

GROUP	2A	INSECTICIDE
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THIONEX EC

(ENDOSULFAN)

COMMERCIAL INSECTICIDE

NOTE TO USER	
Last date of use is December 31, 2012 on the following crops/sites:	broccoli, Brussels sprouts, cabbage, cauliflower, corn (sweet), pea (dry), rutabaga, turnip, greenhouse cucumber, greenhouse tomato,
Last date of use is December 31, 2016 on the following crops:	celery, cucumber, eggplant, lettuce (head), melon, ornamentals (outdoors), ornamentals (greenhouse), pepper, potato, pumpkin, squash, strawberry, sugar beet, tomato.

DO NOT use this product on any crop or site after December 31, 2016. This product is not to be used in and around homes or other residential areas such as parks, school grounds and playing fields. It is not for use by homeowners or other uncertified users.

An emulsifiable formulation for insect control
On vegetables, fruit and field crops.

GUARANTEE: endosulfan.....400g/L
Warning, contains the allergen soy

READ THE LABEL ATTACHED BOOKLET BEFORE USING

DANGER



POISON

KEEP OUT OF REACH OF CHILDREN

REGISTRATION NO. 23453
PEST CONTROL PRODUCTS ACT

NET CONTENT: 10 Litres

Makhteshim Agan of North America Inc.
4515 Falls of Neuse Road, Suite 300
Raleigh, NC 27609
919 256-9300

Thionex EC is an emulsifiable insecticide which can be combined with most commonly used fungicides, adjuvants and other insecticides. Used only on those crops as specified on the label.

Check compatibilities of combinations before making tank mixes unless previous use of the materials being combined has been proven to be physically compatible.

DIRECTIONS FOR USE:

DO NOT apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or estuarine/marine habitats. **DO NOT** contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

As this product is not registered for the control of pests in aquatic systems, **DO NOT** use to control aquatic pests.

Field sprayer application:

DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine classification. Boom height must be 60 cm or less above the crop or ground.

DO NOT apply by air.

DO NOT allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

GROUND APPLICATION ONLY: Fill spray tank nearly full and pour recommended amount of THIONEX EC on the surface of the water. Finish filling tank. Keep agitator running during filling and spraying. Coverage of upper and lower leaf surfaces is essential for good insect control. Use sufficient spray to give thorough coverage. Use 100-300 L/ha of water for thorough coverage. Use rate per hectare is given for specific use.

Product Specific Precautions: If you have questions. Call the manufacturer at 1 919 256-9305 or obtain other technical advice from the distributor at 1 519-268-8001 or your provincial agricultural representative.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that Thionex EC contains a Group 2A insecticide. Any insect population may contain individuals naturally resistant to Thionex EC and other Group 2A 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 Thionex EC or other Group 2A 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 1 919 256-9305.

REI = Re-entry interval

STRAWBERRY* - Do not exceed 4000 g a.i./ha/season. Spray volume: Apply in sufficient water for thorough coverage. **Cyclamen mite:** Use 5 litres of product in 4000-8000L of water per hectare. Apply before bud formation. Repeat after harvest if necessary. Use higher rates for dense foliage. For heavy infestations, topping of plants before postharvest treatment may be advisable. Do not apply within 7 days of harvest. Do not apply when bees are working in the field. **Tarnished plant bug:** Use 2.5 litres of product in 2000L water per hectare. Apply at first bloom and repeat 10 days later. Do not apply within 7 days of harvest. Do not apply when bees are working in the field. **Strawberry aphid:** Use 2.5 litres of product in 2000L of water per hectare. Apply when insects are first noticed. Repeat as necessary. Do not apply within 7 days of harvest. Do not apply when bees are working in the field. **Meadow spittlebug:** Use 2.5 litres of product in 2000L water per hectare. Apply as soon as possible after eggs hatch. Do not apply within 7 days of harvest. Do not apply when bees are working in the field.

Make a maximum of 2 applications per year; minimum 7 day interval.

REI= 7 days; 4 days for scouting, weeding, irrigation, mulching

Maximum amount handled is limited to 0.27 kg ai/day (490 L at max rate of 0.55 kg ai/1000 L) with ground handheld sprayer. Note: this restriction is in place to minimize exposure to individual operators and means that the application may need to be performed over multiple days or using multiple applicators.

SUGARBEET - beet webworm, green peach aphid: Use 2.0-2.75 litres of product per hectare. Apply when insects first appear. Do not apply within 45 days of harvest. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock. Do not apply more than once per season.

REI= 10 days for irrigation scouting, 48 hours for other activities

BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER - aphids, cabbage looper, diamondback moth (larvae), flea beetles, imported cabbageworm: Use 1.5-2 litres per hectare. Apply when first sign of feeding appears. Repeat as necessary. 2 applications per season, minimum 7 day interval. Use the lower rates for small larvae or flea beetles. use the higher rates for aphids and large larvae. Do not apply within 7 days of harvest. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock.

REI = 4 days

RUTABAGA, TURNIP - aphids, cabbage looper, diamondback moth, flea beetles, imported cabbageworm: Use 2 litres of product per hectare. Apply when insects first appear. Do not feed treated foliage to livestock; roots may be used as feed. Do not apply within 45 days or harvest Do not apply more than twice per season, minimum 7 day interval.

REI = 2 days

CUCUMBER, MELONS, PUMPKIN, SQUASH - aphids, cucumber beetles, potato flea beetle, squash vine borer: Use 1.5 litres of product per hectare. Apply when insects first appear. Do not exceed 3 applications per season; 7 day interval. Do not apply within 9 days of harvest. Do not exceed 2200 g a.i./ha/season.

REI = 4 days (cucumber, melon); 7 days (pumpkin, squash)

EGGPLANT, PEPPER, TOMATO - Colorado potato beetle, flea beetles, green peach aphid, hornworms, leafhoppers, pepper maggot, tomato fruitworm: Use 1.5-2.5 litres of product per hectare (TOMATO). Use 1.25-2.5 litres of product per hectare (EGGPLANT, PEPPER). Apply when insects first appear. Make only 2 applications per year. Use higher rate for Colorado potato beetle. For fruitworms, use 3 litres per hectare. Do not apply within 27 days of harvest. Do not exceed 2200 g a.i./ha per season. Do not exceed 2 applications per season; minimum 7 day interval.

REI = 4 days

CUCUMBER (Greenhouse), TOMATO (Greenhouse) - aphids, greenhouse whitefly: Use 1.25 litres of product per hectare. Spray when insects are first observed. 1 application per crop cycle. Do not apply within 2 days of harvest. See Precautions statement for personal protection equipment required for greenhouse applications.

REI = 2 days

POTATO - aphids, Colorado potato beetle, leafhoppers, potato flea beetle, tuber flea beetle: Use 1.5 litres of product per hectare. Apply when insects first appear. Repeat as necessary. Do not exceed 2200 g a.i./ha per season. Do not exceed 4 applications per season. Minimum 7 day interval. For use every other year only. May be applied up to the day before harvest. Cull potatoes may be used as feed for livestock. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock. **Tarnished plant bug:** Use 2.0 litres product per hectare. Apply when insects first appear. May be applied up to the day before harvest. Cull potatoes may be used as feed for livestock. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock.

REI = 5 days. Pre-Harvest Interval = 5 days

PEA (Canning, Seed) - pea aphid, pea weevil: Use 1.5-2 litres of product per hectare. Treat only if crop is to be mechanically harvested by combine. Apply when insects first appear and as necessary. Apply not more than twice per year on peas for canning, minimum 7 day interval. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock. Do not apply to succulent peas. Do not apply within 7 days of harvest.

REI = 2 days

CORN (Sweet) - corn leaf aphid: Use 2.75 litres of product per hectare. Apply when aphids are first noticed and repeat as necessary. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock. **SWEET CORN:** Do not apply more than 1 application per year. Do not apply within 50 days or harvest on commercially grown corn; crop refuse may be used as feed for livestock. **Corn earworm:** Use 2.75 to 4 litres per hectare. Apply to the silk as recommended by local authorities. Do not ensile or feed crop refuse (vines, tops, stocks or threshings) to livestock. Do not apply more than twice per season. Do not apply within 50 days of harvest on commercially grown; crop refuse may be used as feed for livestock.

REI for Sweet Corn: Hand detasseling = 17 days, Hand harvesting = 50 days, other activities = 10 days.

CELERY, LETTUCE (Head and Field) - aphids, cabbage looper, imported cabbageworm, tarnished plant bug: Use 2.0 litres of product per hectare. Do not apply more than 1 application per season (CELERY). Do not apply more than 2 applications per season; minimum 7 day interval (LETTUCE). Trim celery at harvest. Do not apply to greenhouse lettuce. Do not apply within 14 days of harvest. Do not exceed 1100 g a.i./ha per season (CELERY).

REI = 4 days

ORNAMENTALS (Greenhouse, Outdoors) - aphids, cyclamen mite, elm leaf beetle, greenhouse whitefly, rose chafer, spruce gall aphid: Use 1.25-1.75 litres of product in 1000 litres of water. Apply before flowering. Do not treat Bonnafon chrysanthemums and geraniums in the greenhouse or chrysanthemum cuttings within one month of planting. For spruce gall aphid, apply in early May. Do not use on birch trees. See Precautions statement for personal protection equipment required for greenhouse applications.

Apply a maximum of 2 applications; minimum 7 day interval. per year except for greenhouse, 1 application

REI = 2 days

Buffer zones:

Use of the following spray methods or equipment **DOES NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment. The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of Application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Freshwater habitats of Depths:		Estuarine/Marine Habitats of Depths:	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	Cucumber, squash, melon, pumpkin, eggplant, pepper, tomato, potato, strawberry	90	40	120	120
	Broccoli, brussels sprouts, cabbage, cauliflower, rutabaga, turnip, peas, corn	75	30	120	120
	Celery	50	20	120	120

* For field sprayer application, buffer zones can be reduced by using drift reducing spray shields. When using a spray boom fitted with a full shield (shroud, curtain) that extends to the crop canopy, the labelled buffer zone can be reduced by 70%. When using a spray boom where individual nozzles are fitted with cone-shaped shields that are no more than 30 cm above the crop canopy, the labelled buffer zone can be reduced by 30%.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Poisonous if swallowed, inhaled, or absorbed through the skin. Avoid breathing spray mist or dust. Avoid contact with skin, eyes, or clothing. Wash with soap and water before eating, drinking or smoking. Change to clean clothing and wash contaminated clothing separately from other laundry before reuse. This product is very toxic to fish. Do not contaminate any body of water. Do not apply or allow to drift to areas occupied by unprotected persons or animals.

Do not contaminate feed or food. Do not store near foodstuffs, fertilizers, seed and like commodities. Highly toxic to fish. Moderately toxic to bees. Causes severe injury to Concord grapes. Some injury to lima beans, geraniums, and chrysanthemums. Emulsion formulations injure European white birch.

Do not re-enter treated areas for 48 hours. If required, individuals may re-enter treated areas within 48 hours for short-term tasks not involving hand labour if at least 12 hours has passed since application and long pants, long sleeved shirt, hat and chemical resistant gloves are worn. No re-entry shall occur in treated greenhouse unless it has been ventilated or an approved respirator should be worn.

Personal Protective Equipment

a. Workers using high-pressure handwand equipment

Wear coveralls over a long-sleeved shirt and long pants, chemical-resistant footwear, chemical-resistant gloves, and an approved organic vapour respirator during application. In addition to this protective equipment, wear a chemical-resistant apron during mixing/loading, cleanup, repair and all other handling activities.

b. Early entry into the treated area

If entry into treated areas is required (i.e. prior to the specified restricted-entry interval [REI]), workers must wear coveralls over a long-sleeved shirt and long pants, chemical-resistant gloves, shoes plus socks and either goggles or a face shield.

c. All other scenarios (mixers/loaders/applicators, during cleanup and repair activities)

Wear a long-sleeved shirt, long pants, shoes plus socks, chemical-resistant gloves, and an approved organic vapour respirator during mixing/loading, cleanup, repair, application and all other handling activities (where not specified in the previous scenarios). In addition to this protective equipment, wear a chemical-resistant apron during mixing/loading, application of dips, cleanup and repair activities.

Keep the following personal protective equipment immediately available for use in case of emergency (i.e. a broken package, spill or equipment breakdown): chemical-resistant coveralls, chemical-resistant gloves, chemical-resistant headgear and a NIOSH-approved respirator.

This product contains a petroleum distillate that is 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.

Apply only when the potential for drift to areas of human habitation or areas of human activity (houses, cottages, schools and recreational areas) is minimal. Take into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

Use a closed cab that provides both a physical barrier and respiratory protection (i.e dust/mist filtering and/or vapour/gas purification system). The closed cab must have a chemical resistant barrier that totally surrounds the occupant and prevents contact with pesticides outside the cab. Wear coveralls over long-sleeved shirt and long pants, and shoes plus socks. Have chemical resistant gloves ready for leaving the cab during calibration, repair or cleaning of equipment.

Do not make silage from treated crop or feed crop refuse to livestock or allow them to graze on treated sites.

Mixing and Loading Liquids:

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks during mixing/loading, clean-up and repair.

Mixers and loaders must use a closed pump transfer system to enclose the product to prevent it from contacting handlers or other people. The system must be capable of removing the product from the shipping container and transferring it into mixing tanks and/or application equipment.

Application using handheld equipment:

Wear coveralls over long-sleeved shirt and long pants, chemical resistant gloves, and shoes plus socks.

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

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 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.

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.

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

TOXICOLOGICAL INFORMATION:

Endosulfan is a central nervous system stimulant. Symptoms of poisoning include: nausea, headache, general feeling of being unwell, weakness and generalized convulsions. There is no specific antidote. If patient is convulsing, give amobarbital-sodium or thiopental-sodium intravenously. Otherwise phenobarbital (0.06 to 0.10 gram) may be given orally. Do not use oily laxatives as they increase absorption. Do not give stimulants. Patient should be under medical observation for at least 24 hours in any case of suspected intoxication. Electroencephalogram may show abnormal alpha-wave activity.

ENVIRONMENTAL HAZARDS

TOXIC to aquatic organisms.

TOXIC to aquatic organisms, birds, and small wild mammals.

TOXIC to bees exposed to direct treatment, drift, or residues on flowering crops or weeds. **DO NOT** apply this product to flowering crops or weeds if bees are visiting the treatment area. Minimize spray drift to reduce harmful effects on bees in habitats close to the application site.

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.

To reduce runoff from treated areas into aquatic habitats, avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

To minimize the release of endosulfan into the environment due to volatilization, endosulfan should only be applied on cool mornings and evenings when air temperatures are 15°C or lower. To further reduce volatilization to the atmosphere, incorporation into the soil should occur concurrently with applications.

DECONTAMINATION:

Spills - For spilled liquid, apply sodium carbonate, caustic soda or hydrated lime on contaminated area and allow to stand for one hour. Apply sawdust, talc or sand to absorb all liquid. Collect with a shovel or a broom and wash paved areas with water. Decontaminate tools with hydrated lime.

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 or 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.

STORAGE:

Store in a cool, dry place. Keep away from food, feed, fertilizers, seed and like commodities.

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 the product.