cramps, diarrhea, or sweating) get medical attention IMMEDIATELY.

Take container, label or product name and Pest Control Product Registration Number with you, when seeking medical attention.

TOXICOLOGICAL INFORMATION

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.

PHYSICAL AND CHEMICAL HAZARDS

COMBUSTIBLE: Do not store or use near heat or open flame.

STORAGE: Do not contaminate water, food or feed by storage or disposal of wastes. Avoid storage at high temperatures. Protect from moisture. Avoid contamination with water, acids or alkalies. Do not store near heat or open flame. Keep container closed.

DISPOSAL: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple-or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This control product is to be used only in accordance with the directions on the label. It is an offense 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.

DIRECTIONS FOR USE

Do not formulate this product into other end-use products.

GENERAL INFORMATION

Pyrate 480EC is an insecticide for use to control pests of turf on golf courses, road medians and industrial sites only.

Pyrate 480EC is an emulsifiable concentrate insecticide for use as a spray to control various pests injurious to turf.

Pyrate 480EC is compatible with insecticides, miticides, and fungicides commonly recommended except for alkaline materials such as Bordeaux mixture and lime. It is recommended that a small amount of mixture be prepared to check for compatibility before mixing a large volume of spray.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Pyrate 480EC contains a Group 1B insecticide. Any insect population may contain individuals naturally resistant to Pyrate 480EC and other Group 1B insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance:

- Where possible, rotate the use of Pyrate 480EC or other Group 1B insecticides with different groups that control the same pests in a field.
- Use tank mixtures with insecticides from a different group when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting, record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Makhteshim Agan of North America, Inc. at 212-661-9800.

Pests of Turf on Golf Courses, highway medians and industrial sites and sod farms.

Control the pests in the following table by application of Pyrate 480EC at the recommended rates while following directions given below. Dilute Pyrate 480EC in sufficient water and apply using a coarse, low pressure spray to obtain complete and uniform coverage of the infested area.

Pest	Amount of Product per 100m ²	Specific Directions
Ants, Chinch bugs Cutworm	22.5 mL*	Spray when pests first appear, repeat when needed. Maximum number of applications are 2 per season.
Crane fly larvae (leatherjackets)	20-25 mL	Apply as a 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 (Hyperodea) Weevil (Annual and Bluegrass weevil)	22.5 mL	Spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Representative.

*22.5 mL/100m² = 112.5 mL/500m² = 225 mL/1000m² or 2.25 L/ha (10,000m²)

Pests of ornamentals (commercial production only) greenhouses, nurseries, industrial sites

Treat flowers, shrubs, vines, shade and flowering trees and evergreens found to be infested with the pests listed in the following table. Dilute Pyrate 480EC with water as per directions given in the table and use spray equipment which would provide complete and uniform coverage. Apply as a wetting spray to upper and lower leaf surfaces and infested branches and trunk areas. Do not over spray to the point of excessive run-off. Treat when pests appear and at 7 to 10 day intervals as needed.

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

(Rate Chart on pg. 4)

PESTS CONTROLLED

Pest	Amount of Product Per 1000 L	Specific Host Plants
Spittlebugs	88-150 mL	Various ornamental plants
Mealybugs	200 mL	Various ornamental plants
Aphids	375 mL	Beech, birch, elm, hickory, linden, maple, oak, pine, flowering cherry, flowering plum, spruce, tulip tree, viburnum, willow, spirea, nasturtium
Clover mite, European red mite, Honey locust mite, Red oak mite, Spruce spider mite, Two-spotted spider mite	375-500 mL	Arborvitae, juniper
Borers such as Ash and Lilac borers	500 mL	Locust, birch, mountain ash, willow, lilac
Eastern and Forest Tent Caterpillars	500 mL	Ash, birch
European Pine Sawfly Red Headed Pine Sawfly	500 mL	Conifers, mountain ash
Grasshoppers	500 mL	Various ornamental plants
Thrips	500 mL	Various ornamental plants
Whiteflies	500 mL	Various ornamental plants
Leafhoppers such as Potato and Six spotted leafhoppers	1 L	Various ornamental plants
Scale insects such as Lecanium, cottony maple, San Jose, oystershell	2 L	Various ornamental plants.

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

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

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

NATIVE ELM BARK BEETLE

Restricted use: To be used only under a provincial Dutch Elm disease program. Consult provincial regulatory officials for required authorization.

Prevention of Overwintering: To prevent the adult beetle from overwintering in uninfected trees and to reduce beetle populations in disease free areas, apply a 0.48% (480 g ai/100L) mixture of chlorpyrifos in water to the bottom 0.5 m of the tree trunk. Wet the trunk thoroughly but do not allow the 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 a backpack mist blower or a hydraulic pressure sprayer from spring through early fall. 1. Make only one application pre-season. 2. Bystanders should be advised to keep away from treated areas until residues are dry. 3. Do not apply next to water bodies. Highly toxic to fish and other aquatic organisms.

Amount of Final Spray Solution	Amount of Pyrate 480 EC
5 L	50 mL
10 L	100 mL
100 L	1 L
1000 L	10 L

For best results, Pyrate 480 EC should be used in a total integrated Dutch Elm disease control program which includes both chemical treatments and necessary sanitation techniques.

INDUSTRIAL PESTS INDOORS

General Information: Use Pyrate 480EC to control the pests indicated in the areas listed below by application as a 0.24% or 0.48% chlorpyrifos spray. Use the low rate to control light infestations and the high rate to quickly reduce heavy infestations. Dilute Pyrate 480EC with water according to the following table. Repeat the treatment as needed. KEEP OFF TREATED AREAS UNTIL SPRAY HAS DRIED.

SPRAY DILUTION CHART

Litres of Spray Mixture Desired Water-Base Spray:	mL of Pyrate 480EC to Use 0.24% Spray	mL of Pyrate 480EC to Use 0.48% Spray
1	5	10
2	10	20
4	20	40
8	40	80
25	125	250

Crack and Crevice treatment in ships holds, railroad boxcars, industrial plants, manufacturing plants, warehouses, meat packing plants and food processing plants only. Use only during close down periods.

For spot treatment in industrial plants, manufacturing plants, warehouses, meat packing plants and food processing plants. Use as a spot treatment to control cockroaches, ants, crickets, firebrats, silverfish and spiders, 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-contacting surfaces. Areas treated may include dark corners of rooms and closets, along and behind baseboards, beneath and behind stoves, refrigeration units 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 Pyrate 480EC.

Remove 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. Do not use in food preparation or serving areas, e.g. restaurants.

Repeat treatment as needed but not more often than once every 14 days in food processing plants and meat packing plants.

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

Keep off treated areas until product is dry.

Attention (Pests Indoors): **Do not** apply water-base sprays of this product in conduits, motor housing, junction and switch boxes or other electrical equipment because of possible shock hazard.

RESTRICTED USE - TERMITE CONTROL

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

NATURE OF THE RESTRICTION: For use only by licensed pest control operators authorized by Provincial authority to control subterranean termite populations infesting buildings. Not for sale to the general public. For use only in areas designated as being termite infested areas.

RESTRICTED USES: For control or prevention of subterranean termite infestations in buildings or masonry structures by pest control operators licensed under Provincial authority. Pyrate 480EC as a termiticide is to be applied as a 0.5% emulsion of technical chlorpyrifos in water as a pre-treatment of new construction. Use only as much chlorpyrifos emulsion necessary to form a continuous barrier against termite invasions. For new construction only. Pyrate 480EC as a termiticide can be applied only after proper site preparations, including removal of all wood-soil contact, have been completed. Attention should be paid to applicator safety and proper handling procedures. Consideration of the design of the structure, water table, soil type, soil compaction, grade condition and location and type of domestic water supplied will determine proper application methods. During and after treatment, clean-up of any spills is mandatory and drill holes must be properly sealed. Do not treat structures that contain cisterns or wells. Do not treat soil that is water saturated or frozen.

RESTRICTED USE - TERMITE CONTROL (Continued)

Safe Handling Procedures: Wear suitable protective clothing when using or handling this product to help avoid exposure to eyes and skin. As a minimum, chemical workers' goggles, neoprene or natural rubber gloves and footwear, a long-sleeved shirt and long-legged pants or coveralls are recommended. To avoid breathing spray mist during application in confined areas, wear a mask or respirator of a type approved by CSA for filtering spray mists and organic vapours.

Subterranean Termites: Pyrate 480EC for soil treatment is used to establish a barrier which is lethal to termites. The chemical emulsion must be adequately dispersed in the soil to provide a barrier between the wood in the structure and the termite colonies in the soil.

It is necessary for the effective use of this product that the service technician be familiar with current control practices including trenching, rodding, sub-slab injection and low pressure spray applications. These techniques must be correctly employed to prevent or control infestations by the subterranean termite species *Reticulitermes*. Choice of appropriate procedures includes consideration of such variable factors as the design of the structure, water table, soil type, soil compaction, grade conditions, and the location and type of domestic water supplies. The biology and behavior of the involved termite species are important factors to be known as well as suspected location of the colony and severity of the infestation within the structure to be protected. For advice concerning current control practices for specific locations, consult resources in structural pest control.

Site Preparation: Proper site preparation is necessary for control of subterranean termites.

New Construction: Remove all wood and cellulose debris from the property prior to erecting forms for pouring concrete. After pouring concrete slabs, walls, piers, etc., remove all framework wood from the building site. Do not use back fill containing wood or cellulose. It is important that new construction has a minimum wood-to-soil clearance of 50 cm in order to discourage termite invasion.

This product is not to be used for pre-construction use as of December 31, 2005.

Mixing Instructions: Prior to mixing, inspect mixing tank, pumps, hoses and all fittings to ensure that all equipment is in good working order and that there are no leaks. Prepare a 0.5% emulsion by mixing 3.75 L of PYRATE 480EC in 370 L of water. Mix by agitation and maintain gentle continuous agitation throughout the application period. Applications are to be made through a vertical rod or sub-slab injector with a pressure ranging from 200 to 350 kPa. Do not leave the mixing tank unattended during mixing or application periods.

Termiticide Application: Pre-Treatment of New Construction: A 0.5% emulsion should be applied to the soil underneath and around concrete slabs, foundations, crawl spaces, piers, etc., so as to provide a continuous chemical barrier against termite invasion. All product is to be applied by rodding or low pressure fan spray. Flooding or percolating hose application is not permissible. Soil crawl spaces must be covered with a plastic vapour barrier after treatment and provided with adequate ventilation.

Slab on Ground:

- Apply 5 L emulsion/m² under the slab, attached porches and platforms before the concrete is poured but after any forms are erected. The emulsion should be applied by rodding at 1 m intervals or low pressure fan spray.
- Apply 6 L emulsion/linear meter to the following critical areas under the slab before the concrete is poured: outside of foundation walls, under interior partition walls, under any footing and around utility services or other features that will penetrate the slab.
- If necessary to complete a chemical barrier, inject 1.5 L emulsion into voids of all unit masonry foundation walls or piers at 0.5 m intervals. Wherever possible, drill injection holes on the outside of the foundation walls. Cap voids with vapour barrier in order to seal in chemical. Seal drill holes with good quality plugs and mortar.

Basement and Crawl Space Construction:

- Apply 5 L emulsion/m² under basement or crawl space slab and attached porches and platforms prior to pouring concrete, but after forms are erected. The emulsion should be applied by rodding at 1 m intervals or low pressure fan spray.
- Apply 6 L emulsion/linear meter to the following critical areas under the basement slab or under crawl space prior to construction; along outside edges of foundation walls, under interior partition walls, under or around piers, under footings, under stairway stringers, around utility services or other features that will penetrate the slab.
- During back filling, apply 12 L/linear meter to soil at a distance of approximately 30 cm from the outside of the foundation wall from top of footings to grade. Treat by rodding at 20-30 cm intervals or low pressure fan spray.
- Apply 5 L emulsion/m² to soil under crawl space by rodding at 1 m intervals. Cover treated soil with vapour barrier, provide adequate ventilation and a minimum clearance of 50 cm.

RESTRICTED USE - MOSQUITO CONTROL (GROUND APPLICATION ONLY)

NATURE OF THE RESTRICTION: This product is to be used only in the manner authorized. Contact local pesticide regulatory authorities for appropriate permits which may be required.

RESTRICTED USE: Mosquitoes: Pyrate 480EC mixes readily with water or oil such as kerosene or No. 2 diesel fuel oil. Pyrate 480EC 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 provided on the following table.

LARVAL CONTROL (MOSQUITOES) - EC FORMULATION

SITE (STANDING WATER)	APPLICATION	RATE
Temporary Pools (e.g. shallow, grassy depression, flooded woodlands, industrial parks, roadway ditches, railway marshalling yards, small temporary sloughs).	Restricted use	13-53 g ai/ha
NOT TO BE USED IN PERMANENT WATER BODIES SUCH AS: LAKES, DUGOUTS OR FISH PONDS.	<p>GROUND: Apply uniformly to standing water. 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 insecticide. Application equipment giving medium to coarse spray droplets should be used for mosquito larval control. The high rate (53 g ai/ha) should be used only if algal content or aquatic vegetation does not allow thorough penetration of spray solution or if multiple generations or asynchronous hatching of mosquitoes is expected. Use the lower rate (13 g ai/ha) if aquatic vegetation is not dense and thorough penetration of spray solution is expected.</p> <ol style="list-style-type: none">1. DO NOT REPEAT MORE OFTEN THAN ONCE EVERY TWO WEEKS.2. THIS PESTICIDE IS VERY HIGHLY TOXIC TO FISH AND OTHER AQUATIC ORGANISMS SUCH AS AQUATIC INSECTS AND CRUSTACEANS. DO NOT APPLY TO PERMANENT WATER BODIES AS THESE MAY CONTAIN FISH AND OTHER AQUATIC ORGANISMS.3. APPLY ONLY IN ACCORDANCE WITH FEDERAL PROVINCIAL AND LOCAL LAWS AND REGULATIONS GOVERNING CHEMICAL TREATMENT OF BODIES OF WATER FOR CONTROL OF MOSQUITOES.4. DO NOT APPLY IN AREAS THERE MAYBE POTENTIAL EXPOSURE TO BYSTANDERS.5. THIS PRODUCT SHOULD BE APPLIED AT AN APPROPRIATE DISTANCE FROM RESIDENCES, HOSPITALS, SCHOOLS, PARKS, PLAYFIELD, AND PLAYGROUNDS. THIS DISTANCE SHOULD BE ESTABLISHED BY THE MUNICIPALITY/PROVINCE. <p>Consult provincial pesticide regulatory officials for required authorization.</p>	

ADULT CONTROL (MOSQUITOES) - EC FORMULATION

SITE (STANDING WATER)	APPLICATION	RATE
OUTDOOR AREA	<p>Restricted Use: GROUND: Mix with the proper 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 or mist applicators. Apply to wet grassy or wooded areas when adults first become a nuisance. Equipment giving fine sprays, mists or aerosol droplets will give best results. Retreat as required. 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. Use 26 g/ha for light to medium vegetative cover. 53 g/ha for medium to heavy vegetative cover.</p> <p>- ONLY TO BE USED AFTER CONSULTATION WITH FEDERAL/PROVINCIAL/TERRITORIAL REGULATORY AUTHORITIES TO ADDRESS PUBLIC HEALTH CONCERNS. Consult provincial pesticide regulatory officials for required authorization.</p>	26-53 g in kerosene, No. 2 diesel or water per hectare

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 Pyrate 480EC 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.)

AMOUNT TO USE PER HECTARE		
Condition of Area To Be Treated	Pyrate 480EC (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	55	26
Light to medium vegetative cover Medium to heavy vegetative cover	110*	53*

*The higher dosage of Pyrate 480EC 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 vegetative cover of water organic content is harmful to fish or crustaceans and should be used only where kill of these species can be tolerated.

RESTRICTED USE – FORESTRY

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

NATURE OF THE RESTRICTION: This product is to be used only in the manner authorized. Contact local pesticide regulatory authorities for appropriate permits which may be required.

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 Pyrate 480EC 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/m² of bark prior to adult beetle emergence. Treat boles from ground level up to a height of at least 3 meters or until a bole diameter of 12.5 cm is reached.