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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 Assessment
Syngenta Canada Inc.

**For further information contact:
1-87-SYNGENTA (1-877-964-3682)**

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: APRON MAXX[®] RFC SEED TREATMENT FUNGICIDE Formulation No.: A12640C

Registration Number: 28817 (Pest Control Products Act)

Chemical Classes: Substituted Benzodioxalcarbonitrile & Phenylamide Fungicides

Active Ingredient (%): Fludioxonil (2.31 %) CAS No.: 131341-86-1

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

Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide.

Active Ingredient (%): Metalaxyl-M and S-isomer (3.46%) CAS No.: 70630-17-0

{Metalaxyl-M is the active isomer of metalaxyl.}

Chemical Name: Methyl *N*-(2,6-dimethylphenyl)-*N*-(methoxyacetyl)-D-alaninate

Chemical Class: Phenylamide Fungicide.

Product Use: APRON MAXX RFC is water based seed treatment fungicide product for control of certain seed and soil-borne diseases on registered crops. 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†
Propylene Glycol (CAS # 57-55-6)	Not Established	Not Established	10 mg/m ³ TWA****	No	Yes
Fludioxonil (2.31%)	Not Established	Not Established	10 mg/m ³ TWA***	No	Not Established
Metalaxyl-M and S-isomer (3.46%)	Not Established	Not Established	10 mg/m ³ TWA***	No	Not Established

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

† 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

May cause skin irritation. Allergic skin reactions are possible.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Blue to dark blue liquid.

Odour: Aromatic.

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.

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 plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. 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. Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: > 110 °C.

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

Auto-ignition temperature: 450 °C.

Flammability: Not flammable.

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: No.

Sensitivity to explosion by static discharge: No.

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 equipment and clothing as described in Section 8 and/or the product label.

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. Spread a suitable absorbent such as clay on the spill. Scoop or sweep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, 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 reported to the appropriate regulatory body.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

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 containers to temperatures above 40 °C. PREVENT PRODUCT FROM FREEZING. 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

Applicable control measures, including engineering controls: This product is intended for use outdoors where engineering controls are not necessary. If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

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

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

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, applying cosmetics 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: A respirator is not normally required when handling this substance. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P, R or HE class filter and an organic vapour

cartridge may be used under certain circumstances where airborne concentrations are expected to exceed exposure limits (e.g. emergency spills).

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Blue to dark blue liquid.

Formulation Type: Suspension Concentrate

Odour: Paint-like odour

pH: 3 - 7 (1% solution in deionized water).

Vapour pressure and reference temperature: 2.9 x 10⁻⁹ mmHg @ 25 °C (Fludioxonil Technical).
2.5 x 10⁻⁵ mmHg @ 25 °C (Metalaxyl-M Technical).

Vapour density: Not available.

Boiling point: Not available.

Melting point: Not available.

Freezing point: -18°C

Specific gravity or density: 1.08 g/cm³ @ 20 °C.

Evaporation Rate: Not available.

Water/oil partition coefficient (log Kow): 4.1 (Fludioxonil Technical).
1.7 (Metalaxyl-M Technical)

Odour threshold: Not available.

Viscosity: 468 mPas (or cps) at 20°C

Solubility in Water: 1.8 mg/L @ 25 °C (Fludioxonil Technical).
26 g/L @ 25 °C (Metalaxyl-M Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: Excessive heat or cold.

Incompatibility with other materials: Strong oxidizers.

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>Low Acute Toxicity</u>	
	Oral (LD50 Rat):	> 5,000 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u>	
	Dermal (LD50 Rabbit):	> 5,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u>	
	Inhalation (LC50 Rat):	> 5.42 mg/L air - 4 hours
Eye Contact:	<u>Non-Irritating (Rabbit)</u>	
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Sensitizer (Guinea Pig)</u>	

Reproductive/Developmental Effects

Fludioxonil Technical: Delayed development at doses causing maternal toxicity.

Metalaxyl-M Technical: None observed.

Chronic/Subchronic Toxicity Studies

- Fludioxonil Technical: Liver and kidneys toxicity high dose levels. Changes in urine colour (predominantly blue) occurred following repeated dosing in all species tested.
- Metalaxyl-M Technical: Liver effects at 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%).
- Metalaxyl-M Technical: None observed.

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.

Propylene Glycol:

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

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

Target Organs

Active Ingredients

- Fludioxonil Technical: Liver, kidney.
- Metalaxyl-M Technical: Liver.

Inert Ingredients

- Propylene Glycol: CNS, skin, eye, kidney, liver.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

APRON MAXX RFC is a ready-to-apply fungicide seed treatment for the control of plant diseases on various crops. The active ingredient, metalaxyl-M and S-isomer is practically non-toxic to slightly toxic to fish, birds, aquatic invertebrates (and insects (bees)). The second active ingredient, fludioxonil, is practically non-toxic to insects (bees) and birds, but is moderately to very highly toxic to fish (rainbow trout, bluegill sunfish) and aquatic invertebrates.

Eco-Acute Toxicity

Fludioxonil Technical:

Green Algae 5-day EC ₅₀	0.83 mg/L
Bees LC ₅₀ /EC ₅₀ (Contact)	>100 µg/bee
Invertebrates (Water Flea) LC ₅₀ /EC ₅₀	0.90 mg/L
Fish (Trout) 96-hr LC ₅₀ /EC ₅₀	0.23 mg/L
Fish (Bluegill) 96-hr LC ₅₀ /EC ₅₀	0.74 mg/L
Birds (8-day Dietary - Bobwhite Quail) LC ₅₀ /EC ₅₀	> 5,200 mg/kg
Birds (8-day dietary - Mallard Duck) LC ₅₀ /EC ₅₀	> 5,200 mg/kg

Metalaxyl-M Technical:

Green Algae 5-Day EC ₅₀	140 mg/L
Bees LC ₅₀ /EC ₅₀ (Contact)	>100 µg/bee
Invertebrates (Water Flea) LC ₅₀ /EC ₅₀	28 mg/L
Fish (Trout) 96-hr LC ₅₀ /EC ₅₀	130 mg/L

Fish (Bluegill) 96-hr LC ₅₀ /EC ₅₀	139 mg/L
Birds (5-Day Dietary - Bobwhite Quail) LC ₅₀ /EC ₅₀	>5,000 mg/kg
Birds (5-Day Dietary - Mallard Duck) LC ₅₀ /EC ₅₀	>10,000 mg/kg

Eco-Chronic Toxicity

Fludioxonil Technical:

Invertebrates (Water Flea) 21-day NOEC	19 µg/L
Fish (Trout) 21-day NOEC	19 µg/L

Metalaxyl-M Technical:

Invertebrates (Water Flea) 21-Day NOEC	1.27 mg/L
Fish (Trout) Early Life Stage NOEC	9.1 mg/L

Environmental Fate

The active ingredient fludioxonil has a low bioaccumulation potential, low mobility in soil, and is not persistent in the environment. The main routes of degradation are by biological and photolytic degradation, and formation of bound residues.

The active ingredient metalaxyl-M and S-isomer has a low bioaccumulation potential, a low to high mobility in soil (depending on soil type), and is not persistent in the environment. The main route of dissipation is by biological degradation.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty container retains product residue. 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.: 28817

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 Canada Inc.
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