SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: PRIMO MAXX® Formulation No.: A11825A
Registration Number: 26989 (Pest Control Products Act)
Chemical Class: Cyclopropyl Derivative of Cyclohexenone Plant Growth Inhibitor
Synonym: None
Active Ingredient(%): Trinexapac-Ethyl (11.3%) CAS No.: 95266-40-3
Chemical Name: 4-(Cyclopropyl-a-hydroxymethylene)-3,5-dioxo-cyclohexanecarboxylic acid ethylester

Product Use: PRIMO MAXX is a microemulsion concentrate for managing growth, improving quality and stress tolerance and edging of turfgrass on golf course and commercial sod farms. 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>Tetrahydrofurfuryl Alcohol</td>
<td>Not Established</td>
<td>Not Established</td>
<td>2 ppm (TWA)****</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>(THFA) CAS No. 97-99-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trinexapac-Ethyl (11.3%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>10 mg/m³ TWA***</td>
<td>No</td>
<td>Not Established</td>
</tr>
</tbody>
</table>

*** 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.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure
May cause eye irritation. Exposure to high vapour levels may cause headache, dizziness, numbness, nausea, incoordination, or other central nervous system effects.

Hazardous Decomposition Products
Can decompose at high temperatures and form toxic gases.

Physical Properties
Appearance: Amber liquid.
Odour: Odourless.
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 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.

- Induction of emesis is not recommended due to the large amount of petroleum solvent in this product, which could cause chemical pneumonitis if aspirated. If ingested, lavage stomach, taking care to avoid aspiration of stomach contents into the lungs. Check for possible mucosal damage before beginning gastric lavage.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

- Persons with preexisting dermatitis, respiratory disorders, or an allergic history should use extra care in handling this product.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: 76.7 °C.
Upper and lower flammable (explosive) limits in air: Not available.
Auto-ignition temperature: Not Available.
Flammability: Combustible liquid.
Hazardous combustion products: Toxic, flammable fumes are released by thermal decomposition in a fire. Thermal decomposition products may include oxides of nitrogen, carbon and chlorine.
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:** No.

**Sensitivity to explosion by static discharge:** No.

**National Fire Code classification:** Class IIIA Combustible Liquid.

### 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 an air-supplied respirator to prevent inhalation.

**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. 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, 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 disposition. Spillages or uncontrolled discharges into watercourses must be alerted to the appropriate regulatory body.

### SECTION – 7: HANDLING AND STORAGE

**Handling practices:** KEEP OUT OF REACH OF CHILDREN and animals. 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. Wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, away from crops, and away from access by people, animals and birds.

**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.

### 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, 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 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: Amber liquid.
Formulation Type: Microemulsion concentrate.
Odour: Odourless.
pH: 3.63 (1% emulsion in water @ 25 °C).
Vapour pressure and reference temperature: $1.6 \times 10^{-5}$ (Trinexapac-Ethyl Technical)
Vapour density: Not available.
Boiling point: Not available.
Melting point: Not available.
Freezing point: -25 °C.
Specific gravity or density: 1.07 g/cm$^3$ @ 20 °C.
Evaporation Rate: Not available.
Water/oil partition coefficient: Not available.
Odour threshold: Not available.
Viscosity: 41.1 cps @ 21 °C.
Solubility in Water: 1100 mg/L @ 25 °C (Trinexapac-Ethyl Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.
Conditions to avoid: Keep away from heat, open flames or other ignition sources.
Incompatibility with other materials: Strong oxidizing.
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: Practically Non-Toxic
  Oral (LD50 Rat): > 5,050 mg/kg body weight

Dermal: Slightly Toxic
  Dermal (LD50 Rabbit): > 2,020 mg/kg body weight

Inhalation: Slightly Toxic
  Inhalation (LC50 Rat): > 2.75 mg/L air - 4 hours

Eye Contact: Moderately Irritating (Rabbit)
Skin Contact: Non-Irritating (Rabbit)
Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects
Trinexapac-Ethyl Technical: None observed.

Chronic/Subchronic Toxicity Studies
Trinexapac-Ethyl Technical: Liver, kidney and brain (dogs) effects at high doses (>5,000 ppm).
Carcinogenicity
Trinexapac-Ethyl Technical: Slight increase in stomach tumors in male mice at high doses (2,000 ppm). Slight increase in forestomach tumors in male rats at high doses (20,000 mg/kg/day).

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 Ingredients
Trinexapac-Ethyl Technical: Liver, kidney, brain

Inert Ingredients
Tetrahydrofurfuryl Alcohol (THFA): CNS, kidney.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects
PRIMO MAXX is a microemulsion concentrate that is mixed with water and applied as a spray to turf to manage growth, improve quality and stress tolerance and edging on golf courses and commercial sod farms. The active ingredient, trinexapac-ethyl, is practically nontoxic to birds and insects (bees), but is non-toxic to slightly toxic to fish and aquatic invertebrates (water flea).

Eco-Acute Toxicity
Trinexapac-Ethyl Technical:
Bees (LC50/EC50) 48-hour LC50/EC50 47 µg/bee
Invertebrates (Daphnia magna) 48-hour LC50/EC50 > 142.5 mg/L
Fish (Rainbow Trout) 96-hour LC50/EC50 68 mg/L
Fish (Bluegill) 96-hour LC50/EC50 > 130 mg/L
Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,620 ppm
Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,200 ppm
Bobwhite Oral LC50 > 2,250 mg/kg
Mallard Oral LC50 > 2,000 mg/kg

Eco-Chronic Toxicity
Trinexapac-Ethyl Technical:
Fish (Fathead minnow) Early Life Stage MATC > 0.41 and < 0.80 mg/L
Invertebrate (Daphnia Magna) Life Cycle MATC > 2.4 and < 5.1 mg/L
Mallard Reproduction NOEC 600 ppm
Bobwhite Reproduction NOEC 600 ppm

Environmental Fate
The active ingredient, trinexapac-ethyl, has a low bioaccumulation potential, low mobility, and low persistence in soil and water. The dissipation half-life (DT50) in soil was 1 day for the parent compound via hydrolysis (under moist, aerobic conditions) and 3-6 days in aquatic systems. The main route of degradation is by hydrolysis as well microbial degradation and formation of bound residues. The bulk material sinks in water (after 24 h test) and mixes with water (water based).
SECTION – 13: DISPOSAL CONSIDERATIONS

**Waste disposal information:** Do not reuse empty containers. 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.: 26989

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

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