## 1. PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name: ENDIGO ZC</th>
<th>EPA Signal Word: Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Ingredient(%):</td>
<td>Lambda-Cyhalothrin (9.48%)</td>
</tr>
<tr>
<td>Chemical Name:</td>
<td>[1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylecyclopropanecarboxylate</td>
</tr>
<tr>
<td>Chemical Class:</td>
<td>A pyrethroid insecticide</td>
</tr>
<tr>
<td>Active Ingredient(%):</td>
<td>Thiamethoxam (12.60%)</td>
</tr>
<tr>
<td>Chemical Name:</td>
<td>4H-1,3,5-Oxadiazin-4-imine,3-[(2-chloro-5-thiazolyl) methyl]tetrahydro-5-methyl-N-nitro-</td>
</tr>
<tr>
<td>Chemical Class:</td>
<td>Neonicotinoid Insecticide</td>
</tr>
</tbody>
</table>

### 2. HAZARDS IDENTIFICATION

**Health and Environmental**

Harmful if swallowed or inhaled. Irritating to skin. Causes mild eye irritation. Vapors may cause drowsiness and dizziness.
May be harmful if swallowed and inhaled.
May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

**Hazardous Decomposition Products**

Hazardous decomposition gases may develop in the headspace of containers at normal storage and handling temperatures.

**Physical Properties**

<table>
<thead>
<tr>
<th>Appearance:</th>
<th>Light beige liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Aromatic</td>
</tr>
</tbody>
</table>

**Unusual Fire, Explosion and Reactivity Hazards**

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

### 3. 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>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>15 mg/m³ TWA (total)</td>
<td>10 mg/m³ TWA</td>
<td>Not Established</td>
<td>IARC Group 2B</td>
</tr>
<tr>
<td>Petroleum Solvent</td>
<td>Not Established</td>
<td>Not Established</td>
<td>100 mg/m³ (15-17 ppm) TWA</td>
<td>No</td>
</tr>
<tr>
<td>Naphthalene (&lt; 5%)</td>
<td>10 ppm TWA</td>
<td>10 ppm TWA (skin)</td>
<td>10 ppm TWA **</td>
<td>See &quot;Toxicity&quot;, Sec. 11</td>
</tr>
<tr>
<td>Glycerin</td>
<td>15 mg/m³ TWA (total); 5 mg/m³ TWA (respirable)</td>
<td>10 mg/m³ TWA (total)</td>
<td>Not Established</td>
<td>No</td>
</tr>
<tr>
<td>Lambda-Cyhalothrin (9.48%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>0.04 mg/m³ TWA (skin) ***</td>
<td>No</td>
</tr>
<tr>
<td>Thiamethoxam (12.60%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>3 mg/m³ TWA ***</td>
<td>No</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician
There is no specific antidote if this product is ingested.
Treat symptomatically.
Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours. Treat symptomatically.
Contains petroleum distillate - vomiting may cause aspiration pneumonia.

Medical Condition Likely to be Aggravated by Exposure
None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion
Flash Point (Test Method): > 216°F
Flammable Limits (% in Air): Lower: Not Applicable  Upper: Not Applicable
Autoignition Temperature: Not Available
Flammability: Not Applicable

Unusual Fire, Explosion and Reactivity Hazards
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire
Use dry chemical, foam or CO2 extinguishing media. 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. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak
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 Section 8. Cover...
7. HANDLING AND STORAGE

Because of its physical properties this material needs to be heated before dispensing.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Where eye contact is likely, use chemical splash goggles.

Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate or Viton), coveralls, socks and chemical-resistant footwear.

Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc.). Unprotected contact with such translocated material can result in paresthesia effects and possible sensitization (see Section 11). Do not touch unprotected skin areas (face) with contaminated gloves or clothing.

Wash thoroughly with soap and water immediately after handling.

Inhalation: Avoid breathing air from drum headspace.

Use local exhaust ventilation or air-supplied respiratory protection when dispensing heated material to control exposure to lambda-cyhalothrin vapor and hazardous headspace gases.

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 (for example, during spill response activities).

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light beige liquid
Odor: Aromatic
Melting Point: Not Applicable
Boiling Point: Not Available
Specific Gravity/Density: 1.12 g/ml @ 68°F (20°C)

pH: 6 - 7 @ 1% w/v

Solubility in H2O
Lambda-Cyhalothrin : 0.004 mg/l
Thiamethoxam: 4.1 g/l @ 77°F (25°C)

Vapor Pressure
Lambda-Cyhalothrin : 1.5 x 10(-9) mmHg @ 68°F (20°C)
Thiamethoxam: 2 x 10(-11) mmHg @ 68°F (20°C)

10. STABILITY AND REACTIVITY
11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

**Ingestion:**
- Oral (LD50 Female Rat) : 310.2 mg/kg body weight

**Dermal:**
- Dermal (LD50 Rat) : > 2000 mg/kg body weight

**Inhalation:**
- Inhalation (LC50 Rat) : > 2.15 mg/l air - 4 hours

**Eye Contact:**
- Mildly Irritating (Rabbit)

**Skin Contact:**
- Moderately Irritating (Rabbit)

**Skin Sensitization:**
- Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects

**Lambda-Cyhalothrin:**
- Not a developmental or reproductive toxicant.

**Thiamethoxam:**
- Developmental: Not teratogenic in rats or rabbits.
- Reproductive: No effects on reproduction. Minor increase in a common testis effect in rats at high doses, which did not affect reproduction. When used in accordance with label directions and recommendations in this MSDS, no effects would be expected in humans.

Chronic/Subchronic Toxicity Studies

**Lambda-Cyhalothrin:**
- Reversible paresthesia (abnormal skin sensation).
- Reversible clinical signs of neurotoxicity in mammals.

**Thiamethoxam:**
- Subchronic: Liver effects occurred in rodents only at high dose levels. Not neurotoxic after high acute and subchronic exposure in rats.

Carcinogenicity

**Lambda-Cyhalothrin:**
- No treatment-related tumors in rats or mice.

**Thiamethoxam:**
- Classified as "not likely to be carcinogenic in humans" based on lifetime studies in mice and rats.

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. Paresthesia involving the face is also known as "subjective facial sensation" or SFS.

Toxicity of Other Components

**Glycerin**
- Test results reported in Section 11 for the final product take into account any acute hazards related to the glycerin in the formulation.

**Naphthalene (< 5%)**
- Test results reported in Section 11 for the final product take into account any acute hazards related to the naphthalene in the formulation.
- Chronic overexposure to naphthalene can affect the liver, kidney, respiratory tract and blood.

Carcinogen Status:
- NTP: Anticipated Carcinogen
- IARC: Group 2B Possible Human Carcinogen

Stability: Stable under normal use and storage conditions.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: None known.

Materials to Avoid: None known.

Hazardous Decomposition Products: Hazardous decomposition gases may develop in the headspace of containers at normal storage and handling temperatures.
12. ECOLOGICAL INFORMATION

Ecotoxicity Effects
Lambda-Cyhalothrin:
- Fish (Rainbow Trout) 96-hour LC50 0.19 ppb
- Bird (Mallard Duck) LD50 Oral > 3950 mg/kg
- Invertebrate (Water Flea) 48-hour EC50 0.04 ppb

Thiamethoxam:
- Fish (Rainbow Trout) 96-hour LC50 > 100 ppm
- Bird (Mallard Duck) LD50 Oral 576 mg/kg
- Invertebrate (Daphnia Magna) 48-hour EC50 > 106 ppm
- Green Algae 4-day EC50 > 97 ppm

Environmental Fate
Lambda-Cyhalothrin:
- The information presented here is for the active ingredient, lambda-cyhalothrin.
- Not persistent in soil or water. Immobile in soil. Sinks in water (after 24 h).

Thiamethoxam:
- The information presented here is for the active ingredient, thiamethoxam.

13. DISPOSAL CONSIDERATIONS

Disposal
- Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.
- Characteristic Waste: Not Applicable
- Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

Product Name: ENDIGO ZC
15. REGULATORY INFORMATION

EPCRA SARA Title III Classification
- Section 311/312 Hazard Classes: Acute Health Hazard
  Chronic Health Hazard
- Section 313 Toxic Chemicals: Naphthalene (< 5%) (CAS No. 91-20-3)

California Proposition 65
- Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)
- Report product spills > 1,250 gal. (based on naphthalene [RQ = 100 lbs.] content in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)
- Not Applicable

TSCA Status
- Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA Hazard Ratings</th>
<th>HMIS Hazard Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>Health:</td>
</tr>
<tr>
<td>Flammability:</td>
<td>Flammability:</td>
</tr>
<tr>
<td>Instability:</td>
<td>Reactivity:</td>
</tr>
<tr>
<td>2</td>
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<tr>
<td>1</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Minimal</td>
</tr>
<tr>
<td>1</td>
<td>Slight</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
</tr>
<tr>
<td>3</td>
<td>Serious</td>
</tr>
<tr>
<td>4</td>
<td>Extreme</td>
</tr>
</tbody>
</table>

For non-emergency questions about this product call:
1-800-334-9481

Original Issued Date: 3/16/2007
Revision Date: 12/9/2010
Replaces: 9/17/2010

Product Name: ENDIGO ZC
The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS