

2018-6761
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SuffOil-X®

SPRAY OIL EMULSION

Insecticide, Acaricide, Fungicide

A highly refined horticultural spray oil for use against listed insect and mite pests on Crop Group 13-07 (Berries and Small Fruits), Crop Group 8-09 (Fruiting Vegetables) (field and greenhouse), Crop Group 9 (Cucurbit Vegetables) (field and greenhouse), Crop Subgroup 4-13B (Brassica Leafy Greens) (field and greenhouse), Crop Group 5-13 (Brassica Head and Stem Vegetables) (field and greenhouse), ornamentals (outdoor and greenhouse), kohlrabi (field and greenhouse), lettuce (field and greenhouse), apple, apricot, cherry, grape, hops, nectarine, onion, peach, pear, plum, potato and prune; and suppression of powdery mildew on Crop Group 13-07 (Berries and Small Fruits), Crop Group 8-09 (Fruiting Vegetables) (field and greenhouse), Crop Group 9 (Cucurbit Vegetables) (field and greenhouse), apple, grape, hops and pear.

COMMERCIAL

ACTIVE INGREDIENT: Mineral Oil..... 80%

REGISTRATION NO. 33099 PEST CONTROL PRODUCTS ACT

CAUTION

Warning, contains the allergen milk

READ THE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

Net Contents: 9.46 L – 946.35 L

Distributed by: BioWorks, Inc., 100 Rawson Road, Suite 205, Victor, NY 14564

Telephone: 1-800-877-9443

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PRECAUTIONS

KEEP OUT OF REACH OF CHILDREN.

Avoid contact with eyes, skin, or clothing. Avoid inhalation of spray mist. Wash hands after use. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Handle with caution and apply and use only as recommended and at recommended rates. Wear chemical-resistant gloves, a long-sleeved shirt, long pants, and shoes and socks during mixing, loading, application, clean-up and repair. Do not apply to areas occupied by unprotected humans or domestic animals and do not allow to drift to such areas. Do not contaminate foodstuffs or feed and do not store with such consumables. Do not contaminate streams, ponds or lakes or any irrigation water or water used for livestock or domestic purposes.

Do not enter or allow others to enter treated areas during the restricted-entry interval (REI) of 12 hours. Workers entering a treated site prior to the end of the 12-hour REI are required to wear the PPE listed for mixers, loaders, and applicators (chemical-resistant gloves, long-sleeved shirt, long pants, shoes and socks).

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms. Observe BUFFER ZONES specified under DIRECTIONS FOR USE.

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.

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 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 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.

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

In Case of Emergency: Call CHEMTREC: (800) 424-9300

TOXICOLOGICAL INFORMATION

This product contains a petroleum distillate. Treat symptomatically.

NOTE TO PHYSICIAN: Contains petroleum distillates – do not induce vomiting since vomiting may cause aspiration pneumonia. Aspiration may occur after swallowing or vomiting and results in serious, and sometimes delayed, lung injury.

STORAGE

To prevent contamination, store this product away from food or feed.

DISPOSAL

For recyclable containers

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 returnable containers

DO NOT reuse this container for any purpose. For disposal, this empty container may be returned to the point of purchase (distributor/dealer).

For containers that can be refilled for the user by the distributor/dealer

For disposal, this container may be returned to the point of purchase (distributor/dealer). It must be refilled by the distributor/dealer with the same product. Do not reuse this container for any other purpose.

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.

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DIRECTIONS FOR USE

As an insecticide and acaricide, this product coats plant surfaces deterring pest feeding and acts as a suffocant. As a fungicide this product interferes with the attachment of the pathogen to the host and acts as a suffocant. These modes of action require total spray coverage.

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

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes

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

DO NOT apply by air.

Use Precautions:

All horticultural oils interfere with or slow plant transpiration and respiration during the period of evaporation. DO NOT APPLY DURING PERIODS OF DROUGHT, WHEN PLANTS EXHIBIT MOISTURE STRESS, WHEN TEMPERATURE IS EXCESSIVELY HIGH, OR JUST PRIOR TO OR DURING FREEZING WEATHER.

DO NOT use in combination with or immediately before or after spraying with fungicides such as captan, folpet, karathane, oxythiquinox or any product containing sulphur. Also do not use with carbaryl or dimethoate. Do not use with any product whose label recommends the use of no oils. Do not use in combination with NPK foliar fertilizer applications.

DO NOT APPLY THIS PRODUCT THROUGH ANY TYPE OF IRRIGATION SYSTEM (I.E., VIA CHEMIGATION). DO NOT APPLY BY AIR.

Use Directions:

Use enough spray solution to completely penetrate the leaf canopy and cover all plant surfaces until wet without significant runoff. A minimum of 50 litres of spray solution per hectare is recommended.

Since not all varieties of the listed crops have been tested for tolerance to SuffOil-X, this product should be tested on a small scale to confirm tolerance prior to widespread use.

To avoid phytotoxicity, do not apply on overcast, humid days and after rain. Spray when relative humidity is less than 90%. The goal is to have the oil dry and evaporate in 1-2 hours. Spray early in the day before temperatures reach above 33°-35°C or late in the day when temperature cools. Temperature not to exceed 33°-35°C **at the time of spray**. Ensure soil moisture is adequate and plants are not drought stressed. Apply horticultural oils only when the temperature is above 4°C and there is no danger of freezing.

SuffOil-X can be applied up to the day of harvest.

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See APPLICATION INSTRUCTIONS tables for instructions on listed pests and crops. Use this product only on the types of plants identified in the APPLICATION INSTRUCTIONS tables.

Mixing Instructions:

Ensure spray tank is clean. Add sufficient water to the mixing tank to allow proper agitation. Add the correct amount of SuffOil-X to tank. Maintain agitation until solution is used. If other pesticides are to be added, do so after SuffOil-X has been thoroughly mixed.

Application Instructions:

TREE FRUITS and HOPS (Summer Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Apricot, Cherry, Nectarine, Peach, Plum, Prune	Suppression of spider mites. Deter feeding by aphids.	12.9	Begin applications when pests appear. Apply every 10-14 days depending on level of pest pressure. Do not apply to trees lacking moisture. Oil may remove waxy bloom. Do not apply more than 8 applications per year.
Apple	Suppression of spider mites and powdery mildew (<i>Podosphaera leucotricha</i>). Deter feeding by aphids.	12.9	Aphids and spider mites: apply when mites first appear. Apply every 10-14 days depending upon the level of pest pressure. Powdery mildew: apply at tight cluster and continue every 10-14 days. Avoid application during bloom. Use the shorter spray interval when disease conditions are severe.
Pear	Suppression of spider mites and powdery mildew (<i>Podosphaera leucotricha</i>). Deter feeding by aphids.	12.9	Do not use within 14 days before or after captan fungicide. Do not apply more than 8 applications per year.
Hops	Suppression of spider mites and powdery mildew (<i>Podosphaera macularis</i>). Deter feeding by aphids.	12.9	Aphids and spider mites: apply when mites first appear. Apply every 10-14 days depending upon the level of pest pressure. Powdery mildew: begin when conditions are favourable for disease development and/or when first symptoms appear. Apply at 10-14 day intervals. Do not apply more than 8 applications per year.

SMALL FRUITS (Summer Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Crop Group 13-07 (Berries and Small Fruits)*	Suppression of spider mites and powdery mildew (<i>Podosphaera</i> spp.). Deter feeding by aphids.	12.9	Aphids and spider mites: apply when mites first appear. Apply every 7-14 days depending upon the level of pest pressure. Do not apply more than 8 applications per year.
Grape	Suppression of mites and powdery	12.9	Mites: Begin applications when mites first appear. Apply every 10-14 days depending

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	mildew (<i>Uncinula necator</i>).		<p>upon the level of pest pressure.</p> <p>Powdery Mildew: Make the first application pre-bloom and continue every 10-21 days depending on the level of disease pressure. Use the shorter spray interval when disease conditions are severe.</p> <p>Since oil will remove the bloom on grapes, do not spray table grapes within 2 weeks of harvest. Do not spray a tank mix of copper and SuffOil-X when fruit is present. Do not spray SuffOil-X within two weeks before or after a captan fungicide application.</p> <p>Do not apply more than 8 applications per year.</p>
<p>* Amur river grape, aronia berry, bayberry, bearberry, bilberry, blackberry (includes Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, as well as cultivars, varieties and/or hybrids of these), highbush blueberry, lowbush blueberry, buffalo currant, buffaloberry, Chilean guava, chokecherry, cloudberry, cranberry, black currant, red currant, elderberry, European barberry, gooseberry, grape, highbush cranberry, edible honeysuckle, huckleberry, jostaberry, Juneberry (Saskatoon berry), fuzzy kiwifruit, hardy kiwifruit, lingonberry, maypop, mountain pepper berries, mulberry, muntries, native currant, partridgeberry, pincherry, raspberry (red and black), salal, schisandra berry, sea buckthorn, serviceberry, strawberry, wild raspberry, as well as cultivars, varieties and/or hybrids of these commodities.</p>			

FIELD GROWN VEGETABLES (Summer Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Crop Group 8-09 (Fruiting Vegetables) ^a	Suppression of spider mites and powdery mildew (<i>Leveillula taurica</i>). Deter feeding by aphids.	12.9	<p>Aphids and spider mites: begin applications when pests appear. Apply at 7-14 day intervals.</p> <p>Powdery mildew: begin when conditions are favourable for disease development and/or when first symptoms appear. Apply at 7-14 day intervals.</p>
Crop Group 9 (Cucurbit Vegetables) ^b	Suppression of spider mites and powdery mildew (<i>Sphaerotheca fuliginea</i>). Deter feeding by aphids.	12.9	<p>Do not apply more than 8 applications per year.</p>
Crop Subgroup 4-13B (Brassica Leafy Greens) ^c , Crop Group 5-13 (Brassica Head and Stem Vegetables) ^d , Kohlrabi, Lettuce, Onion, Potato	Suppression of spider mites. Deter feeding by aphids.	12.9	<p>Begin applications when pests appear. Apply at 7-14 day intervals.</p> <p>Do not apply more than 8 applications per year.</p>

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- ^a Eggplant, African eggplant, pea eggplant, scarlet eggplant, garden huckleberry, goji berry, groundcherry, martynia, okra, pepino, bell pepper, non-bell pepper, sunberry, tomatillo, tomato, currant tomato, as well as cultivars, varieties and hybrids of these commodities.
- ^b Chinese waxgourd (Chinese preserving melon), citron melon, cucumber, gherkin, edible gourd (includes hyotan, cucuzza, hechima, Chinese okra), Momordica (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), muskmelon (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon), pumpkin, summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (includes butternut squash, calabaza, hubbard squash, *Cucurbita mixta*, *C. pepo*, acorn squash, spaghetti squash), watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).
- ^c Arugula, broccoli raab, Chinese broccoli, Abyssinian cabbage, seakale cabbage, bok choy (Chinese cabbage), collards, garden cress, upland cress, Hanover salad, kale, maca, mizuna, mustard greens, radish leaves, rape greens, wild rocket, shepherd's purse, turnip greens, watercress, as well as cultivars, varieties, and hybrids of these commodities.
- ^d Broccoli, Brussels sprouts, cabbage, Chinese cabbage (napa), cauliflower, as well as cultivars, varieties, and hybrids of these commodities.

GREENHOUSE GROWN VEGETABLES (Foliar Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Greenhouse Grown Crop Group 8-09 (Fruiting Vegetables) ^a	Suppression of mites, thrips and powdery mildew (<i>Leveillula taurica</i>). Deter feeding by aphids and whiteflies.	12.9	Aphids, mites, thrips and whiteflies: begin applications when pests appear. Apply at 7-14 day intervals. Powdery mildew: begin when conditions are favourable for disease development and/or when first symptoms appear. Apply at 7-14 day intervals.
Greenhouse Grown Crop Group 9 (Cucurbit Vegetables) ^b	Suppression of mites, thrips and powdery mildew (<i>Sphaerotheca fuliginea</i>). Deter feeding by aphids and whiteflies.	12.9	Do not apply more than 8 applications per crop cycle.
Greenhouse Grown Crop Subgroup 4-13B (Brassica Leafy Greens) ^c , Greenhouse Grown Crop Group 5-13 (Brassica Head and Stem Vegetables) ^d , Greenhouse Grown Kohlrabi, Greenhouse Grown Lettuce	Suppression of mites and thrips. Deter feeding by aphids and whiteflies.	12.9	Begin applications when pests appear. Apply at 7-14 day intervals. Do not apply more than 8 applications per crop cycle.

^a African eggplant, bush tomato, cocona, currant tomato, eggplant, garden huckleberry, goji berry, groundcherry, martynia, naranjilla, okra, pea eggplant, pepino, bell pepper, non-bell pepper, roselle, scarlet eggplant, sunberry, tomatillo, tomato, tree tomato, as well as cultivars, varieties and/or hybrids of these commodities.

^b Chayote (fruit), Chinese waxgourd (Chinese preserving melon), citron melon, cucumber, gherkin, edible gourd (includes hyotan, cucuzza, hechima, Chinese okra), Momordica (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), muskmelon (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon and snake melon), pumpkin, summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (includes butternut squash, calabaza, hubbard squash, *Cucurbita mixta*, *C. pepo*, acorn squash, spaghetti squash), watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).

^c Arugula, broccoli raab, Chinese broccoli, Abyssinian cabbage, seakale cabbage, bok choy (Chinese cabbage), collards, garden cress, upland cress, Hanover salad, kale, maca, mizuna, mustard greens, radish leaves, rape greens, wild rocket, shepherd's purse, turnip greens, watercress, as well as cultivars, varieties and/or hybrids of these commodities.

^d Broccoli, Brussels sprouts, cabbage, Chinese cabbage (napa), cauliflower, as well as cultivars, varieties, and hybrids of these commodities.

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ORNAMENTALS

CAUTION: Non-dormant foliar spray or cutting/plant dip applications of mineral oil may cause plant injury, foliar damage, permanent discolouration of foliage, or death to some varieties of plants. Follow all CAUTIONS and USE PRECAUTIONS on this label. To minimize the risk of plant injury and foliar damage, test product by applying to a small area of the plant to be treated or test on a small number of plants of each variety to be treated, and observe for 24 hours for injury or damage.

OUTDOOR ORNAMENTS (Summer Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Ornamentals including Flowers, Foliage Plants, Bedding Plants, Shade Trees, Shrubs, Christmas Trees	Control of spider mites, scales and whitefly nymphs. Deter feeding by aphids.	10-20	Apply when monitoring indicates the need. Oil might remove the glaucous (blue) bloom from such evergreens as Colorado blue spruce and Koster spruce.

GREENHOUSE ORNAMENTS (Foliar Spray)

CROP	PEST	Litres of SuffOil-X Per 1000 Litres of Water	INSTRUCTIONS
Greenhouse Ornamentals including Azalea, Chrysanthemum, Hibiscus, Iris, Lily, Poinsettia, Rose	Control of spider mites, scales, thrips and whitefly nymphs. Deter feeding by aphids.	10-20	Apply when monitoring indicates the need.
	Control of mealybugs	20	

GREENHOUSE ORNAMENTS (Cutting or potted plug foliar dip)

CROP	PEST	millilitres of SuffOil-X Per 1 Litre of Water	INSTRUCTIONS
Greenhouse Ornamentals	Suppression of thrips	1-5	One application only, prior to planting. Cuttings should remain fully submerged for 5 to 10 seconds to wet all surfaces.
	Control of whiteflies	1-2.5	
When used as a cutting dip on poinsettia, do not exceed the rate of 1.0 mL/L. One dip application only, prior to planting.			

TIMING THE TREATMENT: You must determine the precise timing to fit local growth and climatic conditions. PRE-HARVEST INTERVAL (PHI): The PHI is 12 hours.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, and relative humidity) and method of application (e.g., ground and airblast) can influence pesticide drift. The applicator and grower must evaluate all factors and make appropriate adjustments when applying this product.

WIND SPEED: Do not apply at wind speeds greater than 24 kph at the application site.

TEMPERATURE INVERSIONS: If applying at wind speeds less than 8 kph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. Do not make applications into areas of temperature inversions.

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DROPLET SIZE: Apply as a medium or coarser spray (ASABE standard 572), and the minimum volume mean diameter (VMD) for spinning atomizer nozzles.

GROUND-BASED APPLICATIONS: Apply using a nozzle height of no more than 1.25 meters above the ground or crop canopy. Do not apply at wind speeds greater than 24 kph at the application site. Apply as a medium or coarser spray (ASABE standard 572), and the minimum volume mean diameter (VMD) for spinner atomizer nozzles.

AIRBLAST APPLICATIONS: For airblast applications, turn off outward pointing nozzles at row ends and when spraying outer row. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

BUFFER ZONES:

Use of the following spray methods or equipment DO NOT require a buffer zone: handheld or backpack sprayer and spot treatment.

When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

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.

Airblast application: DO NOT apply during periods of dead calm.

Avoid application of this product when winds are gusty. DO NOT direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. DO NOT apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.
DO NOT apply by air.

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.

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Method of application	Crop	Buffer Zones (metres) Required for the Protection of:				
		Freshwater Habitat 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*	Lettuce, onion, potato, kohlrabi, highbush blueberries, Berries and small fruits (CG 13-07), cucurbit vegetables (CG 9), fruiting vegetables (CG 8-09), leafy vegetables, Brassica leafy greens (CSG 4-13B), Brassica head and stem vegetables (5-13)	2	1	1	1	
Airblast	Ornamental plants, shade trees and shrubs, and Christmas trees	5	3	1	1	
	Prunes	4	2	1	1	
	Grapes, hops	Early growth stage	15	10	1	1
		Late growth stage	10	4	1	1
	Pome fruit, stone fruit	Early growth stage	15	10	1	1
		Late growth stage	10	4	1	1

*For field sprayer application, buffer zones can be reduced with the use of 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%.

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.