1. PRODUCT IDENTIFICATION

Product Name: HELIX XTra INSECTICIDE WITH FUNGICIDES
Product No.: A11642A
EPA Signal Word: Caution

Active Ingredient(%): Difenoconazole (1.25%)  
Chemical Name: 1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]- 
Chemical Class: Triazole Fungicide
Active Ingredient(%): Fludioxonil (0.13%)  
Chemical Name: 4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile 
Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide
Active Ingredient(%): Mefenoxam (0.39%)  
Chemical Name: (R,S)-2-[(2,6-dimethylphenyl)-methoxyacetylamino]-propionic acid methyl ester 
Chemical Class: Phenylamide Fungicide
Active Ingredient(%): Thiamethoxam (20.7%)  
Chemical Name: 4H-1,3,5-Oxadiazin-4-imine,3-[(2-chloro-5-thiazolyl) methyl]tetrahydro-5-methyl-N-nitro-
Chemical Class: Neonicotinoid Insecticide

EPA Registration Number(s): 100-935
Section(s) Revised: 2, 8, 11

2. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>OSHA PEL (total)</th>
<th>ACGIH TLV (total)</th>
<th>Other</th>
<th>NTP/IARC/OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium Dioxide</td>
<td>15 mg/m³ TWA</td>
<td>10 mg/m³ TWA</td>
<td>Not Established</td>
<td>IARC Group 3</td>
</tr>
<tr>
<td>Glycerin</td>
<td>15 mg/m³ TWA</td>
<td>10 mg/m³ TWA</td>
<td>Not Established</td>
<td>No</td>
</tr>
<tr>
<td>Difenoconazole</td>
<td>Not Established</td>
<td>Not Established</td>
<td>8 mg/m³ TWA</td>
<td>No</td>
</tr>
<tr>
<td>Mefenoxam</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>No</td>
</tr>
<tr>
<td>Fludioxonil</td>
<td>Not Established</td>
<td>Not Established</td>
<td>10 mg/m³ TWA</td>
<td>No</td>
</tr>
<tr>
<td>Thiamethoxam</td>
<td>Not Established</td>
<td>Not Established</td>
<td>3 mg/m³ TWA</td>
<td>No</td>
</tr>
</tbody>
</table>

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: B, S

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure
Causes mild eye and skin irritation.

Hazardous Decomposition Products
Can decompose at high temperatures forming toxic gases.

Physical Properties
Appearance: Light blue liquid
Odor: Paint-like

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 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. Have the person sip a glass of water if able to swallow. 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.

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 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 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.

Product Name: HELIX XTra INSECTICIDE WITH FUNGICIDES
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, PACKAGING AND USE 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 (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Light blue liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Paint-like</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.29 g/ml</td>
</tr>
<tr>
<td>pH</td>
<td>6.6 Typical</td>
</tr>
<tr>
<td>Solubility in H2O</td>
<td></td>
</tr>
<tr>
<td>Difenoconazole</td>
<td>15 mg/l @ 77°F (25°C)</td>
</tr>
<tr>
<td>Fludioxonil</td>
<td>1.8 mg/l @ 77°F (25°C)</td>
</tr>
<tr>
<td>Mefenoxam</td>
<td>26 g/l @ 77°F (25°C)</td>
</tr>
<tr>
<td>Thiamethoxam</td>
<td>4.1 g/l @ 77°F (25°C)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td></td>
</tr>
<tr>
<td>Difenoconazole</td>
<td>2.5 x 10(-10) mmHg @ 77°F (25°C)</td>
</tr>
<tr>
<td>Fludioxonil</td>
<td>2.9 x 10(-9) mmHg @ 77°F (25°C)</td>
</tr>
<tr>
<td>Mefenoxam</td>
<td>2.5 x 10(-5) mmHg @ 77°F (25°C)</td>
</tr>
<tr>
<td>Thiamethoxam</td>
<td>2 x 10(-11) 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: Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50 Oral (Rat)/LD50 Dermal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>Practically Non-Toxic</td>
</tr>
<tr>
<td>Oral (LD50 Rat)</td>
<td>&gt; 5,000 mg/kg body weight</td>
</tr>
<tr>
<td>Dermal</td>
<td>Slightly Toxic</td>
</tr>
</tbody>
</table>
Dermal (LD50 Rabbit) : > 2,000 mg/kg body weight
Inhalation: Slightly Toxic
Inhalation (LC50 Rat) : > 2.56 mg/l air - 4 hours
Eye Contact: Minimally Irritating (Rabbit)
Skin Contact: Slightly Irritating (Rabbit)
Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects
Difenoconazole: None observed.
Fludioxonil: Delayed development at doses causing maternal toxicity.
Mefenoxam: None observed.
Reproductive: No biologically important reproductive effects. Minor testis effects at high doses with no effect on reproduction.

Chronic/Subchronic Toxicity Studies
Difenoconazole: Kidney and liver effects at high doses (>5,000 ppm; rats); Eye effects in dogs at high dose levels.
Fludioxonil: Liver and kidney toxicity at high dose levels.
Mefenoxam: Liver effects at high dose levels.
Thiamethoxam: Subchronic: Predominantly liver and kidney effects at high doses. Not neurotoxic.
Chronic: Predominantly liver and kidney effects at high doses. Acute: Transient clinical signs at high doses. No changes to nervous tissue.

Carcinogenicity
Difenoconazole: 2/70 male rats in the highest dose group (20,000 ppm) were found to have squamous cell carcinoma in the non-glandular stomach. Effect did not occur in female rats or in mice and not considered relevant to humans. Increase in brain tumors (mice) at doses exceeding the Maximum Tolerated Dose (MTD) (>2,500 ppm).
Fludioxonil: Marginal increase (7%) of liver tumors (female, rats: 3,000 ppm); Within historical control range (1 to 10%).
Mefenoxam: None observed.
Thiamethoxam: Liver tumors at high doses noted in mice that are not relevant to humans. No treatment-related tumors in rats.

Other Toxicity Information
None

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.

Titanium Dioxide
Titanium dioxide is listed as an IARC (Group 3) carcinogen not classifiable as human carcinogen (No Data Available) with limited animal evidence. Prolonged exposure causes respiratory irritation and may lead to pulmonary fibrosis.

Target Organs
Active Ingredients
Difenoconazole: Brain, liver, kidney, gastrointestinal tract
Fludioxonil: Liver, kidney
Mefenoxam: Liver
Thiamethoxam: Liver, kidney

Inert Ingredients
12. ECOLOGICAL INFORMATION

Summary of Effects

Difenoconazole:
Highly toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment. Relatively nontoxic to wildlife.

Fludioxonil:
Practically nontoxic to birds and bees, but highly toxic to aquatic invertebrates and fish.

Mefenoxam:
Practically non-toxic to aquatic organisms and wildlife.

Thiamethoxam:
Practically non-toxic to fish, invertebrates and birds. Highly toxic to bees.

Eco-Acute Toxicity

**Difenoconazole:**
- Bees LC50/EC50 > 100 ug/bee
- Invertebrates (Water Flea) LC50/EC50 0.77 ppm
- Fish (Trout) LC50/EC50 1.1 ppm
- Fish (Bluegill) LC50/EC50 1.2 ppm
- Birds (8-day dietary - Bobwhite Quail) LC50/EC50 4,760 ppm
- Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,000 ppm

**Mefenoxam:**
- Bees LC50/EC50 > 25 ug/bee
- Invertebrates (Water Flea) LC50/EC50 > 113 ppm
- Fish (Trout) LC50/EC50 > 121 ppm
- Birds (8-day dietary - Bobwhite Quail) LC50/EC50 5,620 ppm

**Fludioxonil:**
- Bees LC50/EC50 > 25 ug/bee
- Invertebrates (Water Flea) LC50/EC50 0.90 ppm
- Fish (Trout) LC50/EC50 0.47 ppm
- Fish (Bluegill) LC50/EC50 0.74 ppm
- Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,200 ppm
- Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,200 ppm

**Thiamethoxam:**
- Bees LC50/EC50 0.024 ug/bee
- Invertebrates (Water Flea) LC50/EC50 > 100 ppm
- Fish (Trout) LC50/EC50 > 100 ppm
- Fish (Bluegill) LC50/EC50 > 114 ppm
- Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 5,200 ppm
- Birds (8-day dietary - Mallard Duck) LC50/EC50 > 5,200 ppm

Eco-Chronic Toxicity

**Difenoconazole:**
- Fish (Fathead minnow) Early Life Stage MATC >0.0087 and <0.019 mg/L
- Invertebrate (Daphnia Magna) Life Cycle MATC >0.0056 and <0.013 mg/L
- Mallard Reproduction NOEC 25 ppm
- Bobwhite Reproduction NOEC 125 ppm

**Mefenoxam:**
Not Available

**Fludioxonil:**
- Fish (Fathead minnow) Early Life Stage MATC 0.028 mg/L
- Invertebrate (Daphnia Magna) Life Cycle MATC 0.025 mg/L
- Mallard Reproduction NOEC 700 ppm
- Bobwhite Reproduction NOEC 125 ppm
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
Not regulated.

B/L Freight Classification
Insecticides, NOI, O/T Poison

Comments
None.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification
Section 311/312 Hazard Classes: Acute Health Hazard
Section 313 Toxic Chemicals: Not Applicable

California Proposition 65
Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)
None

RCRA Hazardous Waste Classification (40 CFR 261)
Not Applicable

TSCA Status
Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

The information presented here is for the active ingredient, difenoconazole.
Stable in soil and water. Low to moderate mobility in soil. Sinks in water (after 24 h).

The information presented here is for the active ingredient, fludioxonil.

The information presented here is for the active ingredient, mefenoxam.
Does not bioaccumulate. Not persistent in soil or water. Moderate mobility in soil. Mixes/sinks (after 24 h).

The information presented here is for the active ingredient, thiamethoxam.
NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

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: 03/16/1998
Revision Date: 04/01/2005
Replaces: 04/28/2004

RSVP# : SCP-955-00264D

End of MSDS