MATERIAL SAFETY DATA SHEET

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

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MSDS prepared by:
Department of Regulatory & Biological Assessment
Syngenta Canada Inc.

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

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

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: FORTENZA™ Formulation No.: A17960B
Registration Number: 30899
Chemical Classes: A diamide insecticide.

Active Ingredient (%): Cyantraniliprole (47.8%) CAS No.: 73699-63-1
Chemical Name: 3-bromo-l-(3-chloro-2-pyridinyl)-N-[4-cyano-2-methyl-6-[(methylamino)carbonyl]phenyl]-1H-pyrazole-5-carboxamide
Chemical Class: Insecticide.

SECTION – 2: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>OSHA PEL (mg/m³)</th>
<th>ACGIH TLV (mg/m³)</th>
<th>Other</th>
<th>NTP/IARC/OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerin (CAS # 56-81-5)</td>
<td>TWA (total); 5 mg/m³ (respirable)</td>
<td>TWA (total)</td>
<td>Not Established</td>
<td>No</td>
</tr>
<tr>
<td>Cyantraniliprole (47.8%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>No</td>
</tr>
</tbody>
</table>

** 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. Syngenta Hazard Category: D,S*

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure
May cause eye irritation.

Hazardous Decomposition Products
None known

Physical Properties
Appearance: White to beige liquid
Odour: Not determined

Unusual Fire, Explosion and Reactivity Hazards
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
$\text{Potential Health Effects}$

$\text{Relevant routes of exposure: Not determined}$

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**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.

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**SECTION – 5: FIRE FIGHTING MEASURES**

**Flash point and method:**
> 101 °C (Pensky-Martens CC).

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

**Auto-ignition temperature:**
450°C ± 5 °C

**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:**
Not known.

**Sensitivity to explosion by static discharge:**
Not known.

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**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 equipment 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. 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 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. 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 below -10 °C or above 40 °C. Protect from sun and humidity. PREVENT PRODUCT FROM FREEZING. 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 in on-farm operations. 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: Use process enclosures, exhaust ventilation controls, good work practices and respiratory protection to minimize exposure to liquid mists or dust from dried product. Follow product label respirator requirements when using this formulated product to treat seed, bag seed, clean up, equipment and conduct other miscellaneous activities. In case of emergency spills, use a NIOSH approved respirator with an organic vapor cartridge and any R, P95 or HE filter.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Cream coloured liquid

Formulation Type: Suspension concentrate

Odour: Chalky

pH: 3.7 (100% w/v @ 25 °C).
Vapour pressure and reference temperature: Cyantraniliprole: Not available.

Vapour density: Not available.
Boiling point: Not available.
Melting point: Not applicable.
Freezing point: Not available.
Specific gravity or density: 1.253 g/cm³.
Evaporation Rate: Not available.
Water/oil partition coefficient: Not available.

Odour threshold: Not available.
Viscosity: Not available.
Solubility in Water: Cyantraniliprole: 0.014g/mL @ 20 °C

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: None known.
Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion: Low AcuteToxicity
Oral (LD50 Rat): > 5,000 mg/kg body weight

Dermal: Low AcuteToxicity
Dermal (LD50 Rabbit): > 5,000 mg/kg body weight

Inhalation: Low AcuteToxicity
Inhalation (LC50 Rat): > 5.14 mg/L air - 4 hours

Eye Contact: Minimally Irritating (Rabbit)
Skin Contact: Non-Irritating (Rabbit)
Skin Sensitization: Not a Skin Sensitizer in animal tests

Reproductive/Developmental Effects
Cyantraniliprole: Animal testing showed no reproductive toxicity.
Animal testing showed effects on embryo-fetal development at levels equal to or above those causing maternal toxicity.

Chronic/Subchronic Toxicity Studies
Cyantraniliprole:
The following effects occurred at levels of exposure that significantly exceed those expected under labeled usage conditions.
Oral Rat 28 - 90 d. Thyroid effects. Organ weight changes. No effect to neurotoxicity.
Oral Mouse 90 d. No toxicologically significant effects were found.
Oral Dog 90 d. Altered blood chemistry. Liver effects.
Oral Multiple species. No toxicologically significant effects were found.
Dermal Rat 28 d. No toxicologically significant effects were found.

Carcinogenicity
Cyantraniliprole: Animal testing did not show any carcinogenic effects.
Evidence suggests this substance does not cause genetic damage in animals.
Evidence suggests this substance does not cause genetic damage in cultured mammalian cells.
Evidence suggests this substance does not cause genetic damage in cultured bacterial cells. Carcinogenicity assessment: No data available.

**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.

Glycerin:
Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

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

**Target Organs**
- **Active Ingredients**
  - Cyantraniliprole: Thyroid, blood, liver
- **Inert Ingredients**
  - Glycerin: Not applicable.

**SECTION – 12: ECOLOGICAL INFORMATION**

**Summary of Effects**
FORTENZA is an insecticide that is mixed with water and applied for control of various insect pests on selected agricultural crops. The active ingredient, cyantraniliprole, is practically nontoxic to most aquatic biota except insects.

**Eco-Acute Toxicity**
- Cyantraniliprole:
  - Green Algae 72-hr ErC50: > 13 mg/L
  - Invertebrates (Water Flea) 48-hr EC50: 0.0204 mg/L
  - Fish (Rainbow Trout) 96-hr LC50: 12.6 mg/L

**Environmental Fate**
Cyantraniliprole is not persistent in soil with a dissipation half life of 9-22 days, and is non-persistent to slightly persistent in water.

**SECTION – 13: DISPOSAL CONSIDERATIONS**

**Waste disposal information:** Do not reuse empty containers unless they are specifically designed to be refillable. 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.
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.: 30899

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

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