1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Triple Crown™ T&O Insecticide

Active Ingredient(s):
- Bifenthrin
- Zeta-cypermethrin
- Imidacloprid

Synonyms:
- BIFENTHRIN: (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropylcarboxylate; IUPAC: 2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropylcarboxylate; FMC 233570; (+/-)-a-cyano(3-phenoxyphenyl)methyl (+/-) cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropylcarboxylate; IUPAC: (RS)-a-cyano-3-phenoxybenzyl (1RS)-cis-trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropylcarboxylate; IMIDACLOPRID: 1-(6-chloro-3-pyridylmethyl)-N-nitroimidazolidin-2-ylideneamine

Chemical Family: Pyrethroid Pesticide, Neonicotinoid

Recommended use: Insecticide

Manufacturer: FMC Corporation
Agricultural Solutions
1735 Market Street
Philadelphia, PA 19103

General Information:
Phone: (215) 299-6000
E-Mail: msdsinfo@fmc.com

Emergency telephone number:
Medical Emergencies:
1 800 / 331-3148 (PROSAR - U.S.A. & Canada)
1 651 / 632-6793 (PROSAR - All Other Countries - Collect)
For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

Appearance: Off-white liquid

Physical state: Liquid

Odor: Aromatic hydrocarbon

Physical or Chemical Hazards

Potential health effects

Principle Routes of Exposure: Eye contact, Skin contact, Inhalation, Ingestion.

Acute effects:
- Eyes: May cause slight irritation.
- Skin: Causes moderate skin irritation.
- Inhalation: May cause drowsiness and dizziness.
- Ingestion: Toxic if swallowed. Potential for aspiration if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause additional effects as listed under "Inhalation".
Chronic effects
Effects are expected to be similar to those that are seen with acute toxicity. Prolonged exposure may cause chronic effects.

Aggravated Medical Conditions
Thyroid disease, Liver disorders.

Environmental hazard
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol</td>
<td>57-55-6</td>
<td>5-10</td>
</tr>
<tr>
<td>Naphtha (petroleum), heavy aromatic</td>
<td>64742-94-5</td>
<td>10-20</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>138261-41-3</td>
<td>13.8</td>
</tr>
<tr>
<td>Bifenthrin</td>
<td>82657-04-3</td>
<td>7.9</td>
</tr>
<tr>
<td>Zeta-cypermethrin (F2700)</td>
<td>52315-07-8</td>
<td>2.7</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

#### Eye contact
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for further treatment advice.

#### Skin contact
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

#### Inhalation
Move person to fresh air. If person is not breathing, call 911 (within the U.S. and Canada) or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

#### Ingestion
Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

#### Notes to physician
This product contains a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided. Contains petroleum distillate. Vomiting may cause aspiration pneumonia.

### 5. FIRE-FIGHTING MEASURES

#### Flash Point
> 100 °C

#### Sensitivity to Mechanical Impact
Not applicable

#### Sensitivity to Static Discharge
Not applicable

#### Suitable extinguishing media
Foam. Carbon dioxide (CO₂). Dry chemical. Water spray or fog.

#### Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus and full protective gear. Isolate fire area. Evaluate downwind.

#### NFPA
- Health Hazard: 2
- Flammability: 1
- Stability: 0
- Special Hazards: -
6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Isolate and post spill area. Remove all sources of ignition. Wear suitable protective clothing, gloves and eye/face protection. For personal protection see section 8.

Environmental precautions
Keep people and animals away from and upwind of spill/leak. Keep material out of lakes, streams, ponds, and sewer drains.

Methods for containment
Dike to prevent runoff. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up
Clean and neutralize spill area, tools and equipment by washing with bleach water and soap. Absorb rinsate and add to the collected waste. Waste must be classified and labeled prior to recycling or disposal. Dispose of waste as indicated in Section 13.

Other
For further clean-up instructions call FMC Emergency Hotline number listed in Section 1 "Product and Company Identification" above.

7. HANDLING AND STORAGE

Handling
Do not contaminate other pesticides, fertilizers, water, food or feed by storage or disposal.

Storage
Keep in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Keep out of reach of children and animals. Store in original container only.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>British Columbia</th>
<th>Quebec</th>
<th>Ontario TWAEV</th>
<th>Alberta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene glycol 57-55-6</td>
<td></td>
<td></td>
<td>TWA: 10 mg/m$^3$</td>
<td>TWA: 155 mg/m$^3$</td>
</tr>
</tbody>
</table>

Occupational exposure controls

Engineering measures
Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

Personal Protective Equipment

General Information
If the product is used in mixtures, it is recommended that you contact the appropriate protective equipment suppliers. These recommendations apply to the product as supplied.

Respiratory protection
If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Respiratory protection must be provided in accordance with current local regulations.

Eye/face protection
Tightly fitting safety goggles

Skin and body protection
Wear long-sleeved shirt, long pants, socks, shoes, chemical-resistant gloves and headgear.

Hand protection
Protective gloves

Hygiene measures
Clean water should be available for washing in case of eye or skin contamination. Wash skin prior to eating, drinking, chewing gum or using tobacco. Shower or bathe at the end of working. Remove and wash contaminated clothing before re-use. Launder work clothing separately from regular household laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES
Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white liquid</td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Aromatic hydrocarbon</td>
</tr>
<tr>
<td>pH</td>
<td>4.0–4.6</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>No information available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No information available</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash Point</td>
<td>&gt; 100 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No information available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No information available</td>
</tr>
<tr>
<td>Density</td>
<td>9.22 lb/gal</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>Percent volatile</td>
<td>No information available</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>334 cSt (mm2/s) @ 23°C, 760 cSt (mm2/s) @ 43°C</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Stability
Stable under recommended storage conditions.

Conditions to avoid
Heat, flames and sparks

Hazardous decomposition products

Hazardous polymerization
Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute effects

Eye contact
Slightly or non-irritating (rabbit).

Skin contact
Moderately irritating to skin (rabbit)

Ingestion
May cause drowsiness and dizziness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Potential for aspiration if swallowed. Vomiting after ingestion of this product may cause aspiration of aromatic hydrocarbons into the lungs, which may result in fatal pulmonary edema.

Inhalation
Inhalation of aromatic hydrocarbon vapors may cause dizziness, disturbances in vision, drowsiness, respiratory irritation, and eye, skin and mucous membrane irritation.

LD50 Dermal
> 5000 mg/kg (Rat)

LD50 Oral
175 mg/kg (Rat)

LC50 Inhalation
> 2.08 mg/L (Rat)

Sensitization
Did not cause sensitization on laboratory animals

Chronic effects

Chronic Toxicity
Effects are expected to be similar to those that are seen with acute toxicity. Prolonged exposure may cause chronic effects.

Carcinogenicity
Imidacloprid, Bifenthrin: Not carcinogenic. Cypermethrin caused an increase in benign lung tumors in mice, but not in rats.

Mutagenicity
Bifenthrin, Zeta-cypermethrin: Not genotoxic in animal studies.

Reproductive toxicity
Imidacloprid, Bifenthrin, Zeta-cypermethrin: No toxicity to reproduction in animal studies.
Neurological Effects
Tremors were associated with chronic exposure of laboratory animals to bifenthrin, which may disappear with continued exposure. Zeta-cypermethrin did not cause neurotoxicity in animal experiments. Imidacloprid: Slight neurobehavioral effects at highest dose.

Developmental Toxicity
Bifenthrin, Zeta-cypermethrin: Not teratogenic in animal studies.

Target Organ Effects
Bifenthrin: A slight increase in male mouse urinary bladder tumors at the highest dose was probably not of toxicological concern. Imidacloprid: Thyroid, liver.

12. ECOLOGICAL INFORMATION

Marine pollutant Zeta-cypermethrin

Ecotoxicity

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bifenthrin (82657-04-3)</td>
<td>96 h LC50</td>
<td>Fish</td>
<td>0.1</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>72 h EC50</td>
<td>Algae</td>
<td>0.822</td>
<td>mg/L</td>
</tr>
<tr>
<td></td>
<td>48 h EC50</td>
<td>Crustacea</td>
<td>0.11</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Fish</td>
<td>0.012</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>21 d NOEC</td>
<td>Crustacea</td>
<td>0.0013</td>
<td>µg/L</td>
</tr>
</tbody>
</table>

Zeta-cypermethrin (F2700) (52315-07-8)

<table>
<thead>
<tr>
<th>Active Ingredient(s)</th>
<th>Duration</th>
<th>Species</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zeta-cypermethrin</td>
<td>LC50</td>
<td>Aquatic organs</td>
<td>0.005 - 0.15</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>LC50</td>
<td>Fish</td>
<td>0.07 - 2.37</td>
<td>µg/L</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Bobwhite quail</td>
<td>&gt;2000</td>
<td>mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>Bee</td>
<td>0.0014 - 0.043</td>
<td>µg/bee</td>
</tr>
</tbody>
</table>

Environmental Fate

<table>
<thead>
<tr>
<th>Imidacloprid (138261-41-3)</th>
<th>Type of Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient(s)</td>
<td>Half-life in soil</td>
<td>26-229 days</td>
</tr>
<tr>
<td>Imidacloprid</td>
<td>Stability in water</td>
<td>30 days</td>
</tr>
</tbody>
</table>

Chemical Name

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), heavy aromatic</td>
<td>2.9 - 6.1</td>
</tr>
</tbody>
</table>

13. DISPOSAL CONSIDERATIONS

Waste disposal methods
Improper disposal of excess pesticide, spray mixture, or rinsate is prohibited. If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

Contaminated packaging
Containers must be disposed of in accordance with local, state and federal regulations. Refer to the product label for container disposal instructions.
## 14. TRANSPORT INFORMATION

### DOT

<table>
<thead>
<tr>
<th>Packaging Type</th>
<th>4 x 1 gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper shipping name</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hazard class</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging Type</th>
<th>Bulk, Non-Bulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN/ID No</td>
<td>UN3352</td>
</tr>
<tr>
<td>Hazard Class</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Zeta-cypermethrin</td>
</tr>
<tr>
<td>Description</td>
<td>UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Zeta-cypermethrin), 6.1 PG III</td>
</tr>
<tr>
<td>Additional information</td>
<td>When shipped in BULK this product is classified as a Marine Pollutant.</td>
</tr>
</tbody>
</table>

### TDG

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN3352</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Bifenthrin, Zeta-cypermethrin</td>
</tr>
<tr>
<td>Description</td>
<td>UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Zeta-cypermethrin), 6.1 PG III, Marine Pollutant</td>
</tr>
</tbody>
</table>

### ICAO/IATA

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN3352</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Bifenthrin, Zeta-cypermethrin</td>
</tr>
<tr>
<td>Description</td>
<td>UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Zeta-cypermethrin), 6.1, PG III, Marine Pollutant</td>
</tr>
<tr>
<td>Limited quantity</td>
<td>2 L</td>
</tr>
</tbody>
</table>

### IMDG/IMO

<table>
<thead>
<tr>
<th>UN/ID No</th>
<th>UN3352</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard Class</td>
<td>6.1</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>EmS No.</td>
<td>F-A, S-A</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Bifenthrin, Zeta-cypermethrin</td>
</tr>
<tr>
<td>Description</td>
<td>UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Zeta-cypermethrin), 6.1, PG III, Marine Pollutant</td>
</tr>
</tbody>
</table>
15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bifenthrin</td>
<td>82657-04-3</td>
<td>7.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute Health Hazard: yes
- Chronic Health Hazard: yes
- Fire Hazard: no
- Sudden Release of Pressure Hazard: no
- Reactive Hazard: no

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

TSCA Inventory (United States of America)

International Regulations

Mexico - Grade
Moderate risk, Grade 2

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class
- D1B  Toxic materials
- D2B  Toxic materials

16. OTHER INFORMATION

Revision Date: 2013-10-15
Reason for revision: Initial Release.

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End of Material Safety Data Sheet