MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name: **WARRIOR INSECTICIDE with ZEON TECHNOLOGY** Product No.: A12838B

EPA Signal Word: Warning

Active Ingredient(%): Lambda-Cyhalothrin Technical (11.4%) CAS No.: 91465-08-6

Chemical Name: [1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate

Chemical Class: A pyrethroid insecticide

EPA Registration Number(s): 100-1112 **Section(s) Revised: 1, 10, 16**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Petroleum Solvent	Not Established	Not Established	100 mg/m³ (15 ppm) TWA *	No
Naphthalene	10 ppm	10 ppm (STEL= 15 ppm)	Not Established	No
Propylene Glycol	Not Established	Not Established	50 ppm TWA AIHA WEEL ****	No
Lambda-Cyhalothrin Technical (11.4%)	Not Established	Not Established	0.04 mg/m³ TWA (skin)***	No

* recommended by manufacturer

*** Syngenta Occupational Exposure Standard (OES)

**** Recommended by AIHA (American Industrial Hygiene Association)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Harmful if inhaled or swallowed. Dust, mist or vapor irritating to eyes and respiratory tract. May cause skin irritation. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Blue, opaque liquid (capsule suspension)

Odor: Not available at this time

Unusual Fire, Explosion and Reactivity Hazards

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

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison contol 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.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	>200°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 it from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. If a solid, sweep up material and place in a compatible disposal container. If a liquid, cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

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 THE PRODUCT.

FOR COMMERCIAL APPLICATIONS AND 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. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Skin Contact: 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. 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 (see Section 11).

Inhalation: 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Blue, opaque liquid (capsule suspension)
Odor:	Not available at this time
Melting Point:	Not available at this time
Boiling Point:	Not available at this time
Specific Gravity/Density:	1.07 g/mL @ 68°F (20°C)
pH:	5

Solubility in H2O

Lambda-Cyhalothrin Technical: 0.004mg/L

Vapor Pressure

Lambda-Cyhalothrin Technical: 1.5 x 10-9 mmHg @ 68°F (20°C)

10. STABILITY AND REACTIVITY

Stability:	Stable under standard conditions.
Hazardous Polymerization:	Not available at this time.
Conditions to Avoid:	None known.
Materials to Avoid:	None known.
Hazardous Decomposition Products:	Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	Moderately Toxic	
	Oral (LD50 Rat) :	= 351 mg/kg body weight
Dermal:	Slightly Toxic	
	Dermal (LD50 Rat) :	> 2,000 mg/kg body weight
Inhalation:	Practically Non-Toxic	
	Inhalation (LD50 Rat) :	> 2.5 mg/l air - 4 hours
Eye Contact:	Mildly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not available at this time.	

Neurotoxicity

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

Reproductive Effects

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

Chronic/Subchronic Toxicity Studies

Lambda-Cyhalothrin Technical: Reversible paresthesia (abnormal skin sensation).

Carcinogenicity

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 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

Petroleum Solvent

Supplier states that inhalation of vapors at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract. Skin exposure can cause defatting with resulting dermatitis. Damage to the stomach, liver, thyroid, and urinary bladder for high oral doses in rats, however, the manufacturer states that these effects are not relevent to humans at occupational levels of exposure.

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Lambda-Cyhalothrin Technical:	Liver, nervous system

Inert Ingredients

Petroleum Solvent:	Respiratory tract, stomach, liver, thyroid, urinary bladder, CNS, skin
Propylene Glycol:	CNS, skin, eye, kidney, liver

12. ECOLOGICAL INFORMATION

Summary of Effects

Lambda-Cyhalothrin Technical:

Toxic to fish. Very toxic to aquatic organisms.

Eco-Acute Toxicity

Lambda-Cyhalothrin Technical:	Rainbow Trout 96-hour LC50 0.44 ug/l
	Daphnia magna 48 hours EC50 0.36 ug/l
	Green Algae EC50 >1 mg/l
	Pseudomonas putida IC50 >1 mg/l

Eco-Chronic Toxicity

Lambda-Cyhalothrin Technical:	Not available at this time.

Environmental Fate

Lambda-Cyhalothrin Technical:

No data available for the formulation. The information presented here is for the active ingredient, lambda-cyhalothrin. A thorough review of environmental information is not possible in this document. For additional information call the toll free number listed in Section 16.
Soil/Environment: Rapidly degraded in soil; DT50 for microbial degradation 23-82 d. for field soil 6-40 d. Strongly adsorbed to soil and sediment organic matter. Koc 330000. Negligible potential for leaching of lambda-cyhalothrin and its degradation products through soil. Rapid dissipation from water in aquatic systems. DT50 for dissipation from surface waters in lab water-sediment systems 5-11 h; in a microcosm DT50 <3 h. Rapid and extensive degradation of parent compound in aquatic systems; DT50 fpr degradation in lab water-sediment systems 7-15 d; in a microcosm DT50 <3 h, DT90 <3 d.

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

DOT Classification

Surface Transportation: Pyrethroid Pesticides, Liquid, Toxic, 6.1, UN3352, PGIII

Air Transportation: Pyrethroid Pesticides, Liquid, Toxic, (lambda-cyhalothrin), 6.1, UN3352, PGIII
Maximum Quantity/Pkg: 60L (2.5L max inner containers)

B/L Freight Classification

Insecticides, NOI, poison

Comments

Pyrethroid Pesticides, Liquid, Toxic, Class 6.1, UN3352, PGIII

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard

Section 313 Toxic Chemicals: Naphthalene (CAS No. 91-20-3)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

> 10,750 lbs (based on naphthalene, CAS # 91-20-3, [RQ = 100 lbs] in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings		HMIS Hazard Ratings	
Health:	2	Health:	2
Flammability:	1	Flammability:	1
Instability:	0	Reactivity:	0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

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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.

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End of MSDS