

Container Label

GROUP	M	FUNGICIDE
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KUMULUS® DF

WATER DISPERSIBLE GRANULAR FUNGICIDE AND ACARICIDE

For the control of certain fungal diseases and rust mites in apples, pears, peaches, nectarines, plums, sweet and sour cherries and grapes; for the control of grape erineum mite in grapes; for the control of powdery mildew on peas and greenhouse cucumbers; and for the control of entomosporium leaf and berry spot on Saskatoon berries

COMMERCIAL (AGRICULTURAL)

ACTIVE INGREDIENT: Sulphur 80%

REGISTRATION NO. 18836

PEST CONTROL PRODUCTS ACT

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

READ ENTIRE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

NET CONTENTS: 25 kg

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

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

PRECAUTIONS

1. **KEEP OUT OF REACH OF CHILDREN.**
2. Do not take internally.
3. Avoid inhalation of vapour, dust, or spray mist and contact with eyes, skin or clothing.
4. Wash thoroughly after handling and before eating, drinking or smoking.
5. Wear chemical-resistant coveralls with a chemical-resistant hood over a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes and protective eyewear (goggles or face shield), during mixing/loading and clean-up and repair activities. In addition, for application using handheld airblast/mistblower equipment, wear a respirator with a NIOSH-approved organic-vapour-removing cartridge with a prefilter approved for pesticides OR a NIOSH-approved canister approved for pesticides.
6. If clothing becomes contaminated, remove and wash separate from household laundry before reuse.
7. Clean spray equipment thoroughly after use.
8. Do not contaminate domestic or irrigation water, lakes, streams or ponds by the cleaning of equipment or the disposal of wastes.
9. Restricted-Entry Interval (REI): **DO NOT** enter or allow worker entry into treated areas for 24 hours or until sprays have dried.

FIRST AID

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

TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
3. Store in cool, dry, locked, well-ventilated area without floor drain.
4. Herbicides should be shipped or stored separate from other pesticides to avoid cross-contamination.
5. Keep away from heat, fire and sparks.

DISPOSAL

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instructions for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. 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.

Booklet

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GENERAL INFORMATION

KUMULUS DF is a water dispersible granular fungicide and acaricide that can be used effectively on a variety of fruits. **KUMULUS DF** is also a protectant fungicide that can be used for the control of powdery mildew on peas. However, applications of **KUMULUS DF** made after the onset of disease symptoms are less effective.

DIRECTIONS FOR USE

Apply **KUMULUS DF** for fruits and orchard crops in water volumes of up to 3000 L/ha. Water volume will vary according to size of crop and foliage cover required. Use sufficient water volume to thoroughly cover all foliage.

For peas, apply **KUMULUS DF** in a minimum of 100 L/ha. Higher water volumes may be required later in growing season.

For Saskatoon berries, apply **KUMULUS DF** in 100 L water/ha by ground application, a pressurized backpack sprayer.

Do not apply more than 8 applications per season.

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.

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 **KUMULUS DF** 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.

Use Precautions

DO NOT apply by air.

Follow provincial recommendations for proper timing and water volumes. The following table is based on a water volume application rate of 3000 L/ha. Adjust rate per hectare according to the water volume used.

APPLICATION TABLE

Apples Pears <u>Pest controlled:</u> Powdery mildew <i>(Podosphaera leucotricha)</i> Scab <i>(Venturia inaequalis, V. pirina)</i> Apple rust mite <i>(Aculus schlechtendali)</i>	750 g/100 L water (OR 22.5 kg/ha)	Apply in regular protective schedule from green tip up to and including first cover spray.
	400-500 g/100 L water (12-15 kg/ha)	Apply in later cover sprays, and adjust rate depending on (mildew severity and temperature. Do not apply later than 1 day before harvest.
	200 g/100 L water (OR 6.0 kg/ha)	Apply in summer sprays. Do not apply later than 1 day before harvest.
Peaches Nectarines <u>Pest controlled:</u> Brown rot <i>(Monolinia fructicola)</i> Bacterial leaf spot <i>(Xanthomonas campestris pv. pruni)</i> Scab (<i>Cladosporium carpophilum</i>) Powdery mildew <i>(Podosphaera pannosa)</i>	750 g/100 L water (OR 22.5 kg/ha)	Apply in pink, bloom, shuck, cover and pre-harvest sprays. Apply just before picking and repeat between pickings if weather is wet.
	375-400 g/100 L water (OR 11.3 kg-12.0 kg/ha)	Apply at husk-fall and repeat in 10 - 14 days.

Plums <u>Pest controlled:</u> Brown rot (<i>Monolinia fructicola</i>) Bacterial leaf spot (<i>Xanthomonas campestris</i> pv. <i>pruni</i>)	750 g/100 L water (OR 22.5 kg/ha)	Apply in pink, bloom, shuck, cover and pre-harvest sprays. Apply just before picking and repeat between pickings if weather is wet.
Sweet Cherries <u>Pest controlled:</u> Brown rot (<i>Monolinia fructicola</i>)	750 g/100 L water (OR 22.5 kg/ha)	Apply in a regular spray program from the bloom stage until just before harvest. Do not apply later than 1 day before harvest.
Sour Cherries <u>Pest controlled:</u> Brown rot (<i>Monolinia fructicola</i>)	750 g/100 L water (OR 22.5 kg/ha)	Apply at bloom stage only. Do not apply later than 1 day before harvest.
Powdery mildew (<i>Podosphaera clandestina</i>)	400 g/100 L water (OR 12.0 kg/ha)	Apply in first, second and third cover sprays. Do not apply later than 1 day before harvest.
Rust mites (<i>Aculus fockeui</i>)	200 g/100 L water (OR 6.0 kg/ha)	Apply in summer sprays. Do not apply later than 1 day before harvest.
Grapes <u>Pest controlled:</u> Powdery mildew (<i>Uncinula necator</i>)	420 g/100 L water (OR 12.6 kg/ha)	Apply at first sign of mildew and repeat after 10 days on Agawan, Seneca and Seibel varieties. Do not use on Concord, Foch, de Chaunac and Van Buren varieties.
Grape erineum mite (<i>Colomerus vitis</i>)	3.4 kg/ha	Apply at pre-bloom immediately the first evidence of erineum development on the leaves and again at mid-season.
Do not use on Concord, Foch, de Chaunac and Van Buren varieties. Table grapes - Do not apply later than 1 day before harvest. Wine grapes - Do not apply later than 21 days before harvest.		
Saskatoon berries <u>Pest controlled:</u> Entomosporium leaf and berry spot (<i>Entomosporium mespili</i>)	7.5 kg/ha	Apply first at flower bud break and at 10-14 day intervals while disease risk persists. Do not apply later than 1 day before harvest.

Cucumbers (greenhouse) <u>Pest controlled:</u> Powdery mildew (<i>Podosphaera xanthii</i> and <i>Erysiphe cichoracearum</i>)	120 g/100 L water	Apply once every 5 days as required. Do not apply later than one day prior to harvest.
Peas <u>Pest controlled:</u> Powdery mildew (<i>Erysiphe polygoni</i>)	1.5 kg/ha	Spray at first appearance of disease and repeat at 7-10 day intervals as necessary. <u>Note:</u> Do not apply later than 1 day before harvest.

ENVIRONMENTAL PRECAUTIONS

Do not apply directly to aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands) and estuarine/marine habitats. Do not contaminate water by cleaning of equipment or disposing of waste.

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

SPRAY BUFFER ZONES

The following table specifies the spray buffer zones that are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Application Method	Crop	Spray Buffer Zone (Metres) Required for Protection of Aquatic Habitats
Field sprayer	Pea	0
Airblast	Apple Berries, Saskatoon Cherry, sour Cherry, sweet Grape Nectarine Peach Pear Plum	5

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 website.

MIXING

1. Fill spray tank with clean water.
2. Add the required amount of **KUMULUS DF**.
3. Add the required amount of the tank mix partner, if required.
4. Start agitation and continue until spraying is completed.

When tank mixtures are to be used, each product should be pre-diluted first and added separately to the spray tank, taking due note of any instructions given as to order of mixing.

MIXTURES WITH OTHER SPRAY CHEMICALS

Do not mix with dinitro compounds, tetradifon or oils.

RESTRICTIONS AND LIMITATIONS

Do not apply if temperature is above 27°C (in shade) and high humidity prevails, or if any of the aforementioned conditions are expected within 3 days after the treatment.

Do not apply under intense sunshine.

Do not use **KUMULUS DF** for any crop not listed on the full label.

Do not apply **KUMULUS DF** when rain or night frost is expected.

Crops are most sensitive during the flowering period.

Treat when conditions are such that spray will dry on plants.

Do not use on Concord grapes and other sulphur-sensitive varieties of grapes.

Caution is advised in viticulture especially when using mixtures with copper compounds.

Avoid spray drift on neighbouring crops.

Sulphur is phytotoxic to some plants including apricots, Anjou and Cornice pears, cranberries, some cucurbit varieties and spinach.

Do not use within 30 days of an oil spray.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, please note that **KUMULUS DF** contains a Group M fungicide. Any fungal population may contain individuals naturally resistant to **KUMULUS DF** and other Group M 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 specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide resistance:

- Where possible, rotate the use of **KUMULUS DF** or other Group M fungicides with different groups that control the same pathogens.
- Use tank mixtures with fungicides from a different group that is effective on the target pathogen when such use is permitted.
- Fungicide use should be based on an IPM program that includes scouting, historical information related to pesticide use and 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/bactericide applications.
- Monitor treated fungal populations for resistance development.
- 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 advisors 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.

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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.

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TOXICOLOGICAL INFORMATION

Treat symptomatically.

STORAGE

1. Store in original, tightly-closed container.
2. Do not ship or store near food, feed, seed or fertilizers.
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DISPOSAL

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
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