

Booklet

PYRATE 480 EC

GROUP	1B	INSECTICIDE
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(Contains Chlorpyrifos) 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: 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.

COMMERCIAL

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING



DANGER

POISON

KEEP OUT OF REACH OF CHILDREN

GUARANTEE: Chlorpyrifos 480 g/L
Warning, contains the allergen, soy

REGISTRATION NO. 23704 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 10 L

Makhteshim Agan of North America Inc.
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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.

PRECAUTIONS FOR MIXERS/LOADERS

For EC formulations packaged in containers more than 10 L

Mixers/loaders must use a closed mechanical transfer loading system. Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants;
- chemical-resistant gloves;
- an air purifying respirator with an -R or -P series filter; and
- socks and shoes.

For EC formulations packaged in containers holding 10 L or less

Mixers/loaders must wear:

- coveralls over a long-sleeved shirt and long pants;
- chemical-resistant gloves;
- a chemical-resistant apron;
- chemical-resistant footwear plus socks; and
- an air purifying respirator equipped with an -R or -P series filter.

PRECAUTIONS FOR APPLICATORS

Do not apply as a paintbrush treatment for indoor uses.

Do not apply with high-pressure handwand equipment.

Applicators using ground application equipment with a closed cab must wear:

- a long-sleeved shirt and long pants;
- chemical-resistant gloves when leaving cab for clean-up and repair (gloves must be removed and left outside when re-entering the cab); and
- socks and shoes.

Applicators using ground application equipment with an open cab must wear:

- coveralls over a long-sleeved shirt and long pants;
- chemical-resistant gloves; and
- socks and shoes.

Applicators using handheld equipment must wear:

- a long-sleeved shirt and long pants;
- chemical-resistant coveralls and head protection (if spray is upwardly directed);
- chemical-resistant footwear and socks;
- chemical-resistant gloves; and
- an air purifying respirator with an -R or -P series filter.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at www.croplife.ca.

ENVIRONMENTAL PRECAUTIONS

HAZARDS

This pesticide is 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 favour drift from areas 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. Spilled material should be soaked up with absorbent material and disposed of in an approved manner.

TOXIC to birds. TOXIC to wild mammals. TOXIC to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds. TOXIC to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland. Avoid spraying tree crown before mid-morning. Do not apply when birds are nesting in trees to be treated.

DO NOT apply this product or allow it to drift to flowering crops or weeds if bees are visiting the treatment area. Applicators should inform local beekeepers prior to application if hives are in adjacent fields. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to, heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay). Avoid application of this product when heavy rain is forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

FIRST AID

IF SWALLOWED, call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

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

TOXICOLOGICAL INFORMATION

Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. 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. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

NOTE: Product contains a petroleum distillate solvent.

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 alkalis. 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 pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

DIRECTIONS FOR USE

Do not formulate this product into other end-use products. DO NOT APPLY BY AIR.

GENERAL INFORMATION

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

PYRATE 480 EC Insecticide is an emulsifiable concentrate insecticide for use as a spray to control various pests injurious to turf. PYRATE 480 EC Insecticide 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 480 EC Insecticide contains a Group 1B insecticide. Any insect population may contain individuals naturally resistant to PYRATE 480 EC Insecticide 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 480 EC Insecticide 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 1 919 256-9300 or at www.manainc.com

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 480 EC Insecticide at the recommended rates while following directions given below. Dilute PYRATE 480 EC Insecticide 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 100 m²	Specific Directions
Ants, Chinch bugs, Cutworm	22.5 mL*	Spray when pests first appear, repeat when needed. Maximum number of applications is 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/100 m ² = 112.5 mL/500 m ² = 225 mL/1000 m ² or 2.25 L/ha (10,000 m ²)		

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 480 EC Insecticide 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 overspray 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.

PRECAUTIONS FOR POST-APPLICATION WORKERS

Use on Greenhouse Ornamentals

Do not permit workers conducting crop contact activities to re-enter greenhouse for two days when conducting crop contact activities.

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

2 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/100 L) 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 back pack mist blower or a hydraulic pressure sprayer from spring through early fall.

1. Make only one application per 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 Insecticide
5 L	50 mL
10 L	100 mL
100 L	1 L
1000 L	10 L

For best results, PYRATE 480 EC Insecticide 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 480 EC Insecticide 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 480 EC Insecticide 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-Based Spray	mL of PYRATE 480 EC Insecticide to Use 0.24% Spray	mL of PYRATE 480 EC Insecticide 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 480 EC Insecticide.

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 - 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 480 EC Insecticide mixes readily with water or oil such as kerosene or No. 2 diesel fuel oil. PYRATE 480 EC Insecticide 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 MAY BE POTENTIAL EXPOSURE TO BYSTANDERS. 5. THIS PRODUCT SHOULD BE APPLIED AT AN APPROPRIATE DISTANCE FROM RESIDENCES, 	

LARVAL CONTROL (MOSQUITOES) - EC FORMULATION		
SITE (STANDING WATER)	APPLICATION	RATE
	<p>HOSPITALS, SCHOOLS, PARKS, PLAYFIELDS, AND PLAY- GROUNDS. THIS DISTANCE SHOULD BE ESTABLISHED BY THE MUNICIPALITY/PROVINCE.</p> <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.</p> <p>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 480 EC Insecticide 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 480 EC Insecticide (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 480 EC Insecticide 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 pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

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 480 EC Insecticide 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.