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**In Case of Emergency, Call
1-800-327-8633 (FAST MED)**

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MSDS prepared by:

Department of Regulatory & Biology Development
Syngenta Crop Protection Canada, Inc.

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SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: MAXIM® POTATO SEED PROTECTANT

Formulation No.: A9687E

Registration Number: 26647 (Pest Control Products Act)

Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide

Synonym: None

Active Ingredient (%): Fludioxonil (0.5%)

CAS No.: 131341-86-1

Chemical Name : 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile.

Product Use: A powder-based seed piece treatment fungicide that controls seed-borne diseases of potatoes.
For further details please refer to product label.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Talc (CAS No. 14807-96-6)	20 mppcf (containing < 1% quartz)	2 mg/m ³ (respirable; < 1% crystalline silica)	2 mg/m ³ TWA (respirable) **	IARC Group 3	Not Established
Crystalline Silica, Quartz (CAS No. 14808-60-7)	10 mg/m ³ / (%SiO ₂ +2) (respirable dust)	0.05 mg/m ³ (respirable silica)	0.05 mg/m ³ (respirable dust)**	IARC Group 2A	Yes
Particulates	15 mg/m ³ (total); 5 mg/m ³ (respirable)	10 mg/m ³	Not Established	No	Not Established
Carrier	5 mg/m ³ (respirable dust)	1 mg/m ³ (total dust)	Not Established	No	Not Established
Fludioxonil (0.5 %)	Not Established	Not Established	10 mg/m ³ TWA***	No	Not Established

** Recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Harmful if inhaled or swallowed. Dust, mist or vapour may be irritating to eyes and respiratory tract. May cause skin irritation.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Light brownish powder.

Odour: Wood-like.

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Potential Health Effects

Relevant routes of exposure: Skin, eyes, mouth, lungs.

Adverse health effects from exposure to product or ingredients of product:

ACUTE:

May be mildly irritating via ocular, dermal and inhalation routes. Product is of low toxicity via the ingestion route; however, medical attention should be sought.

CHRONIC:

Target organs for fludioxonil are the liver and kidneys. Target organs for the inert ingredients are the eyes, skin and respiratory system.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with running water for a minimum of 20 minutes. Obtain medical attention if irritation occurs.

INHALATION: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is laboured, give oxygen. Obtain immediate medical attention.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Provided the patient is conscious, wash out mouth with water. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote if this product is ingested. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

Asthma or other respiratory conditions may be aggravated by chemical irritants.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not applicable.

Upper and lower flammable (explosive) limits in air: Not applicable.

Auto-ignition temperature: Not applicable.

Flammability: Not applicable.

Hazardous combustion products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Conditions under which flammability could occur: Product is not flammable. Keep fire exposed containers cool by spraying with water.

Extinguishing media: Use water fog or mist, (avoid use of water jet), foam, carbon dioxide, dry powder or halon extinguishant. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to explosion by mechanical impact: None known.

Sensitivity to explosion by static discharge: Possible dust explosion hazard.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective clothing and eye protection to prevent skin and eye contact. Use adequate ventilation and wear an air-supplied respirator to prevent inhalation.

Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Scoop or sweep up material and place into a disposable container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN and animals. Avoid exposure to dust. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. After work, rinse gloves and remove protective equipment. Wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, away from crops, and away from access by people, animals and birds.

Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

National Fire Code classification: Not applicable.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, AND PACKAGING OF THIS PRODUCT.

Personal protective equipment for each exposure route:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, or handling tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: Wear a dust mask (N-95, P-95 or equivalent) when using this product as per label instructions. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits during manufacture, formulation, and packaging of this product. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor

cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light brownish powder.

Formulation Type: Dry powder.

Odour: Wood-like.

pH: 5 - 7 (1% aqueous solution).

Vapour pressure and reference temperature: 2.9×10^{-9} mmHg @ 25°C (Fludioxonil Technical).

Vapour density: Not available.

Boiling point: Not applicable.

Melting point: Not available.

Freezing point: Not applicable.

Specific gravity or density: 0.44 g/cm³.

Evaporation Rate: Not available.

Water/oil partition coefficient: Not available.

Odour threshold: Not available.

Viscosity: Not applicable.

Solubility in Water: 1.8 mg/L @ 25 °C (Fludioxonil Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: Temperatures above 30 °C.

Incompatibility with other materials: None known.

Hazardous decomposition products: Can decompose at high temperatures forming toxic gases.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Practically Non-Toxic</u> Oral (LD50 Rat):	> 5,050 mg/kg body weight
Dermal:	<u>Slightly Toxic</u> Dermal (LD50 Rabbit):	> 2,020 mg/kg body weight
Inhalation:	<u>Practically Non-Toxic</u> Inhalation (LC50 Rat):	> 5.67 mg/L air - 4 hours
Eye Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Contact:	<u>Non-Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Neurotoxicity

Fludioxonil Technical: Not available at this time.

Reproductive/Developmental Effects

Fludioxonil Technical: Delayed development at doses causing maternal toxicity.

Chronic/Subchronic Toxicity Studies

Fludioxonil Technical: Liver and kidneys toxicity high dose levels.

Carcinogenicity

Fludioxonil Technical: Fludioxonil was not oncogenic in mice. Results of a long-term feeding study with fludioxonil in rats showed a marginally increased incidence of liver tumours in female rats at the maximum tolerated dose (3,000 ppm). This was within historical control range (1 to 10%).

Other Toxicity Information:

None.

Toxicity of Other Components

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the "other components" in the formulation.

Carrier

Can produce allergic reaction in sensitive individuals.

Solid Diluent

OSHA requires the hazards of the components of mixtures be shown on a Material Safety Data Sheet. A component of this diluent is naturally occurring crystalline silica (< 5%), which is considered a probable human carcinogen. Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers. This product can release nuisance dust in handling or during use. Eye, skin, nose, throat and upper respiratory irritation can occur with dust exposure.

Talc

Prolonged inhalation of talc may cause scarring of the lungs, shortness of breath and respiratory assisted heart failure. Contact with the skin can cause dryness.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredient

Fludioxonil Technical: Liver, kidney.

Inert Ingredients

Carrier: Eyes and Respiratory tract.
Solid Diluent: Respiratory tract, Eyes and Skin.
Talc: Respiratory system.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

Fludioxonil is moderately to highly toxic to aquatic organisms. It is practically non-toxic to birds. It is practically non-toxic to bees. On soil surfaces fludioxonil degrades rapidly. It has a low solubility in water. The possibility of adverse effects on the aquatic environment from the use of MAXIM® as a seed treatment is very low.

Eco-Acute Toxicity

Fludioxonil Technical:

Bees LC ₅₀ /EC ₅₀	> 100 µg/bee
Invertebrates (<i>Daphnia magna</i>) 48-hour LC ₅₀ /EC ₅₀	0.90 mg/L
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	0.23 mg/L
Fish (Bluegill) 96-hour LC ₅₀ /EC ₅₀	0.74 mg/L
Bobwhite Quail LD ₅₀	> 2,000 mg/kg
Mallard Duck LD ₅₀	> 2,000 mg/kg
Birds (8-day dietary - Bobwhite Quail) LC ₅₀ /EC ₅₀	> 5,200 ppm
Birds (8-day dietary - Mallard Duck) LC ₅₀ /EC ₅₀	> 5,200 ppm

Eco-Chronic Toxicity

Fludioxonil Technical:

Fish (Fathead minnow) Early Life Stage MATC	0.028 mg/L
Invertebrate (<i>Daphnia magna</i>) Life Cycle MATC	0.025 mg/L
Mallard Reproduction NOEC	700 ppm
Bobwhite Reproduction NOEC	125 ppm

Environmental Fate

The active ingredient, fludioxonil, has a low bioaccumulation potential, low mobility in soil, and has low persistence in soil or water. The Dissipation half-life in soil and water is <10 days. The main route of degradation is by microbial degradation and formation of bound residues.

For MAXIM PSPT, the bulk material mixes with water into an emulsion (24 hours).

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL

Not Regulated.

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 26647

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Crop Protection Canada, Inc.
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