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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.

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1-87-SYNGENTA (1-877-964-3682)

## SECTION – 1: PRODUCT IDENTIFICATION

**Product Identifier:** HERITAGE MAXX™ Fungicide  
**Registration Number:** 28393 (Pest Control Products Act)  
**Chemical Class:** A beta-methoxyacrylate fungicide

Formulation No.: A13972A

**Active Ingredient (%):** Azoxystrobin (8.8%)  
**Chemical Name:** methyl (*αE*)-2-[[6-(2-cyanophenoxy)-4-pyrimidinyl]oxy]-*α*-(methoxymethylene)benzeneacetate  
**Product Use:** A broad-spectrum fungicide for controlling diseases in turf on golf courses and commercial turf farms. Please refer to product label for further details.

CAS No.: 131860-33-8

## SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Tetrahydrofurfuryl Alcohol	Not Established	Not Established	0.5 ppm TWA ****	No	Yes
Azoxystrobin (8.8%)	Not Established	Not Established	2 mg/m <sup>3</sup> 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.  
Syngenta Hazard Category: B, S

## SECTION – 3: HAZARDS IDENTIFICATION

### Symptoms of Acute Exposure

Harmful if swallowed. May irritate the eyes and skin. Exposure to high vapour levels may cause drowsiness or dizziness.

### Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

### Physical Properties

Appearance: Light amber to amber liquid.

Odour: Ether-like.

### Unusual Fire, Explosion and Reactivity Hazards

Combustible liquid. 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 15 - 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. Do not induce vomiting unless directed by a physician or a poison control center. Do not give **any** liquid to the person. Call Syngenta, a poison control centre or doctor for treatment advice.

#### **NOTES TO PHYSICIAN:**

There is no specific antidote if this product is ingested. Treat symptomatically. Contains petroleum distillate - vomiting may cause aspiration pneumonia.

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

None known.

### **SECTION – 5: FIRE FIGHTING MEASURES**

**Flash point and method:** 75 °C

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

**Auto-ignition temperature:** 265 °C

**Flammability:** Combustible liquid.

**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:** 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 or water fog or mist, (avoid use of water jet). 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:** None known.

### **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. Use adequate ventilation and 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 material 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. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. 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 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. Wear full protective clothing and equipment (see Section 8). Rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling or working with the product and before eating, using tobacco, drinking, applying cosmetics or using the toilet. Wash contaminated clothing separate from household laundry and before re-use. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, and away 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. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

**National Fire Code classification:** Combustible liquid, 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 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 gloves (such as nitrile or butyl), 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 effective engineering controls to comply with occupational exposure limits. In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

## SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Light amber to amber liquid.

**Formulation Type:** Micro Emulsion Concentrate.

**Odour:** Ether-like.

**pH:** 2-6 (1% aqueous solution).

**Vapour pressure and reference temperature:**  $8.25 \times 10^{-13}$  mmHg @ 20 °C (Azoxystrobin Technical)

**Vapour density:** Not available.

**Boiling point:** Not available.

**Melting point:** Not applicable.

**Freezing point:** Not available.

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

**Evaporation Rate:** Not available.

**Water/oil partition coefficient:** log Kow = 2.5 (Azoxystrobin Technical).

**Odour threshold:** Not available.

**Viscosity:** 23 mPa (or CPS) @ 20 °C

**Solubility in Water:** 6 mg/L @ 20 °C (Azoxystrobin Technical)

## SECTION – 10: STABILITY AND REACTIVITY

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

**Conditions to avoid:** None known.

**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>Slightly Acutely Toxic</u> Oral (LD50 Rat):	1,714 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):	> 6.4 mg/L air - 4 hours
Eye Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

### **Reproductive/Developmental Effects**

**Azoxystrobin:** Shows weak chromosomal damage in mammalian cells at cytotoxic levels. Negative in whole animal assays for chromosomal and DNA damage at high dosages ( $\geq 2,000$  mg/kg). In rabbits, no effect was observed up to the highest dose level (500 mg/kg/day). In rats, developmental effects were seen only at maternally toxic doses (100 mg/kg/day).

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

**Azoxystrobin:** In a rat 90-day feeding study, liver toxicity was observed at 2,000 ppm. This was manifest as gross distension of the bile duct, increased numbers of lining cells and inflammation of the duct. No toxicologically significant effects were seen in repeat dose dog studies. Data reviews do not

indicate any potential for endocrine disruption. There is no evidence of neurotoxicity in any of the studies conducted with azoxystrobin.

### **Carcinogenicity**

Azoxystrobin: No carcinogenic effects observed in rats or mice at doses up to the maximum tolerated dose.

### **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.

#### Tetrahydrofurfuryl Alcohol (THFA)

Inhalation of vapours at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract. Chronic overexposure may affect the kidney.

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

### **Target Organs**

#### Active Ingredient

Azoxystrobin: Liver.

#### Inert Ingredients

Tetrahydrofurfuryl Alcohol CNS, kidney.

## **SECTION – 12: ECOLOGICAL INFORMATION**

### **Summary of Effects**

The active ingredient, azoxystrobin, is practically nontoxic to insects and birds, but is moderately, to highly, toxic to fish and aquatic invertebrates (water flea).

### **Eco-Acute Toxicity**

Azoxystrobin:	Green Algae 5-day EC <sub>50</sub>	120 ppb
	Invertebrates (Water Flea) 48-hour EC <sub>50</sub>	280 ppb
	Fish (Rainbow Trout) 96-hour LC <sub>50</sub>	470 ppb
	Birds (Mallard Duck) 14-day LD <sub>50</sub>	> 250 mg/kg

### **Environmental Fate**

Azoxystrobin has a low bioaccumulation potential, low to moderate mobility in soil, but is moderately persistent to persistent in soil or water. The dissipation half-life in soil is 14 - 62 days. The main route of degradation is by microbial degradation, hydrolysis, and formation of bound residues.

## **SECTION – 13: DISPOSAL CONSIDERATIONS**

**Waste disposal information:** Do not reuse empty containers unless they are specifically designed to be re-used. 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.: 28393

## 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.

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