



GROUP	7	FUNGICIDE
GROUP	4	INSECTICIDE

****CONTAINER****

EMESTO QUANTUM
FUNGICIDE AND INSECTICIDE

FOR SEED-PIECE TREATMENT ON POTATOES

All seed pieces treated with this product must be conspicuously coloured at the time of treatment.

SUSPENSION

COMMERCIAL

ACTIVE INGREDIENT: Penflufen 66.5 g/L
Clothianidin 207 g/L

Contains 1,2 benzisothiazolin-3-one at 0.1% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.0009% and 2-methyl-4-isothiazolin-3-one at 0.0003% as preservatives.

REGISTRATION NO. 30362 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

PROTECT FROM FREEZING

NET CONTENTS: 1 L - 200 L

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3
Product Information: 1-888-283-6847
www.cropscience.bayer.ca

In case of spills, poisoning, or fire, telephone emergency response number 1-800-334-7577
(24 HOURS A DAY)

EMESTO QUANTUM is a fungicide and insecticide for use on potato seed pieces to control or suppress listed diseases and insects. EMESTO QUANTUM is active on seed-borne *Rhizoctonia solani* (black scurf and stem and stolon canker), *Helminthosporium solani* (silver scurf), *Fusarium* spp. (dry rot), Colorado potato beetle, aphids, potato flea beetles and leafhoppers.

DIRECTIONS FOR USE:

Refer to the attached booklet for specific use directions for each crop and detailed instructions on rates, diseases controlled, application timing and technique.

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Workers mixing, loading, sorting/cutting, treating, cleaning-up, maintaining and repairing seed piece treatment equipment must wear coveralls over long-sleeved shirt, long pants, chemical-resistant gloves, headgear, socks and shoes, and respiratory protection (i.e. NIOSH/MSHA/BHSE-approved dust-filtering respirator or fresh air hood). Planters, while driving closed-cab equipment, are not required to wear a respirator.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.cropscience.bayer.ca.

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

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

ENVIRONMENTAL HAZARDS:

Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.

Toxic to aquatic organisms. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water is shallow.

STORAGE:

To prevent contamination store this product away from food or feed. Store in a cool, dry area. Do not store in direct sunlight. Do not allow prolonged storage in temperatures that exceed 40°C or go below -10°C.

DISPOSAL:

Recyclable Container 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.

Disposal of Unused, Unwanted Product:

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 cleanup 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.



GROUP	7	FUNGICIDE
GROUP	4	INSECTICIDE

****BOOKLET****

EMESTO QUANTUM
FUNGICIDE AND INSECTICIDE

FOR SEED-PIECE TREATMENT ON POTATOES

All seed pieces treated with this product must be conspicuously coloured at the time of treatment.

SUSPENSION

COMMERCIAL

ACTIVE INGREDIENT: Penflufen 66.5 g/L
Clothianidin 207 g/L

Contains 1,2-benzisothiazolin-3-one at 0.1% and 5-chloro-2-methyl-4-isothiazolin-3-one at 0.0009% and 2-methyl-4-isothiazolin-3-one at 0.0003% as preservatives.

REGISTRATION NO. 30362 PEST CONTROL PRODUCTS ACT

READ THE LABEL AND BOOKLET BEFORE USING

KEEP OUT OF REACH OF CHILDREN

PROTECT FROM FREEZING

NET CONTENTS: 1 L - 200 L

Bayer CropScience Inc.
Suite 200, 160 Quarry Park Blvd. SE
Calgary, AB T2C 3G3
Product Information: 1-888-283-6847
www.cropscience.bayer.ca

In case of spills, poisoning, or fire, telephone emergency response number 1-800-334-7577
(24 HOURS A DAY)

EMESTO QUANTUM

Table of Contents:	Section Number
GENERAL INFORMATION	The Product 1
SAFETY AND HANDLING	Precautions, Protective Clothing and Equipment..... 2
	First Aid and Toxicological Information 3
	Environmental Hazards 4
	Storage..... 5
	Disposal..... 6
	Notices..... 7
DIRECTIONS FOR USE	Pests Controlled 8
	Recommended Uses 9
	Application Cautions..... 10
	Use Limitations 11
	Resistance Management Recommendations 12

GENERAL INFORMATION

SECTION 1: THE PRODUCT

EMESTO QUANTUM is a fungicide and insecticide for use on potato seed pieces to control or suppress listed diseases and insects. EMESTO QUANTUM is active on seed-borne *Rhizoctonia solani* (black scurf and stem and stolon canker), *Helminthosporium solani* (silver scurf), *Fusarium* spp. (dry rot), Colorado potato beetle, aphids, potato flea beetles and leafhoppers.

SAFETY AND HANDLING

SECTION 2: PRECAUTIONS, PROTECTIVE CLOTHING AND EQUIPMENT

PRECAUTIONS:

KEEP OUT OF REACH OF CHILDREN. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Workers mixing, loading, sorting/cutting, treating, cleaning-up, maintaining and repairing seed piece treatment equipment must wear coveralls over long-sleeved shirt, long pants, chemical-resistant gloves, headgear, socks and shoes, and respiratory protection (i.e. NIOSH/MSHA/BHSE-approved dust-filtering respirator or fresh air hood). Planters, while driving closed-cab equipment, are not required to wear a respirator.

If this pest control product is to be used on a commodity that may be exported and you require information regarding Maximum Residue Limits for an importing country, please contact Bayer CropScience Canada Inc. at 1-888-283-6847 or www.cropscience.bayer.ca.

SECTION 3: FIRST AID AND TOXICOLOGICAL INFORMATION

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

TOXICOLOGICAL INFORMATION: Treat symptomatically. Medical Personnel should contact Bayer's Medical Information Services, Toll-Free: 1-800-334-7577.

SECTION 4: ENVIRONMENTAL HAZARDS

ENVIRONMENTAL HAZARDS:

Treated seed is toxic to birds and small wild mammals. Any spilled or exposed seeds must be incorporated into the soil or otherwise cleaned-up from the soil surface.

Toxic to bees. Bees can be exposed to product residues in flowers, leaves, pollen and/or nectar resulting from seed treatment applications. When used according to label directions minimal exposure or risk is expected.

Toxic to aquatic organisms. DO NOT discharge effluent containing this product into sewer systems, lakes, streams, ponds, estuaries, oceans or other waters.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water is shallow.

SECTION 5: STORAGE

STORAGE: To prevent contamination store this product away from food or feed. Store in a cool, dry area. Do not store in direct sunlight. Do not allow prolonged storage in temperatures that exceed 40°C or go below -10°C.

SECTION 6: DISPOSAL

Recyclable Container 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.
3. 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.

Disposal of Unused, Unwanted Product:

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 cleanup of spills.

SECTION 7: NOTICE

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.

DIRECTIONS FOR USE

SECTION 8: PESTS CONTROLLED

EMESTO QUANTUM is a fungicide and insecticide for use on potato seed pieces to control or suppress listed diseases and insects. EMESTO QUANTUM is active on seed-borne *Rhizoctonia solani* (black scurf and stem and stolon canker), *Helminthosporium solani* (silver scurf), *Fusarium* spp. (dry rot), Colorado potato beetle, aphids, potato flea beetles and leafhoppers.

EMESTO QUANTUM must be utilized as part of a total integrated approach to disease management. This approach involves the use of cultural, mechanical and, where required, other chemical techniques. These techniques include but are not limited to the use of high quality seed, crop rotation, optimal planting and harvest timing, proper handling of tubers, proper sanitation to reduce inoculum levels and the use of post harvest fungicide applications of alternative chemistries to reduce disease in storage.

For added protection against soil-borne *Rhizoctonia solani*, apply a registered in-furrow fungicide in addition to the seed piece application.

EMESTO QUANTUM does not control bacterial diseases that may be present within the seed.

SECTION 9: RECOMMENDED USES

CROP	PEST	DOSAGE	REMARKS
Potato	Seed-borne rhizoctonia canker and black scurf (<i>Rhizoctonia solani</i>)	30 mL of EMESTO QUANTUM per 100 kg seed pieces	For optimal disease and insect control, good coverage of the seed piece is required.
	Silver scurf (<i>Helminthosporium solani</i>)		Apply specified dosage as a diluted spray using equipment that ensures uniform coverage of each seed piece. Apply no more than 150 mL of slurry / 100 kg of seed pieces. Agitate or stir the slurry solution as needed.
	Suppression of fusarium dry rot (<i>Fusarium</i> spp.)*		Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust.
	Colorado potato beetle		It is recommended to periodically clean and sanitize all surfaces which may come in contact with cut seed pieces (i.e. cutting machines, tables, knives, planting equipment etc.).
	Aphids		Seed pieces should be treated immediately after cutting. Plant seed pieces as soon as possible after cutting and treating.
	Leafhopper		
	Potato flea beetle		
		Do not use treated seed pieces for food, feed, or fodder.	
		As part of the seed cutting and treating process, application of an absorbent ingredient is recommended to improve suberization.	
		Do not make any subsequent application of a Group 4A insecticide (i.e., in-furrow or foliar application) following treatment with EMESTO QUANTUM.	

* TANK MIXTURES: For control of fusarium dry rot and to mitigate resistance development for this disease, apply EMESTO QUANTUM at 30 mL product/100 kg seed pieces along with EMESTO PRO at 3.6 mL product/100 kg seed pieces. For suppression of damage caused by wireworms and for extended residual control of insect pests other than wireworm, EMESTO QUANTUM may be applied at 30 mL per 100 kg seed pieces, in tank mix with Titan ST Insecticide at 10.4 mL per 100 kg seed pieces. Refer to the registered label of each tank-mix

partner for precautions and directions for use associated for those products, and follow of the most restrictive label precautions and limitations.

SECTION 10: APPLICATION CAUTIONS

Treatment of mechanically damaged, or poor quality or low vigour seed may result in reduced germination, vigour and/or resultant yield. Treatment of sprouted seed which is known to be of poor quality or low vigour may result in reduced germination and/or seedling vigour. Avoid treating excessively sprouted seed. Due to seed quality and storage conditions beyond the control of Bayer CropScience, no claims are made with regard to germination of potato seed pieces after treatment with EMESTO QUANTUM.

If cut seed needs to be stored or held for a few days, make sure that there is adequate cool air movement through the pile of cut seed potatoes at relative humidity of 85-90%. Store cut seed at or below 7°C. Temperatures above 10 °C promote soft rot in seed. Cut and treated seed should not be piled above 1.8 m in height.

After cutting, treated seed pieces should be planted in soil above 7°C with adequate soil moisture required for planting.

When transporting EMESTO QUANTUM treated seed, make sure the seed is covered.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. This product should not be applied under conditions where run-off is likely to occur.

DO NOT apply this product or treated seeds directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, ditches and wetlands), estuaries or marine habitats.

SECTION 11: USE LIMITATIONS

ROTATIONAL CROPS: Corn, canola, mustard and potatoes may be replanted at any time. A one year plant-back interval is required for leafy, root and tuber vegetables (except potatoes). A 30-day plant-back interval is required for all other crops.

SECTION 12: RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, please note that EMESTO QUANTUM contains a Group 7 fungicide and a Group 4 insecticide. Any fungal or insect population may contain individuals naturally resistant to EMESTO QUANTUM and other Group 7 fungicides or Group 4 insecticides. A gradual or total loss of pest control may occur over time if these fungicides and insecticides 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 and insecticide/bactericide resistance:

- Where possible, rotate the use of EMESTO QUANTUM or other products containing a Group 7 fungicide or a Group 4 insecticide with different groups that control the same pathogens.
- Use tank mixtures with fungicide and insecticide from a different group when such use is permitted.
- Fungicide and insecticide use should be based on an integrated pest management program that includes scouting, historical information related to pesticide use and crop rotation and considers host plant resistance, impact of environmental conditions on pest development, pest thresholds, as well as cultural, biological and other chemical control practices.
- Monitor pest populations for resistance development. Notify Bayer CropScience Inc. if reduced sensitivity of the pest to EMESTO QUANTUM is suspected.
- If pest populations continue to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another fungicide or insecticide with a different 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 pests. For further information and to report suspected resistance, contact Bayer CropScience Inc. at 1-888-283-6847 or at www.cropscience.bayer.ca .