MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection Canada Inc.
140 Research Lane, Research Park
Guelph, ON
N1G 4Z3

Tel. Office (519) 836-5665

Tel. Emergency: 1-800-327-8633 (1-800-FASTMED)

SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

a. **Product Identifier:** **FULFILL® 50WG**
Registration Number: 27274
Formulation Number: A9364A
Chemical Class: Pyridine Azomethine Insecticide

b. **Name of Supplier, Address and Emergency Telephone Number** - See above.
c. **Name of Manufacturer, Address and Emergency Telephone Number** - See above.
d. **Product Use:** A granular insecticide for control of aphids in potatoes.
e. **Date of MSDS Preparation (Y/M/D):** 03-09-18
f. **Name and Telephone Number of Party Responsible for MSDS Preparation:**
Prepared by Regulatory & Biology Development Department of Syngenta Crop Protection Canada Inc. For further information, please contact 1-87S-YNGENTA (1-877-964-3682).

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

a. **Chemical Identity and CAS Registry No. of hazardous ingredients (WHMIS Controlled Products) present at 1.0%, or 0.1% as appropriate, by weight.** None
b. **Ingredients present which are on the WHMIS Ingredient Disclosure List at, or above, the minimum concentration specified on the List:** None
c. **Ingredients with unknown toxicological properties:** None
d. **Ingredients the supplier believes may be harmful:** None
e. **Generic chemical identity and Registry Number for trade secret ingredients registered under the Hazardous Materials Information Review Commission:** None
f. **Ingredient concentration in units of wt./wt., vol./vol. or wt./vol.** expressed as: i) actual concentration, or ii) a range as specified in the Controlled Product Regulations.
1,2,4-Triazin-3(2H)-one, 4,5-dihydro-6-methyl-4-[(3-pyridinylmethylene)amino]-
CAS No.: 123312-89-0, Pymetrozine (50%w/w); carrier (11 to 17%)
g. **Exposure limits for ingredients:** Sodium Sulfate - 15 mg/m^3 (total dust). Diatomaceous Earth – 80 $mg/m^3/\%SiO_2$ (20 mppcf) OSHA-PEL; 10 mg/m^3 (inhalable); 3 mg/m^3 (respirable) TWA; 6 mg/m^3 TWA-NIOSH. Crystalline Silica, Quartz – 10 $mg/m^3/(\% SiO_2)$ (respirable dust) OSHA-PEL; 0.1 mg/m^3 (respirable silica) ACGIH-TLV; IARC Group 2A

SECTION 3 HAZARDS IDENTIFICATION

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.
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:
a. **Relevant routes of exposure:** Skin, lungs, eyes, ingestion
b. **Adverse health effects from exposure to product or ingredients of product:**
i) length of exposure
ii) severity of effect
iii) target organ
iv) type of effect
v) signs and symptoms
Acute Exposure may cause eye, skin or upper respiratory tract irritation.

vi) **medical conditions known to be aggravated:** None known

SECTION 4 FIRST AID MEASURES

IF POISONING IS SUSPECTED, or any symptoms are serious, **immediately contact the poison information centre, doctor or nearest hospital.** Tell the person contacted the complete product name, and the type and amount of exposure. Bring product container or label. Describe any symptoms, and follow the advice given. Call the Syngenta Emergency Line (**1-800-327-8633**) for further information.

EYES: Immediately rinse eyes with a large amount of running water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Hold eyelids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice of a physician.

SKIN: Remove contaminated clothing. Wash skin immediately with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Obtain medical attention if irritation persists. Decontaminate clothing prior to re-use.

INHALATION: Move victim from the contaminated area to fresh air. If the individual is not breathing, call 911 or an ambulance and begin artificial respiration.

INGESTION: If victim is fully conscious, give a large quantity of water to drink. Do not induce vomiting unless under the direction of a physician. Never give anything by mouth to an unconscious or convulsing person.

NOTE TO PHYSICIAN:

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

SECTION 5 FIRE FIGHTING MEASURES

1. **Flash point and method:** N/A
2. **Upper and lower flammable (explosive) limits in air:** N/A
3. **Autoignition temperature:** 430°C
4. **Hazardous combustion products:** None known
5. **Conditions under which flammability could occur:** None known
6. **Extinguishing media:** Use dry chemical, foam, or CO_2 extinguishing media. 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. If water is used to fight fire, dike and collect runoff.
7. **Sensitivity to explosion by mechanical impact:** No
8. **Sensitivity to explosion by static discharge:** No

SECTION 6 ACCIDENTAL RELEASE MEASURES

Procedures for dealing with release or spill:

Control the spill at its source. Contain the spill to prevent it from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Moisten the spilled material with a little water. For small spills, sweep up as much material as possible, keeping dust to a minimum and place in a marked chemical container. Wash the spill area with water containing a strong detergent (e.g. commercial products such as Tide, Joy Spic and Span), absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal container and label appropriately for disposal. Flush the spill area with water to remove any residue. Do not allow wash water to contaminate water supplies. Heavily contaminated soil layers have to be dug out down to clean soil.

SECTION 7 HANDLING AND STORAGE

a. **Handling practices:**

KEEP OUT OF REACH OF CHILDREN

Do not eat, drink, use tobacco or apply cosmetics in areas where there is a potential for exposure to the material. Always wash thoroughly after handling. Also see section 8 below.

a. **Appropriate storage practices/requirements:**
Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls:

a. **Personal protective equipment for each exposure route:**

INHALATION: Work in a well-ventilated area. A NIOSH-certified combination air-purifying respirator with an N, P or R95 or HE class filter and an organic vapour cartridge may be permissible under 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.

EYES: To avoid eye contact, wear safety glasses with side shields or chemical goggles.

SKIN: To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

a. **Appearance:** Beige to Brown Granules
b. **Odour:** Slight
c. **Formulation type:** Wettable granules
d. **pH:** 7-11 (1% aq. Soln)
e. **Vapour pressure and reference temperature:** 7.3×10^{-16} mmHg @ 20°C (pymetrozine)
f. **Boiling point:** Not applicable
g. **Melting point:** Not Available
h. **Specific gravity:** 0.40 g/cm^3 @ 25°C
i **Evaporation Rate:** Not applicable
j. **Water/oil partition coefficient:** Log Pow = -0.19 at 25°C (pymetrozine)
k. **Odour threshold:** Not available
l **Viscosity:** Not applicable
m. **Solubility in H_2O:** 270 mg/L @ 20°C (pymetrozine)

SECTION 10 STABILITY AND REACTIVITY

a. **Chemical stability:** Stable under normal use and storage conditions.
b. **Conditions to avoid:** None known
c. **Incompatibility with other materials:** None known
d. **Hazardous decomposition products:** Can decompose at high temperatures forming toxic gases.
e. **Hazardous polymerisation:** Will not occur

SECTION 11 TOXICOLOGICAL INFORMATION

Information on product:

a. **LD50 (species and route)**

ORAL: LD50 (Rat):	Practically Non-Toxic	> 5,000 mg/kg body weight
DERMAL: LD50 (Rat);	Slightly Toxic	> 2,000 mg/kg body weight

LC50 (species)

INHALATION: LC50 (Rat):	Slightly Toxic	> 3.09 mg/L air - 4 hours

b. **Irritation data**

EYE: Slightly irritating (Rabbit)
SKIN: Slightly irritating (Rabbit)

c. **Results of studies on:**
Sensitisation: Not a sensitiser (Guinea Pig, Maximization test)

Carcinogenicity: Pymetrozine: Increased liver tumours at high doses only.
Reproductive toxicity: Pymetrozine: Developmentally toxic (pup weight gain reduction) at high doses only.
Teratogenicity: Pymetrozine: Negative; developmental effects (skeletal abnormalities) only in the presence of maternal toxicity.
Mutagenicity: Pymetrozine: None observed
Chronic exposure: Pymetrozine: Liver, spleen, thymus, kidney, muscle, digestive tract, thyroid, and blood effects at high doses.

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

e. **Other:**
Carrier: OSHA requires the hazards of the components of mixtures be shown on a Material Safety Data Sheet. The carrier in this product is naturally occurring diatomaceous earth. Natural diatomaceous earth contains a small percentage of naturally occurring crystalline silica, 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.
Pergopak M: Not Available
Sodium Sulfate: Exposure may cause irritation of the nose, throat and lungs. Repeated or prolonged contact to the skin results in dermatitis. May cause mild irritation to the eyes.

Target organs:

Active Ingredients:	Pymetrozine:	-Liver, Spleen, Thymus, Kidneys, Muscle, Digestive Tract, Blood, Thyroid, and Eyes
Inert Ingredients:	Carrier	- Respiratory Tract
	Pergopak M	- Not Available
	Sodium Sulfate	- Respiratory Tract, Skin and Eyes

SECTION 12 ECOLOGICAL INFORMATION

Summary of Effects:

Pymetrozine: Practically non-toxic to plants, birds, earthworms, aquatic invertebrates and fish. Bioaccumulation or bioconcentration will not occur.

Eco-Acute Toxicity:

Pymetrozine:
Bees LC50/EC50 > 117µg/bee
Invertebrates (water flea) LC50/EC50 87 ppm
Rainbow Trout LC50/EC50 >128 ppm
Bluegill Sunfish LC50/EC50 >134 ppm
Bobwhite Quail (8-day dietary) LC50/EC50 >5,200 ppm
Mallard Duck (8-day dietary) LC50/EC50 > 5,200 ppm

Eco-Chronic Toxicity

Pymetrozine: Based on the level of exposure and the potential health effects, there is a minimal risk of adverse chronic effects in wildlife.

Environmental Fate:

Pymetrozine: The information summarized here is based on the data available for the active ingredient pymetrozine.
Pymetrozine will not accumulate or persist in the environment under normal conditions of use.
Persistence (Half-Life)
Soil: Pymetrozine follows a two-phase degradation. In the rapid early phase the Half-Life is 3 days and in the slower second phase it is approximately 30 days.
Water: Pymetrozine is stable at pH 7 and 9 and the Half-Life $\leq$ 5 days at pH 5.
Photolysis (Half-Life):
Soil: 1.6 – 4.3 days.
Water: 1.9 to 6.2 days.
Leaching/Mobility: Strongly absorbed by the soil.

Soil Metabolism: Pymetrozine is biodegradable to natural materials under aerobic or anaerobic conditions. No persistent or toxic degradation products are formed.

SECTION 13 DISPOSAL CONSIDERATIONS

a. **Waste disposal information:**
Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, federal and provincial regulations.

SECTION 14 TRANSPORT INFORMATION

a. **Shipping information such as shipping classification:**
TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION – Not Regulated

SECTION 15 REGULATORY INFORMATION

a. **WHMIS classification for product:**

b. **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.

SECTION 16 OTHER INFORMATION

The information and recommendations contained herein are based on information believed to be correct. However, no guarantee or warranty of any kind, expressed or implied is made with respect to the information provided herein.