MATERIAL SAFETY DATA SHEET

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

1. PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>KARATE</th>
<th>Product No.:</th>
<th>A12975A</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPA Signal Word:</td>
<td>Danger</td>
<td>CAS No.:</td>
<td>91465-08-6</td>
</tr>
<tr>
<td>Active Ingredient(%):</td>
<td>Lambda-Cyhalothrin (13.1%)</td>
<td></td>
<td></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>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Class:</td>
<td>A pyrethroid insecticide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPA Registration Number(s):</td>
<td>100-998</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. HAZARDS IDENTIFICATION

Health and Environmental
Fatal if inhaled. Toxic if swallowed. Irritating to eyes and skin. May cause an allergic skin reaction. May cause respiratory tract irritation. Vapors may cause drowsiness and dizziness. May be harmful if swallowed and enters airway. May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

Hazardous Decomposition Products
None known.

Physical Properties
Appearance: Clear yellow liquid
Odor: Solvent

Unusual Fire, Explosion and Reactivity Hazards
Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

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>Ethyl Benzene (&lt; 1.5%)</td>
<td>100 ppm TWA</td>
<td>100 ppm TWA</td>
<td>100 ppm TWA **</td>
<td>IARC Group 2B</td>
</tr>
<tr>
<td>Xylene (&lt; 7.5%)</td>
<td>100 ppm TWA</td>
<td>100 ppm TWA; 150 ppm STEL</td>
<td>100 ppm TWA **</td>
<td>IARC Group 3</td>
</tr>
<tr>
<td>1,2,4-Trimethylbenzene (&lt; 10%)</td>
<td>Not Established</td>
<td>25 ppm TWA</td>
<td>25 ppm TWA **</td>
<td>No</td>
</tr>
<tr>
<td>Petroleum Solvent</td>
<td>Not Established</td>
<td>Not Established</td>
<td>100 mg/m³ (19 ppm) TWA *</td>
<td>No</td>
</tr>
<tr>
<td>Lambda-Cyhalothrin (13.1%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>0.04 mg/m³ TWA (skin) ***</td>
<td>No</td>
</tr>
</tbody>
</table>

* recommended by manufacturer
** recommended by NIOSH
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

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method): 115°F
Flammable Limits (% in Air): Lower: 1.1% Upper: 6.1%
Autoignition Temperature: Not Available
Flammability: Combustible liquid

Unusual Fire, Explosion and Reactivity Hazards

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

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

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. 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 in Protective Equipment Section. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water
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

8.1 The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation, packaging and use of this product.

8.1.1 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. 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 gloves (such as barrier laminate, nitrile rubber, neoprene rubber 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 (see Section 11 of MSDS). Do not touch unprotected skin areas (face) with contaminated gloves or clothing.

Inhalation: A combination particulate/organic vapor 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 approved respirator with an organic vapor (OV) cartridge or canister with any R, P 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear yellow liquid
Odor: Solvent
Melting Point: Not Applicable
Boiling Point: < 204.8 °F
Specific Gravity/Density: 0.91 g/ml
pH: 5.9 (5% suspension in H2O)

Solubility in H2O
Lambda-Cyhalothrin : 0.004mg/l

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

10. STABILITY AND REACTIVITY

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: None known.
11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)
Ingestion: Oral (LD50 Rat) : 110 mg/kg body weight

Dermal: Dermal (Not available at this time.) :

Inhalation: Inhalation (LC50 Rat) : 0.175 mg/l air - 4 hours

Eye Contact: Severely Irritating (Rabbit)
Skin Contact: Severely Irritating (Rabbit)
Skin Sensitization: Moderate Sensitizer (Guinea Pig)

Reproductive/Developmental Effects
Lambda-Cyhalothrin : Not a developmental or reproductive toxicant.

Chronic/Subchronic Toxicity Studies
Lambda-Cyhalothrin : Reversible paresthesia (abnormal skin sensation). Reversible clinical signs of neurotoxicity in mammals.

Carcinogenicity
Lambda-Cyhalothrin : 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
1,2,4-Trimethylbenzene (< 10%)
Inhalation of 1,2,4-trimethylbenzene at high concentrations can cause central nervous system depression, respiratory tract irritation, asphyxiation, cardiac stress and coma. Effects of chronic exposure to this solvent can include blood disorders (anemia, leukopenia) and kidney or liver damage.

Ethyl Benzene (< 1.5%)
Inhalation of ethyl benzene at high concentrations can cause central nervous system depression, respiratory tract irritation, asphyxiation, cardiac stress and coma.

Petroleum Solvent
The supplier reports that high vapor/aerosol concentrations (> 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects.

Xylene (< 7.5%)
Inhalation of xylene at high concentrations can cause central nervous system depression, respiratory tract irritation, asphyxiation, cardiac stress and coma.

Target Organs
Active Ingredients
Lambda-Cyhalothrin : Liver, nervous system

Inert Ingredients
1,2,4-Trimethylbenzene: CNS, liver, kidney, blood, respiratory tract, skin, eye
Ethyl Benzene: CNS, respiratory tract, skin
Petroleum Solvent: Eye, respiratory tract, CNS
Xylene: CNS, respiratory tract, skin

Product Name: KARATE
12. ECOLOGICAL INFORMATION

Summary of Effects
Lambda-Cyhalothrin:
Very toxic to aquatic life.

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

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).

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: Ignitable D001
Listed Waste: Contains Xylene U239

14. TRANSPORT INFORMATION

DOT Classification
Ground Transport - NAFTA
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic, Flammable
Hazard Class or Division: Class 6.1(3)
Identification Number: UN 3351
Packing Group: PG III

B/L Freight Classification
Insecticides, NOI, Poison

Comments
Water Transport - International
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic, Flammable, (Lambda-Cyhalothrin/Xylene), Marine Pollutant
Hazard Class or Division: Class 6.1(3)
Identification Number: UN 3351
Packing Group: PG III
IMDG EMS #: F-E, S-D

Air Transport - International
Proper Shipping Name: Pyrethroid Pesticides, Liquid, Toxic, Flammable (Lambda-Cyhalothrin/Xylene)
Hazard Class or Division: Class 6.1(3)
Identification Number: UN 3351
Packing Group: PG III
Packing Instructions: Passenger: PI 611 - Max. inner package 2.5 liter, single packaging 60 liter Max.
Cargo: PI 618 - 5 liter. Inner packages, 220 liter single packages

15. REGULATORY INFORMATION

Product Name: KARATE
EPCRA SARA Title III Classification
Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard
Fire Hazard
Section 313 Toxic Chemicals: Ethyl Benzene (< 1.5%) (CAS No. 100-41-4)
Xylene (< 7.5%) (CAS No. 1330-20-7)
1,2,4-Trimethylbenzene (< 10%) (CAS No. 95-63-6)

California Proposition 65
Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)
Report product spills > 175 gal. (based on p-xylene [RQ = 100 lbs] in the formulation)

RCRA Hazardous Waste Classification (40 CFR 261)
Ignitable D001

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></td>
</tr>
<tr>
<td>Flammability:</td>
<td></td>
</tr>
<tr>
<td>Instability:</td>
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<table>
<thead>
<tr>
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<tbody>
<tr>
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</tr>
<tr>
<td>3</td>
<td>Serious</td>
</tr>
<tr>
<td>4</td>
<td>Extreme</td>
</tr>
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</table>

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

Original Issued Date: 11/14/1997
Revision Date: 9/23/2008
Replaces: 4/18/2008

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