SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: FORCE® 3.0G INSECTICIDE
Registration Number: 23917 (Pest Control Products Act)
Chemical Class: A pyrethroid insecticide.

Active Ingredient (%): Tefluthrin (3.0 %)
Chemical Name: (2,3,5,6-tetrafluoro-4-methylphenyl)methyl (1R,3R)-rel-3-[(1Z)-2-chloro-3,3,3-trifluoro-1-propen-1-yl]-2,2-dimethylcyclopropanecarboxylate.
Product Use: A soil-applied insecticide for the control of listed insects in corn. For further details please refer to product label.

SECTION – 2: COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Other</th>
<th>NTP/IARC/OSHA Carcinogen</th>
<th>WHMIS†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay Granules</td>
<td>15 mg/m³ TWA (total); 5 mg/m³ TWA (respirable)</td>
<td>10 mg/m³ TWA (total); 3 mg/m³ TWA (respirable)</td>
<td>Not Established</td>
<td>No</td>
<td>Not Established</td>
</tr>
<tr>
<td>Crystalline Silica, Quartz</td>
<td>10 mg/m³/ (%SiO₂+2) (respirable dust)</td>
<td>0.025 mg/m³ (respirable silica)</td>
<td>0.05 mg/m³ (respirable dust)**</td>
<td>IARC 1; ACGIH A2</td>
<td>Yes</td>
</tr>
<tr>
<td>Tefluthrin (3.0 %)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>0.04 mg/m³ TWA***</td>
<td>No</td>
<td>Not Established</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: C, S

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure
Harmful or fatal if swallowed. Harmful if inhaled. May cause eye irritation. May cause an allergic skin reaction. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.
Hazardous Decomposition Products
Can decompose at high temperatures forming toxic gases, including carbon dioxide, carbon monoxide and, possibly, irritating gases.

Physical Properties
Appearance: Tan-brown granules.
Odour: Odourless.

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 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. 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. May cause transient, usually less than 24 hours, itching, tingling, burning or numbness of exposed skin, called paresthesia. Application of topical vitamin E may alleviate symptoms. Temporary allergic skin reactions may respond to treatment with oral antihistamines or steroid creams and/or systemic steroids.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:
Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product. Individuals with chronic respiratory disorders or pre-existing dermatitis should use extra care in handling this product.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not applicable.
Upper and lower flammable (explosive) limits in air: Not available.
Auto-ignition temperature: Not Available.
Flammability: Not flammable.
Hazardous combustion products: Can decompose at high temperatures forming toxic gases, including carbon dioxide, carbon monoxide and, possibly, irritating gases.
Conditions under which flammability could occur: Keep fire exposed containers cool by spraying with water.
**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 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. 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 dust, 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. 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. A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. 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 vapor 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: Tan-brown granules.
Formulation Type: Solid (granule).
Odour: Odourless.
pH: 5.2 (1% aqueous solution).
Vapour pressure and reference temperature: $6 \times 10^{-5}$ mmHg @ 20 °C (Tefluthrin Technical).
Vapour density: Not available.
Boiling point: Not available.
Melting point: 39 - 43 °C (Tefluthrin Technical).
Freezing point: Not applicable.
Specific gravity or density: 0.61 - 0.72 g/mL.
Evaporation Rate: Not available.
Water/oil partition coefficient: Not available.
Odour threshold: Not available.
Viscosity: Not applicable.
Solubility in Water: Insoluble (Tefluthrin Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.
Conditions to avoid: High temperatures, sparks, open flames or other sources of ignition.
Incompatibility with other materials: Strong oxidizing agents.
Hazardous decomposition products: Can decompose at high temperatures forming toxic gases, including carbon dioxide, carbon monoxide and, possibly, irritating gases.
Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

<table>
<thead>
<tr>
<th>Effect</th>
<th>Description</th>
<th>Control Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>Moderately Acutely Toxic</td>
<td>Oral (LD50 Rat): 969 mg/kg body weight (male)</td>
</tr>
<tr>
<td>Dermal</td>
<td>Low Acute Toxicity</td>
<td>Dermal (LD50 Rabbit): &gt; 2,000 mg/kg body weight</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Moderately Acutely Toxic</td>
<td>Inhalation (LC50 Rat): 1.77 mg/L air - 4 hours</td>
</tr>
<tr>
<td>Eye Contact</td>
<td>Minimally Irritating (Rabbit)</td>
<td></td>
</tr>
<tr>
<td>Skin Contact</td>
<td>Minimally Irritating (Rabbit)</td>
<td></td>
</tr>
<tr>
<td>Skin Sensitization</td>
<td>Sensitizer (Guinea Pig)</td>
<td></td>
</tr>
</tbody>
</table>
Reproductive/Developmental Effects
Tefluthrin Technical: None observed.

Chronic/Subchronic Toxicity Studies
Tefluthrin Technical: In 90-day and 1 year studies in dogs, elicited ataxia or tremors at the highest doses tested (1.5 and 2.0 mg/kg/d respectively). Causes subjective facial sensation (SFS), as with other pyrethroids.

Carcinogenicity
Tefluthrin Technical: None observed.

Other Toxicity Information:
In humans, contact with exposed skin may result in temporary itching, tingling, burning or numbness, called paresthesia. The effect may result from splash, aerosol, or hot vapor contact, or transfer to the face from contaminated gloves and hands. The symptoms normally disappear within 24 hours. Face and genital areas are especially susceptible to this effect.

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.

Clay Granules:
Prolonged or repeated inhalation of dust may cause a disabling, progressive pulmonary fibrosis. Inhalation hazard may not exist in the liquid form. May cause eye irritation.

Crystalline Silica, Quartz:
Listed as an IARC (Group 1) 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.

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

Target Organs
Active Ingredients
Tefluthrin Technical: Liver, CNS.

Inert Ingredients
Montmorillonite Clay: Respiratory tract and eyes.
Crystalline Silica, Quartz: Respiratory tract.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects
The active ingredient, tefluthrin, is highly toxic to aquatic wildlife and slightly toxic to birds. However, the possibility of adverse effects on the aquatic environment from the use of FORCE as an in-furrow treatment is very low.

Eco-Acute Toxicity
Tefluthrin Technical:
Green Algae 5-day EC_{50} > 1.05 ppm
Invertebrate (Water Flea) 48-hour EC_{50} 0.07 ppb
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50} 0.06 ppb
Birds (Bobwhite Quail) LD_{50} 734mg/kg

Environmental Fate
The active ingredient, tefluthrin, has a low bioaccumulation potential, low mobility, and low to moderate persistence in soil and water.
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.: 23917

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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