

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: **HEADWAY** Product No.: A14212C
 EPA Signal Word: Caution
 Active Ingredient(%): Azoxystrobin (5.73%) CAS No.: 131860-33-8
 Chemical Name: Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate
 Chemical Class: A beta-methoxyacrylate fungicide
 Active Ingredient(%): Propiconazole (9.54%) CAS No.: 60207-90-1
 Chemical Name: 1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole
 Chemical Class: Triazole Derivative Fungicide
 EPA Registration Number(s): 100-1216 **Section(s) Revised: 8**

2. HAZARDS IDENTIFICATION
Health and Environmental

Mist or vapor irritating to eyes and respiratory tract. Vapors may cause drowsiness and dizziness.

Hazardous Decomposition Products

May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Amber liquid
 Odor: Ether

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

| Material | OSHA PEL | ACGIH TLV | Other | NTP/IARC/OSHA Carcinogen |
|-----------------------------------|-----------------|-----------------|------------------------------|-----------------------------|
| Tetrahydrofurfuryl Alcohol (THFA) | Not Established | Not Established | 2 ppm (TWA) **** | No |
| Azoxystrobin (5.73%) | Not Established | Not Established | 2 mg/m ³ TWA *** | No |
| Propiconazole (9.54%) | Not Established | Not Established | 10 mg/m ³ TWA *** | No |

*** Syngenta Occupational Exposure Limit (OEL)

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

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

Syngenta Hazard Category: B, S

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

There is no specific antidote if this product is ingested.

Treat symptomatically.

Contains petroleum distillate - vomiting may cause aspiration pneumonia.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

| | | |
|------------------------------|-----------------------|-----------------------|
| Flash Point (Test Method): | ~172°F | |
| Flammable Limits (% in Air): | Lower: Not Applicable | Upper: Not Applicable |
| Autoignition Temperature: | ~509°F | |
| 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 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. 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, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride (PVC) or Viton), 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 R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---------------------------|----------------------------|
| Appearance: | Amber liquid |
| Odor: | Ether |
| Melting Point: | Not Applicable |
| Boiling Point: | Not Available |
| Specific Gravity/Density: | 9.09 lbs/gal @ 68°F (20°C) |
| pH: | 6.0 @ 77°F (25°C) |

Solubility in H₂O

| | |
|----------------|-------------------------------|
| Azoxystrobin : | 6 mg/l in water @ 68°F (20°C) |
| Propiconazole: | 0.1g/l @ 68°F (20°C) |

Vapor Pressure

| | |
|----------------|---|
| Azoxystrobin : | 8.25 x 10 ⁽⁻¹³⁾ mmHg @ 68°F (20°C) |
| Propiconazole: | 4.2 x 10 ⁽⁻⁷⁾ mmHg @ 77°F (25°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: | May decompose at high temperatures forming toxic gases. |

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

| | | |
|---------------------|--------------------------------|---------------------------|
| Ingestion: | <u>Not Available</u> | |
| | Oral (LD50 Rat) : | Not Available |
| Dermal: | <u>Practically Non-Toxic</u> | |
| | Dermal (LD50 Rat) : | > 5050 mg/kg body weight |
| Inhalation: | <u>Practically Non-Toxic</u> | |
| | Inhalation (LC50 Rat) : | > 2.68 mg/l air - 4 hours |
| Eye Contact: | Moderately Irritating (Rabbit) | |
| Skin Contact: | Non-Irritating (Rabbit) | |
| Skin Sensitization: | Not a Sensitizer (Guinea Pig) | |

Reproductive/Developmental Effects

Azoxystrobin : Shows weak chromosomal damage in mammalian cells at cytotoxic levels. Negative in whole animal assays for chromosomal and DNA damage at high dosages (> or = 2,000 mg/kg).

In rabbits, no effect was observed up to the highest dose level (500 mg/kg/day). In rats, developmental effects were seen only at maternally toxic doses (100 mg/kg/day).

Propiconazole: None observed.

Chronic/Subchronic Toxicity Studies

Azoxystrobin : In a rat 90-day feeding study, liver toxicity was observed at 2,000 ppm. This was manifest as gross distension of the bile duct, increased numbers of lining cells and inflammation of the duct. No toxicologically significant effects were seen in repeat dose dog studies.

Data reviews do not indicate any potential for endocrine disruption.

There is no evidence of neurotoxicity in any of the studies conducted with azoxystrobin.

Propiconazole: None observed.

Carcinogenicity

Azoxystrobin : No carcinogenic effects observed in rats or mice at doses up to the maximum tolerated dose.

Propiconazole: Increased incidence of liver tumors at extremely high doses (male mice).

Other Toxicity Information

None

Toxicity of Other Components

Tetrahydrofurfuryl Alcohol (THFA)

May be harmful if swallowed. Causes respiratory tract irritation. Causes skin irritation. May cause digestive tract irritation. Causes severe eye irritation. Inhalation overexposure may cause dizziness, incoordination and unconsciousness. Chronic overexposure may affect the kidney.

Target Organs

Active Ingredients

Azoxystrobin : Liver

Propiconazole: Liver

Inert Ingredients

Tetrahydrofurfuryl Alcohol (THFA): Digestive tract, respiratory tract, skin, eye, CNS, kidney

12. ECOLOGICAL INFORMATION

Summary of Effects

Azoxystrobin :

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Propiconazole:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Eco-Acute Toxicity

Azoxystrobin :

Green Algae 5-day EC50 106 ppb

Bird (Bobwhite Quail) LD50 Oral > 2000 mg/kg

Invertebrate (Water Flea) 48-hour EC50 259 ppb

Fish (Rainbow Trout) 96-hour LC50 470 ppb

Fish (Bluegill Sunfish) 96-hour LC50 1100 ppb

Bird (Bobwhite Quail) 8-day dietary LC50 > 5200 ppm

Bird (Mallard Duck) 8-day dietary LC50 > 5200 ppm

Bee 48-hour LD50 > 200 ug/bee

Propiconazole:

- Fish (Rainbow Trout) 96-hour LC50 0.83 ppm
- Fish (Bluegill Sunfish) 96-hour LC50 1.3 ppm
- Bird (Bobwhite Quail) LD50 Oral 2825 mg/kg
- Bird (Mallard Duck) 8-day dietary LC50 > 5620
- Bee (Contact) LD50 > 25 ug/bee
- Invertebrate (Water Flea) 48-hour EC50 3.2 ppm
- Bird (Bobwhite Quail) 8-day dietary LC50 > 5620 ppm
- Green Algae 9-day EC50 0.72 ppm

Eco-Chronic Toxicity

Azoxystrobin :

- Invertebrate (Water Flea) 21-day LOEC 84 ppb
- Fish (Fathead Minnow) 28-day LOEC 193 ppb
- Bird (Mallard Duck) Reproduction 23-week LOEL 3000 ppm
- Bird (Bobwhite Quail) Reproduction 22-week LOEL 3000 ppm

Propiconazole:

- Invertebrate (Water Flea) 21-day LOEC 0.69 ppm
- Fish (Fathead Minnow) LOEC 0.21 ppm
- Bird (Mallard Duck) Reproduction 28-week LOEL > 1000 ppm

Environmental Fate

Azoxystrobin :

The information presented here is for the active ingredient, azoxystrobin.
Low bioaccumulation potential. Not persistent in soil. Stable in water. Moderate mobility in soil. Sinks in water (after 24 h).

Propiconazole:

The information presented here is for the active ingredient, propiconazole.
Low bioaccumulation potential. Not persistent in soil. Stable in water. Low mobility 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

Non-Bulk: Not regulated.

Bulk:

Proper Shipping Name: Combustible Liquid, N.O.S. (Tetrahydrofurfuryl Alcohol)

Hazard Class or Division: Combustible Liquid

Identification Number: NA 1993

Packing Group: PG III

Air Transport - NAFTA

Non-Bulk: Not regulated.

Bulk: Prohibited.

B/L Freight Classification

Fungicides, NOIBN

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin/Propiconazole), Marine Pollutant

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

IMDG EMS #: F-A, S-F

Air Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin/Propiconazole)

Hazard Class or Division: Class 9

Identification Number: UN 3082

Packing Group: PG III

Note: Max. inner package; Plastic - 5 liters, metal - 10 liters, Max. single package; 450 liters.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

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

Section 313 Toxic Chemicals: Propiconazole (9.54%) (CAS No. 60207-90-1)

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: 2
Flammability: 2
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 2
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: 11/9/2004

Revision Date: 7/24/2007

Replaces: 2/9/2006

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