1. PRODUCT AND COMPANY IDENTIFICATION

**Product name**
Triple Crown™ T&O Insecticide

**Active Ingredient(s)**
Bifenthrin, Zeta-cypermethrin, Imidacloprid

**Synonyms**
FMC 54800; (2-methyl[1,1'-biphenyl]-3-yl)methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate; IUPAC: 2-methylbiphenyl-3-ylmethyl (Z)-(1RS)-cis-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate; FMC 233570; (+/-)-α-cyano(3-phenoxyphenyl)methyl (+/-) cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate; IUPAC: (RS)- α-cyano-3-phenoxybenzyl (1RS)-cis-trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate; 1-(6-chloro-3-pyridylmethyl)-N-nitroimidazolidin-2-ylideneamine

**Chemical Family**
Pyrethroid Pesticide, Neonicotinoid

**Recommended use:**
Insecticide

**Manufacturer**
FMC Corporation
Agricultural Products Group
1735 Market Street
Philadelphia, PA 19103
Phone: (215) 299-6000
E-Mail: msdsinfo@fmc.com

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>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>Propylene glycol</td>
<td>57-55-6</td>
<td>5-10</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

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>1</th>
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</thead>
<tbody>
<tr>
<td>Health Hazard</td>
<td></td>
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<tr>
<td>Flammability</td>
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<tr>
<td>Stability</td>
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<tr>
<td>Special Hazards</td>
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</tbody>
</table>
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>TWA: 10 mg/m³ TWA: 50 ppm TWA: 155 mg/m³</td>
<td></td>
<td></td>
<td></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
**Triple Crown™ T&O Insecticide**

**Appearance**
off-white liquid

**Physical state**
Liquid

**Odor**
Aromatic hydrocarbon

**pH**
4.0-4.6

**Melting Point/Range**
No information available.

**Freezing point**
No information available

**Boiling Point/Range**
Not applicable

**Flash Point**
> 100 °C

**Evaporation rate**
Not applicable

**Vapor pressure**
No information available

**Vapor density**
No information available

**Water solubility**
Miscible with water

**Percent volatile**
No information available

**Partition coefficient**
Not applicable

**Viscosity**
334 cSt (mm²/s) @ 23°C, 760 cSt (mm²/s) @ 43°C

---

**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.

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**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

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**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, and was negative for genotoxicity. EPA has classified zeta-cypermethrin as a possible human carcinogen based on this information, but does not regulate based on its low cancer risk.

**Mutagenicity**
Bifenthrin, Zeta-cypermethrin: Not genotoxic.

**Reproductive toxicity**
Imidacloprid, Bifenthrin, Zeta-cypermethrin: No toxicity to reproduction.
Neurological Effects
Tremors were associated with chronic exposure of laboratory animals to bifenthrin, which may disappear with continued exposure. 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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicity to algae</th>
<th>Toxicity to fish</th>
<th>Toxicity to microorganisms</th>
<th>Toxicity to daphnia and other aquatic invertebrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naphtha (petroleum), heavy aromatic</td>
<td>2.5 mg/L, EC50 72 h (Skeletonema costatum)</td>
<td>LC50= 19 mg/L Pimephales promelas 96 h LC50= 2.34 mg/L Oncorhynchus mykiss 96 h LC50= 1740 mg/L Lepomis macrochirus 96 h LC50= 45 mg/L Pimephales promelas 96 h LC50= 41 mg/L Pimephales promelas 96 h</td>
<td>EC50 = 0.95 mg/L 48 h</td>
<td></td>
</tr>
<tr>
<td>Bifenthrin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>19000 mg/L, EC50 96 h (Pseudokirchneriella subcapitata)</td>
<td>LC50= 51600 mg/L Oncorhynchus mykiss 96 h LC50 41 - 47 mL/L Oncorhynchus mykiss 96 h LC50= 51400 mg/L Pimephales promelas 96 h LC50= 710 mg/L Pimephales promelas 96 h</td>
<td>EC50 &gt; 10000 mg/L 24 h EC50 &gt; 1000 mg/L 48 h</td>
<td></td>
</tr>
</tbody>
</table>

Environmental Fate

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

Bifenthrin (82657-04-3)
Active Ingredient(s) | Type of Test | Result
--- | --- | ---
Bifenthrin | Bioconcentration factor (BCF) | 1709
Bifenthrin | Half-life in soil | ~85 days
Bifenthrin | log Pow | 6.6
Bifenthrin | Mobility in soil | Not expected to reach groundwater
Bifenthrin | Stability in water | Stable to hydrolysis over a wide range of pH values.

Zeta-cypermethrin (F2700) (52315-07-8)
Active Ingredient(s) | Type of Test | Result
--- | --- | ---
Zeta-cypermethrin | Bioconcentration factor (BCF) Bluefill sunfish (Lepomis macrochirus) | 443
Half-life in soil | 2 - 4 weeks
log Pow | 5
Mobility in soil | Not expected to reach groundwater
Stability in water | Hydrolysis unstable at pH 9, half life 20-29 days at pH 5 and 7.

Chemical Name | log Pow
--- | ---
Naphtha (petroleum), heavy aromatic | 2.9 - 6.1

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

TDG
The "Marine Pollutant" marking is only applicable when shipped by vessel or air, and is not applicable when shipped only by road or rail in Canada.
UN/ID No | UN3352
Hazard Class | 6.1
Packing group | III
Marine pollutant | Bifenthrin, Zeta-cypermethrin.
Description | UN3352 Pyrethroid pesticide, liquid, toxic (Bifenthrin, Zeta-cypermethrin), 6.1 PG III, Marine Pollutant

ICAO/IATA
UN/ID No | UN3352
Hazard Class | 6.1
Packing group | III
Marine pollutant | Bifenthrin, Zeta-cypermethrin
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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Prepared By

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End of Material Safety Data Sheet