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**In Case of Emergency, Call  
1-800-327-8633 (FAST MED)**

Date of MSDS Preparation (Y/M/D): 2013-12-31

Supersedes date (Y/M/D): 2010-12-31

MSDS prepared by:  
Department of Regulatory & Biology Assessment  
Syngenta Canada Inc.

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

## SECTION – 1: PRODUCT IDENTIFICATION

**Product Identifier:** ENDIGO™ Insecticide Product No.: A13623Q

**Registration Number:** 30404 (Pest Control Products Act)

**Chemical Classes:** A blend of pyrethroid and neonicotinoid insecticides.

**Active Ingredient (%):** Thiamethoxam (12.60 %) [CGA293343] CAS No.: 153719-23-4

**Chemical Name:** 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-*N*-nitro-4*H*-1,3,5-oxadiazin-4-imine

**Chemical Class:** A Neonicotinoid Insecticide.

**Active Ingredient (%):** Lambda-cyhalothrin (9.5 %) [PP321] CAS No.: 91465-08-6

**Chemical Name:** (*R*)-cyano(3-phenoxyphenyl)methyl (1*S*,3*S*)-*rel*-3-[(1*Z*)-2-chloro-3,3,3-trifluoro-1-propen-1-yl]-2,2-dimethylcyclopropanecarboxylate

**Chemical Class:** A Pyrethroid Insecticide.

**Product Use:** For further details please refer to product label.

## SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Glycerin (CAS No. 56-81-5)	15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable)	10 mg/m <sup>3</sup> TWA (total dust)	Not Established	No	Not Established
Petroleum Solvent	Not Established	Not Established	100 mg/m <sup>3</sup> (15-17 ppm) TWA *	No	Not Established
Thiamethoxam (12.60 %)	Not Established	Not Established	3 mg/m <sup>3</sup> TWA ***	No	Not Established
Lambda-cyhalothrin (9.50 %)	Not Established	Not Established	0.04 mg/m <sup>3</sup> TWA (skin) ***	No	Not Established

\* Recommended by Manufacturer

\*\*\* 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: D,S

## SECTION – 3: HAZARDS IDENTIFICATION

### Symptoms of Acute Exposure

Fatal or poisonous if swallowed. May irritate eyes and skin.

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**

Appearance: Liquid.

Odour: Not determined.

### **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 running water for a minimum of 20 minutes. Obtain medical attention if irritation occurs.

**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. Do not give anything by mouth to an unconscious person.

#### **NOTES TO PHYSICIAN:**

There is no specific antidote if this product is ingested. Treat symptomatically. Contains petroleum distillate - vomiting may cause aspiration pneumonia. 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.

**MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:** Individuals with allergic history or pre-existing dermatitis should use extra care in handling this product.

## **SECTION – 5: FIRE FIGHTING MEASURES**

**Flash point and method:** >102°C (Pensky-Martens closed-cup)

**Upper and lower flammable (explosive) limits in air:** Not available.

**Auto-ignition temperature:** Not available.

**Flammability:** Not available.

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

**Conditions under which flammability could occur:** Product is not flammable. 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.

## 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 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. 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, 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 body.

## 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 vapours or spray mist. Wear appropriate 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. Keep product, wash or rinse water, and contaminated materials out of water, and away 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 sealed 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 gloves (such as nitrile or butyl), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

**INHALATION:** Avoid breathing air from drum headspace. A respirator is not normally required when handling this substance. A combination gas/vapour/particulate respirator should be used until effective engineering controls are installed to comply with occupational exposure limits, or until exposure limits are established. Use a NIOSH certified respirator with a combination acid gas/organic vapour cartridge or canister and any N, P or R prefilter and/or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

## SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

**Appearance:** Light red to dark red liquid.

**Formulation Type:** Suspension Concentrate.

**Odour:** Not Available

**pH:** 6.4 (1% dispersion)

**Vapour pressure and reference temperature:**  $2 \times 10^{-11}$  mmHg @ 20 °C (Thiamethoxam Technical)  
 $1.5 \times 10^{-9}$  mmHg @ 20 °C (Lambda-cyhalothrin Technical)

**Vapour density:** Not available.

**Boiling point:** Not available.

**Melting point:** Not available.

**Freezing point:** Not Available.

**Specific gravity or density:** 1.12 g/cm<sup>3</sup> @ 20 °C.

**Evaporation Rate:** Not available.

**Water/oil partition coefficient:** Not available.

**Odour threshold:** Not available.

**Viscosity:** 280 mPas (or cps) @ 20°C

**Solubility in Water:** 4.1 g/L @ 25 °C (Thiamethoxam Technical)  
0.004 mg/L (Lambda-cyhalothrin Technical).

## SECTION – 10: STABILITY AND REACTIVITY

**Chemical stability:** Stable under normal use and storage conditions.

**Conditions to avoid:** None known.

**Incompatibility with other materials:** None known.

**Hazardous decomposition products:** Hazardous decomposition gases may develop in the headspace of containers at normal storage and handling temperatures. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**Hazardous polymerization:** Will not occur.

## SECTION – 11: TOXICOLOGICAL INFORMATION

### **Acute toxicity/Irritation Studies (Finished Product):**

Ingestion:	<u>Highly acutely toxic</u> Oral (LD50 Rat):	310.2 mg/kg
Dermal:	<u>Low acute toxicity</u> Dermal (LD50 Rat):	> 2000 mg/kg
Inhalation:	<u>Low acute toxicity</u> Inhalation (LC50 Rat):	> 2.15 mg/L
Eye Contact:	Mildly Irritating	
Skin Contact:	Mildly Irritating	
Skin Sensitization:	Not a sensitizer	

### Reproductive/Developmental Effects

Thiamethoxam Technical: Not teratogenic or a reproductive toxicant. Minor testis effects at high doses with no effect on reproduction.

Lambda-cyhalothrin Technical: Not a developmental or reproductive toxicant.

### Chronic/Subchronic Toxicity Studies

Thiamethoxam Technical: Liver and kidney effects at high doses in animal models. Not neurotoxic in animal models.

Lambda-cyhalothrin Technical: Reversible clinical signs of acute neurotoxicity in mammals.

### Carcinogenicity

Thiamethoxam Technical: Liver tumors, at high doses in mice, that are not relevant to humans.

Lambda-cyhalothrin Technical: No treatment-related tumors in rats or mice.

### 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 vapour 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

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.

Glycerin:

Repeated or prolonged exposure to concentrated solutions may result in dermatitis.

Petroleum Solvent:

Inhalation of vapours at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract.

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

### Target Organs

#### Active Ingredients

Thiamethoxam Technical: Liver, kidney.

Lambda-cyhalothrin Technical: Liver, nervous system.

#### Inert Ingredients

Glycerin: Skin.

Petroleum Solvent: Respiratory tract, stomach, liver, thyroid, urinary bladder, CNS, skin.

## SECTION – 12: ECOLOGICAL INFORMATION

### Summary of Effects

The active ingredient, thiamethoxam, is slightly to practically non-toxic to fish, birds and aquatic invertebrates (water flea). The active ingredient, lambda-cyhalothrin, is highly toxic to aquatic organisms, but practically non-toxic to birds.

### Eco-Acute Toxicity

Thiamethoxam Technical:

Green Algae 5-Day EC<sub>50</sub> > 100 ppm

Invertebrate (Water Flea) 48-hour EC<sub>50</sub> > 106 ppm

Fish (Rainbow Trout) 96-hour LC<sub>50</sub> > 100 ppm

Bird (Bobwhite Quail) 8-day Dietary LC<sub>50</sub> > 5,200 ppm

Lambda-cyhalothrin Technical:

Green Algae 96-hr EC <sub>50</sub>	> 1.0 ppm
Invertebrate (Water Flea) 48-hour EC <sub>50</sub>	0.36 ppb
Fish (Rainbow Trout) 96-hour LC <sub>50</sub>	0.24 ppb
Bird (Bobwhite Quail) 8-day Dietary LC <sub>50</sub>	> 5,300 mg/kg

**Environmental Fate**

The active ingredient, thiamethoxam, has a moderate bioaccumulation potential, low mobility, and moderate persistence in soil and water. The active ingredient, lambda-cyhalothrin, is not persistent in soil or water, and is immobile in soil.

**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.: 30404

**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.  
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