1. PRODUCT IDENTIFICATION

Product Name: DEMAND CS  
EPA Signal Word: Caution
Product No.: A12690A

Active Ingredient(%): Lambda-Cyhalothrin (9.7%)  
CAS No.: 91465-08-6
Chemical Name: [1α(S*),3α(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): 100-1066

Section(s) Revised: 11

2. HAZARDS IDENTIFICATION

Health and Environmental
Harmful if inhaled. May be harmful in contact with skin. May cause an allergic skin reaction. Causes mild skin 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: Off-white liquid
Odor: Slight odor/typical aromatic solvent

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>Cumene (&lt; 1%)</td>
<td>50 ppm TWA (skin)</td>
<td>50 ppm TWA</td>
<td>Not Established</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>Propylene Glycol</td>
<td>Not Established</td>
<td>Not Established</td>
<td>10 mg/m³ TWA ****</td>
<td>No</td>
</tr>
<tr>
<td>1,2,4-Trimethylbenzene (&lt; 2.5%)</td>
<td>Not Established</td>
<td>25 ppm TWA</td>
<td>25 ppm TWA **</td>
<td>No</td>
</tr>
<tr>
<td>Xylene (&lt; 1%)</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>Lambda-Cyhalothrin (9.7%)</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
*** Syngenta Occupational Exposure Limit (OEL)
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

Flash Point (Test Method): > 212°F (Setaflash)
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

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

Syngenta Hazard Category: C, S
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 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/PERSOAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSOAL 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, butyl rubber, nitrile 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).

**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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Off-white liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight odor/typical aromatic solvent</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>212 °F</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.036 @ 68°F (20°C)</td>
</tr>
<tr>
<td>pH</td>
<td>7.3 (1% w/w dilution in deionized water)</td>
</tr>
<tr>
<td>Solubility in H₂O</td>
<td>Lambda-Cyhalothrin: 0.004 mg/l</td>
</tr>
<tr>
<td></td>
<td>Vapor Pressure Lambda-Cyhalothrin: 1.5 x 10(-9) mmHg @ 68°F (20°C)</td>
</tr>
</tbody>
</table>

### 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

**Product Name:** DEMAND CS
Acute Toxicity/Irritation Studies (Finished Product)

Ingestion: Oral (LD50 Rat): > 5000 mg/kg body weight
Dermal: Dermal (LD50 Rat): > 2000 mg/kg body weight
Inhalation: Inhalation (LC50 Rat): > 4.62 mg/l air - 4 hours

Eye Contact: Non-Irritating (Rabbit)
Skin Contact: Practically Non-Irritating (Rabbit)
Skin Sensitization: A weak skin sensitizing agent in animal tests.

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 (< 2.5%)
Test results reported in Section 11 for the final product take into account any acute hazards related to the 1,2,4-trimethylbenzene in the formulation.
Cumene (< 1%)
Exposure to cumene vapors may cause irritation to eyes, skin, and respiratory tract. Cumene may also cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects.
Prolonged exposure to high concentrations (>100 PPM) may result in liver, kidney or lung damage.

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.

Propylene Glycol
Test results reported in Section 11 for the final product take into account any acute hazards related to the propylene glycol in the formulation.
Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Xylene (< 1%)
Test results reported in Section 11 for the final product take into account any acute hazards related to the xylene in the formulation.

Target Organs
Active Ingredients
Lambda-Cyhalothrin: Liver, nervous system
Inert Ingredients
1,2,4-Trimethylbenzene: Not Applicable
Cumene: Skin, eye, liver, respiratory tract, kidney, CNS
Petroleum Solvent: Eye, respiratory tract, CNS
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

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: Not Applicable
Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification
Ground Transport - NAFTA
Containers < 450 liters: Not regulated.
Containers > 450 liters:
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Lambda-Cyhalothrin)
Hazard Class or Division: Class 9
Identification Number: UN 3082
Packing Group: PG III

Comments
Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Lambda-Cyhalothrin), Marine Pollutant
Hazard Class or Division: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Lambda-Cyhalothrin)
Hazard Class or Division: Class 9
Identification Number: UN 3082
Packing Group: PG III

15. REGULATORY INFORMATION

Product Name: DEMAND CS
**EPCRA SARA Title III Classification**

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

Section 313 Toxic Chemicals:
- Cumene (< 1%) (CAS No. 98-82-8)
- 1,2,4-Trimethylbenzene (< 2.5%) (CAS No. 95-63-6)
- Xylene (< 1%) (CAS No. 1330-20-7)

**California Proposition 65**
Not Applicable

**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>2</td>
</tr>
<tr>
<td>Flammability:</td>
<td>1</td>
</tr>
<tr>
<td>Instability:</td>
<td>0</td>
</tr>
<tr>
<td>Health:</td>
<td>2</td>
</tr>
<tr>
<td>Flammability:</td>
<td>1</td>
</tr>
<tr>
<td>Reactivity:</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>Minimal</th>
</tr>
</thead>
<tbody>
<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>

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.

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 7/14/1999
Revision Date: 7/14/2011
Replaces: 7/13/2010

End of MSDS