

**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:	<b>HELIX LITE INSECTICIDE WITH FUNGICIDES</b>	Product No.:	A12608A
EPA Signal Word:	Caution		
Active Ingredient(%):	Difenoconazole (1.24%)	CAS No.:	119446-68-3
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%)	CAS No.:	131341-86-1
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%)	CAS No.:	70630-17-0 & 69516-34-3
Chemical Name:	(R,S)-2-[(2,6-dimethylphenyl)-methoxyacetyl-amino]-propionic acid methyl ester		
Chemical Class:	Phenylamide Fungicide		
Active Ingredient(%):	Thiamethoxam (10.30%)	CAS No.:	153719-23-4
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):	100-973	Section(s) Revised:	<b>11</b>

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Nuisance Dusts (Particulates N.O.C.)	15 mg/m <sup>3</sup> (total); 5 mg/m <sup>3</sup> (respirable)	10 mg/m <sup>3</sup> (inhalable); 3 mg/m <sup>3</sup> (respirable)	Not Established	No
Titanium Dioxide	15 mg/m <sup>3</sup> TWA (total)	10 mg/m <sup>3</sup> TWA	Not Established	IARC Group 3
Glycerin	15 mg/m <sup>3</sup> TWA (total); 5 mg/m <sup>3</sup> TWA (respirable)	10 mg/m <sup>3</sup> TWA (total)	Not Established	No
Difenoconazole (1.24%)	Not Established	Not Established	8 mg/m <sup>3</sup> TWA ***	No
Mefenoxam (0.39%)	Not Established	Not Established	Not Established	No
Fludioxonil (0.13%)	Not Established	Not Established	10 mg/m <sup>3</sup> TWA***	No
Thiamethoxam (10.30%)	Not Established	Not Established	3 mg/m <sup>3</sup> TWA***	No

\*\*\* 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: Blue liquid

Odor: Faint latex paint

### 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): > 220°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.

## 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

Appearance:	Blue liquid
Odor:	Faint latex paint
Melting Point:	Not Applicable
Boiling Point:	Not Available
Specific Gravity/Density:	1.29 g/ml
pH:	7.25 @ 77°F (25°C)

### Solubility in H<sub>2</sub>O

Difenoconazole:	15 mg/l @ 77°F (25°C)
Fludioxonil:	1.8 mg/l @ 77°F (25°C)
Mefenoxam:	26 g/l @ 77°F (25°C)
Thiamethoxam:	4.1 g/l @ 77°F (25°C)

### Vapor Pressure

Difenoconazole:	2.5 x 10 <sup>(-10)</sup> mmHg @ 77°F (25°C)
Fludioxonil:	2.9 x 10 <sup>(-9)</sup> mmHg @ 77°F (25°C)
Mefenoxam:	2.5 x 10 <sup>(-5)</sup> mmHg @ 77°F (25°C)
Thiamethoxam:	2 x 10 <sup>(-11)</sup> 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: Can decompose at high temperatures forming toxic gases.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Not Available</u>
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	Oral (LD50 Rat) :	Not Available
Dermal:	<u>Not Available</u>	
	Dermal (LD50 Rabbit) :	Not Available
Inhalation:	<u>Not Available</u>	
	Inhalation (LC50 Rat) :	Not Available
Eye Contact:	Minimally Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not Available	

#### Reproductive/Developmental Effects

Difenoconazole:	None observed.
Fludioxonil:	Delayed development at doses causing maternal toxicity.
Mefenoxam:	None observed.
Thiamethoxam:	Developmental: Not teratogenic. Developmental delays at maternally toxic doses. 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.

##### Nuisance Dusts (Particulates N.O.C.)

The carrier and one or more components are reported by the manufacturers to be nuisance dusts. Prolonged breathing of excessive dust may affect lung function.

##### 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

Glycerin:	Not Applicable
Nuisance Dusts (Particulates N.O.C.):	Lung
Titanium Dioxide:	Lung

## 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  
Thiamethoxam: Not Available

#### Environmental Fate

##### Difenoconazole:

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).

##### Fludioxonil:

The information presented here is for the active ingredient, fludioxonil.  
Does not bioaccumulate. Persistent in soil. Stable in water. Low mobility in soil. Sinks in water (after 24 h).

##### Mefenoxam:

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).

##### Thiamethoxam:

The information presented here is for the active ingredient, thiamethoxam.  
Not persistent in soil. Stable in water. Moderate mobility in soil. Floats 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  
Not regulated.

#### B/L Freight Classification

Insecticides, NOIBN, 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**

NFPA Hazard Ratings

Health: 1  
Flammability: 1  
Instability: 0

HMIS Hazard Ratings

Health: 1  
Flammability: 1  
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 12/10/2001

Revision Date: 04/01/2005

Replaces: 08/31/2004

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