

Container Label

GROUP	50	FUNGICIDE
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VIVANDO® SC
FUNGICIDE

SUSPENSION

For use on Fruiting Vegetables, Grapes, Cherry Subgroup 12-09A, Cucurbits Group 9, Peach Subgroup 12-09B and Hops

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Metrafenone 300 g/L

Contains 1,2-benzisothiazolin-3-one at 0.048% as a preservative

REGISTRATION NO. 29765

PEST CONTROL PRODUCTS ACT

CAUTION – EYE IRRITANT

READ THE LABEL AND ATTACHED BROCHURE BEFORE USING

KEEP OUT OF REACH OF CHILDREN

**IN CASE OF EMERGENCY ENDANGERING LIFE OR PROPERTY
INVOLVING THIS PRODUCT, CALL DAY OR NIGHT,
1-800-454-2673**

NET CONTENTS: 0.1 L - Bulk

BASF Canada Inc.
5025 Creekbank Road
Building A, 2nd Floor
Mississauga, Ontario L4W 0B6
1-877-371-2273

VIVANDO is a registered trade-mark of BASF SE, used under license by BASF Canada Inc.

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. May irritate eyes. Avoid contact with eyes.
3. Wash thoroughly after handling and before eating, drinking or smoking.
4. Wear long sleeved shirt, long pants, chemical resistant gloves, socks and footwear during mixing/loading, application, clean-up and repair.
5. If clothing becomes contaminated, remove and wash separately from household laundry before reuse.
6. Clean spray equipment thoroughly after use.
7. Apply only to agricultural crops when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature, application equipment and sprayer settings.

FIRST AID

If swallowed: Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. 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 container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

The patient should be treated symptomatically.

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

Metrafenone is persistent and may carryover. It is recommended that any products containing metrafenone not be used in areas treated with this product during the previous season.

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.

STORAGE

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. 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.

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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 Refillable Containers

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/territorial regulatory agency. Contact the manufacturer and the provincial/territorial 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.

Booklet

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GENERAL INFORMATION

VIVANDO SC Fungicide is formulated as a suspension concentrate (SC). VIVANDO SC Fungicide provides control of powdery mildew on fruiting vegetables, grapes, cherry Subgroup 12-09A, cucurbits Group 9, peach Subgroup 12-09B and hops. VIVANDO SC Fungicide provides optimum disease control when applied in a regularly scheduled protective fungicide program and when used in a spray program that rotates fungicides with different modes of action.

Mode of Action

Metrafenone, the active ingredient in VIVANDO SC Fungicide, affects several stages in the infection process of the powdery mildew pathogen. It has a different mode of action than that of other fungicides registered for use against powdery mildew. VIVANDO SC Fungicide affects development and growth processes of the powdery mildew pathogen. It inhibits spore germination, infection and subsequent mycelial growth. It also reduces sporulation by preventing normal development of conidiophores and conidia.

PRECAUTIONS

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6. Clean spray equipment thoroughly after use.
7. Apply only to agricultural crops when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Take into consideration wind speed, wind direction, temperature, application equipment and sprayer settings.

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TOXICOLOGICAL INFORMATION

The patient should be treated symptomatically.

DIRECTIONS FOR USE

Apply recommended rates of VIVANDO SC Fungicide as instructed in the following crop specific application rate and timing table. Apply VIVANDO SC Fungicide with ground equipment. Equipment should be checked frequently for proper calibration.

TANK MIXING

This product may be tank mixed with a fertilizer, a supplement or with registered pest control products, whose labels also allow tank mixing, provided the entirety of both labels, including Directions For Use, Precautions, Restrictions, Environmental Precautions, and Spray Buffer Zones are followed for each product. In cases where these requirements differ between the tank mix partner labels, the most restrictive label must be followed. Do not tank mix products containing the same active ingredient unless specifically listed on this label.

In some cases, tank mixing pest control products can result in reduced pesticide efficacy or increased host crop injury. The user should contact BASF Canada Inc. at 1-877-371-2273 for information before mixing any pesticide that is not specifically recommended on this label.

Not all varieties and cultivars have been tested with possible tank mix combinations. Local conditions can also influence crop tolerance and may not match those under which BASF has conducted testing. Physical incompatibility, reduced disease control, or crop injury may result from mixing VIVANDO SC Fungicide with other products. Therefore, before using any tank mix (fungicides, insecticides, herbicides, liquid fertilizers, biological control products, adjuvants, and additives), test the combination on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of application. Consult a BASF representative for more information concerning additives.

Tank Mix Compatibility Determination

To determine compatibility, mix all components of the finished spray in proportionate quantities in a small jar. Add components to the test jar in the following order: wettable powders and water dispersible granules, liquid flowables and suspensions, emulsifiable concentrate formulations,

and solutions. If the mixture does not ball-up or form flakes, sludge, jelly, oily films or layers, or other precipitates within 2 hours after mixing and can easily be resuspended with agitation, then the tested spray-mix is compatible. Always follow the most restrictive label regarding any precautions when tank mixing.

A plant-back interval of 30 days is required for all crops not listed on the registered label.

As 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.

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 S572.1) medium 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.

Spray Buffer Zones

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

The spray buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, riparian areas and shrublands), 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		Spray Buffer Zones (metres) Required for the Protection of:				
			Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:		Terrestrial Habitat
			Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m	
Field sprayer	Crop Group 9 (cucurbits), fruiting vegetables		1	0	1	1	1
Airblast	Grapes	Early growth stage	2	0	2	0	1
		Late growth stage	1	0	1	0	1
	Hops, cherry Subgroup 12-09A, peach Subgroup 12-09B	Early growth stage	2	0	2	1	2
		Late growth stage	1	0	1	1	1

When tank mixes are permitted, consult the labels of the tank-mix partners and observe the largest (most restrictive) spray buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The spray buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Spray Buffer Zone Calculator on the Pesticides portion of the Canada.ca web site.

Grapes Application Rate and Timing Table

Crops	Target Disease	L product/ha	Maximum Number of Applications	Last Application Days to Harvest
Grapes	Powdery mildew (<i>Uncinula necator</i>)	0.750	6	14

Application directions

For control of grape powdery mildew, begin applications of VIVANDO SC Fungicide at bud break prior to onset of disease.

Apply VIVANDO SC Fungicide at either 14 or 21 days application interval. Use shorter interval if there are conditions conducive to high disease pressure. Under conditions of very rapid growth, use the shorter application interval to ensure new growth is adequately protected.

Do not apply more than 2 sequential applications of VIVANDO SC Fungicide before alternating to at least one application of a fungicide with a different mode of action. Do not apply more than 4.5 L of product per hectare per season. The minimum interval between sprays is 14 days.

Do not enter or allow worker entry during the restricted entry interval (REI) of 4 days to perform girdling or cane turning activities. Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours for all other post-application activities.

Crop Group 9: Cucurbits Application Rate and Timing Table

Crops	Target Disease	L product/ha	Maximum number per season	Last Application Days to Harvest
Crop Subgroup 9 Cucurbits*	Powdery mildew (<i>Podosphaera xanthii</i> , <i>Erysiphe cichoracearum</i>)	0.750 - 1.12	3	0
<p>Application directions For control of powdery mildew, begin applications of VIVANDO SC Fungicide prior to onset of disease.</p> <p>Apply VIVANDO SC Fungicide at 7 – 14 days application interval. Use shorter interval if there are conditions conducive to high disease pressure. Under conditions of very rapid growth, use the shorter application interval to ensure new growth is adequately protected.</p> <p>Do not apply more than 2 sequential applications of VIVANDO SC Fungicide before alternating to at least one application of a fungicide with a different mode of action. Do not apply more than 3.36 L of product per hectare per season. A non-ionic surfactant (NIS) may be added to VIVANDO SC Fungicide to improve performance. Use according to the adjuvant label.</p> <p>Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p> <p>*Cucurbit vegetables - Group 9 Chayote, Chinese waxgourd, Citron melon, Cucumber, Gherkin, Pumpkin, Watermelon; Edible gourd (hechima, hyotan, cucuzza, Chinese okra); Momordica spp. (balsam apple, balsam pear, bitter melon, Chinese cucumber); Muskmelon (cantaloupe, casaba, crenshaw melon, golden pershaw, melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon); Summer squash (crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); Winter squash (butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash)</p>				

Hops Application Rate and Timing Table

Crops	Target Disease	L product/ha	Maximum number per season	Last Application Days to Harvest
Hops	Suppression of Powdery mildew (<i>Podosphaera macularis</i>)	0.750 - 1.12	2	14
<p>Application directions For suppression of powdery mildew, begin applications of VIVANDO SC Fungicide prior to onset of disease.</p> <p>Apply VIVANDO SC Fungicide at a 14-day application interval. Under conditions of very rapid growth, ensure new growth is adequately protected. A non-ionic surfactant (NIS) may be added to VIVANDO SC Fungicide to improve performance. Use according to the adjuvant label.</p> <p>Do not apply more than 2.24 L of product per hectare per season.</p> <p>Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.</p>				

Fruiting Vegetables Rate and Timing Table

Crops	Target Disease	Rate per Application (L/ha)	Maximum Number of Applications	Maximum Product Rate per Season (L/ha)	Last Application Days to Harvest
Fruiting vegetables*	Powdery mildew (<i>Leveillula taurica</i> , <i>Oidium neolycoopersici</i> , <i>Erysiphe polyphaga</i>)	0.75 - 1.12	3	3.36	7
<p>Application directions For control of powdery mildew begin applications of VIVANDO SC preventatively and continue on a 7 to 14 day interval. Use the higher rate and shorter interval when disease pressure is high.</p> <p>Resistance Management To limit the potential for development of resistance, do not make more than three (3) applications per season.</p> <p>Do not make more than two (2) sequential applications before alternating to a labeled fungicide with a different mode of action.</p> <p>Do not enter or allow worker entry during the restricted entry interval (REI) of 12 hours for all other post-application activities.</p> <p>*African eggplant, bush tomato, currant tomato, eggplant, garden huckleberry, goji berry, groundcherry, martynia, okra, pea eggplant, pepino, bell pepper, nonbell pepper, roselle, scarlet eggplant, sunberry, tomatillo, tomato, and cultivars, varieties and hybrids of these commodities.</p>					

Crop Subgroup 12-09A: Cherry Subgroup and Crop Subgroup 12-09B: Peach Subgroup - Application Rate and Timing Table

Crops	Target Disease	L product/ha	Maximum number per season	Last Application Days to Harvest
Cherry Subgroup 12-09A Cherry, black Cherry, nanking Cherry, sweet Cherry, tart Cultivars, varieties, and/or hybrids of these Peach Subgroup 12-09B Nectarine Peach Cultivars, varieties, and/or hybrids of these	Powdery mildew (<i>Podosphaera clandestina</i>)	0.750 - 1.12	2	7

Application directions

For control of powdery mildew, begin applications of VIVANDO SC Fungicide prior to onset of disease.

Apply VIVANDO SC Fungicide at 14 - 21 days application interval. Use shorter interval if there are conditions conducive to high disease pressure. Under conditions of very rapid growth, use the shorter application interval to ensure new growth is adequately protected.

A non-ionic surfactant (NIS) may be added to VIVANDO SC Fungicide to improve performance. Use according to the adjuvant label.

Do not apply more than 2.24 L of product per hectare per season.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours.

APPLICATION METHODS**Ground application**

Apply VIVANDO SC Fungicide at rates listed in the Application Rate and Timing Table above (crop specific) when conditions are favourable for disease development. Use a minimum water volume to ensure thorough coverage of foliage. Consult nozzle manufacturer's recommendations for spray pressures for specific nozzles.

MIXING

1. Clean spray tank following sprayer clean-up recommendations on the label of the product applied previously.
2. Fill the spray tank one-half full of water and start agitation.
3. Add the required amount of VIVANDO SC Fungicide to the tank.
4. Add the required amount of the tank mix partner, if required.
5. Continue agitation while filling the remainder of the spray tank.
6. After use, clean the spray tank.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

Please note that VIVANDO SC Fungicide contains a Group 50 fungicide. Any fungal population may contain individuals naturally resistant to VIVANDO SC Fungicide and other Group 50 fungicides. A gradual or total loss of pest control may occur over time if these fungicides 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 fungicide resistance:

- Adhere to the label instructions regarding the use of VIVANDO SC Fungicide or other Group 50 fungicides. **DO NOT** apply more than two (2) sequential applications of VIVANDO SC Fungicide before alternating to at least one application of a fungicide with different mode of action other than Group 50.
- Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted.
- VIVANDO SC Fungicide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use, crop rotation and considers host plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.
- Where possible, make use of predictive disease models to effectively time fungicide applications.
- Monitor treated fungal populations for resistance development. Notify BASF Canada Inc. If reduced sensitivity of the pathogen to VIVANDO SC Fungicide is suspected.
- If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide with a different target site of action, if available.
- Contact your local extension specialist, or certified crop advisers for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information and to report suspected resistance, contact a BASF representative at 1-877-371-2273 or at www.agsolutions.ca.

ENVIRONMENTAL PRECAUTIONS

TOXIC to aquatic organisms and non-target terrestrial plants. Observe spray buffer zones specified under DIRECTIONS FOR USE.

Metrafenone is persistent and may carryover. It is recommended that any products containing metrafenone not be used in areas treated with this product during the previous season.

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.

STORAGE

1. Store in original tightly closed container. Protect from freezing.
2. Do not ship near food, feed, seed and fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
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