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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.

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

**SECTION – 1: PRODUCT IDENTIFICATION**

**Product Identifier:** **DIVIDEND XL RTA<sup>®</sup>** Formulation No.: A9797B  
**Registration Number:** 25777 (Pest Control Products Act)  
**Chemical Classes:** Triazole + Phenylamide Fungicides

**Active Ingredient (%):** Difenoconazole (3.37%) CAS No.: 119446-68-3  
**Chemical Name:** 1-[2-[4-(4-chlorophenoxy)-2-chlorophenyl]-4-methyl-1,3-dioxolan-2-yl-methyl]-1H-1,2,4-triazole.  
**Chemical Class:** Triazole Fungicide

**Active Ingredient (%):** Metalaxyl-M and S-isomer (0.27%) CAS No.: 70630-17-0  
**Chemical Name :** methyl *N*-(2,6-dimethylphenyl)-*N*-(methoxyacetyl)-D-alaninate.  
**Chemical Class:** Phenylamide Fungicide

**Product Use:** DIVIDEND XL RTA is a fungicide seed treatment in a ready-to-use formulation for control of certain diseases in cereals. It contains a dye, so that treated seed will be identified easily by its red colour. Please refer to product label for further details.

**SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS**

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Crystalline Silica, Quartz (CAS # 14808-60-7)	10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2) (respirable dust)	0.025mg/m <sup>3</sup> (respirable silica)	0.05 mg/m <sup>3</sup> (respirable dust)**	IARC 1; ACGIH A2	Yes
Kaolin Clay (CAS # 1332-58-7)	15 mg/m <sup>3</sup> TWA (total); 5 mg/m <sup>3</sup> TWA (respirable)	2 mg/m <sup>3</sup> TWA (respirable)	10 mg/m <sup>3</sup> TWA (total); 5 mg/m <sup>3</sup> TWA (respirable)**	No	Not Established
Ethylene Glycol (≤ 28%) CAS No. 107-21-1	Not Established	100 mg/m <sup>3</sup> (ceiling) [aerosol]	Not Established	No	Yes
Difenoconazole (3.37%)	Not Established	Not Established	8 mg/m <sup>3</sup> TWA ***	No	Not Established
Metalaxyl-M and S-isomer (0.27%)	Not Established	Not Established	10 mg/m <sup>3</sup> 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**

May cause mild eye, skin and respiratory irritation.

#### **Hazardous Decomposition Products**

Can decompose at high temperatures and form toxic gases.

#### **Physical Properties**

Appearance: Dark red liquid.  
Odour: Slight paint odour.

#### **Unusual Fire, Explosion and Reactivity Hazards**

Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. 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. . Treat symptomatically.

#### **MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:**

None known.

## SECTION – 5: FIRE FIGHTING MEASURES

**Flash point and method:** 87 °C (Setaflash Closed Cup).

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

**Auto-ignition temperature:** Not available.

**Flammability:** Combustible liquid (Class IIIA).

**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:** Temperatures above the flash point. DIVIDEND XL RTA is a Class IIIA combustible liquid and can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Keep fire exposed containers cool by spraying with water.

**Extinguishing media:** Use foam, carbon dioxide, dry powder, 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:** Low.

## 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 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. Cover entire spill with absorbing material and place into compatible disposal container. Scrub 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 disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

## 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. 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 sealed containers to temperatures above 40 °C. Protect from sun and humidity. PREVENT PRODUCT FROM FREEZING. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

**National Fire Code classification:** Class IIIA

## 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 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 or R 95 or HE class filter and an organic vapour 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:** Dark red liquid.

**Formulation Type:** Flowable suspension (seed treatment).

**Odour:** Slight, paint-like odour.

**pH:** 7.4 (1% aqueous solution).

**Vapour pressure and reference temperature:**

Difenoconazole Technical:  $2.5 \times 10^{-10}$  mmHg @ 25 °C.

Metalaxyl-M Technical:  $2.5 \times 10^{-5}$  mmHg @ 25 °C.

**Vapour density:** Not applicable..

**Boiling point:** Not applicable.

**Melting point:** Not applicable.

**Freezing point:** -18 °C.

**Specific gravity or density:** 1.10 g/cm<sup>3</sup> @ 20 °C.

**Evaporation Rate:** Not available.

**Water/oil partition coefficient:** Log K<sub>ow</sub> Difenoconazole 4.4  
Metalaxyl-M and S-isomer 1.71.

**Odour threshold:** Not available.

**Viscosity:** 260 cps @ 21 °C.

**Solubility in Water:**

Difenoconazole Technical: 15 mg/L @ 25 °C.

Metalaxyl-M Technical: 26 g/L @ 25 °C.

**SECTION – 10: STABILITY AND REACTIVITY**

**Chemical stability:** Stable under normal use and storage conditions.

**Conditions to avoid:** Excessive heat.

**Incompatibility with other materials:** Strong oxidizers such as hydrogen peroxide, bromine, chromic acid, strong bases, strong acids.

**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):	> 5,050 mg/kg body weight
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rabbit):	> 2,020 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat):	> 3.1 mg/L air - 4 hours
Eye Contact:	<u>Minimally Irritating (Rabbit)</u>	
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

### **Reproductive/Developmental Effects**

Difenoconazole:	None observed.
Metalaxyl-M and S-isomer:	None observed.

### **Chronic/Subchronic Toxicity Studies**

Difenoconazole:	Kidney and liver effects at high doses (>5,000 ppm; rats); Eye effects in dogs at high dose levels.
Metalaxyl-M and S-isomer:	Liver effects at high dose levels.

### **Carcinogenicity**

Difenoconazole:	2/70 male rats in the highest dose group (20,000 ppm) were found to have squamous cell carcinoma in the non-glandular stomach. Effect did not occur in female rats or in mice and not considered relevant to humans. Increase in brain tumors (mice) at doses exceeding the Maximum Tolerated Dose (MTD) (>2,500 ppm).
Metalaxyl-M and S-isomer:	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.

#### Ethylene Glycol ( $\leq$ 28%)

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice. Exposure to high concentrations of mists or aerosols may result in effects on the hematopoietic system and central nervous system with headache, dizziness and drowsiness. Severe kidney damage results from swallowing large amounts of ethylene glycol.

#### Crystalline Silica, Quartz

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.

#### Kaolin Clay

May cause eye and respiratory tract irritation. Long term exposure to high concentrations of this dust may produce x-ray evidence of dust in the lungs.

Continued long term overexposure may affect respiratory function in some individuals.

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

## Target Organs

### Active Ingredient

Difenoconazole: Brain, liver, kidney, gastrointestinal tract.  
Metalaxyl-M and S-isomer: Liver.

### Inert Ingredients

Crystalline Silica, Quartz: Respiratory tract.  
Kaolin Clay: Respiratory tract.  
Ethylene Glycol: Blood, kidney, CNS.

## SECTION – 12: ECOLOGICAL INFORMATION

### Summary of Effects

DIVIDEND XL RTA is a seed treatment for use on cereals to prevent various plant diseases. This use pattern limits the amount of exposure to wildlife. The active ingredients, difenoconazole and metalaxyl-M and S-isomer, are practically nontoxic to insects (bees), slightly toxic to birds, and are toxic to fish and aquatic invertebrates (water flea).

### Eco-Acute Toxicity

Difenoconazole:	Green Algae 5-Day EC <sub>50</sub>	0.31 ppm
	Bees LC <sub>50</sub> /EC <sub>50</sub>	> 100 µg/bee
	Invertebrates (Water Flea) LC <sub>50</sub> /EC <sub>50</sub>	0.77 ppm
	Fish (Trout) LC <sub>50</sub> /EC <sub>50</sub>	1.1 ppm
	Fish (Bluegill) LC <sub>50</sub> /EC <sub>50</sub>	1.2 ppm
	Birds (8-day dietary - Bobwhite Quail) LC <sub>50</sub> /EC <sub>50</sub>	4,760 ppm
	Birds (8-day dietary - Mallard Duck) LC <sub>50</sub> /EC <sub>50</sub>	> 5,000 ppm
Metalaxyl-M and S-isomer:	Green Algae 5-Day EC <sub>50</sub>	140 ppm
	Bees LC <sub>50</sub> /EC <sub>50</sub> (Contact)	>100 µg/bee
	Invertebrates (Water Flea) LC <sub>50</sub> /EC <sub>50</sub>	28 ppm
	Fish (Trout) 96-hr LC <sub>50</sub> /EC <sub>50</sub>	130 ppm
	Fish (Bluegill) 96-hr LC <sub>50</sub> /EC <sub>50</sub>	139 ppm
	Birds (5-Day Dietary - Bobwhite Quail) LC <sub>50</sub> /EC <sub>50</sub>	>5,000 ppm
	Birds (5-Day Dietary - Mallard Duck) LC <sub>50</sub> /EC <sub>50</sub>	>10,000 ppm

### Eco-Chronic Toxicity

Difenoconazole:	Invertebrates (Water Flea) 21-Day NOEC	0.0056 ppm
	Fish (Fathead) Early Life Stage NOEC	0.0087 ppm
Metalaxyl-M and S-isomer:	Invertebrates (Water Flea) 21-Day NOEC	0.0056 ppm
	Fish (Fathead) Early Life Stage NOEC	0.0087 ppm

### Environmental Fate

Difenoconazole is degraded in soil after use as a seed treatment with a half-life of 35-63 days; primarily due to microbial degradation. Hydrolysis, evaporation and photolysis are not significant pathways for environmental dissipation. Difenoconazole is slowly degraded in water. The aquatic degradation half life is 307-324 days, but the compound is readily adsorbed onto sediment, leading to rapid disappearance in natural water. Difenoconazole has a low to moderate mobility in soil and a moderate bioaccumulation potential.

The second active ingredient, metalaxyl-M and S-isomer is also not persistent in the environment. The soil dissipation half-life after use as a seed treatment is 40 days and the aquatic half-life is 41 days. The main route of dissipation is by biological degradation. Hydrolysis, evaporation and photolysis are not significant. Metalaxyl-M and S-isomer has a low bioaccumulation potential. The potential for leaching movement is moderate.

DIVIDEND XL RTA sinks in water (24 hr observation) and gradually disperses as an emulsion.

### 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.: 25777

### 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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