1. PRODUCT IDENTIFICATION

Product Name: GRADUATE
EPA Signal Word: Caution

Active Ingredient(%): Fludioxonil (50%)
Chemical Name: 4-(2,2-difluoro-1,3-benzodioxol-4-y1)-1H-pyrrole-3-carbonitrile
Chemical Class: Substituted Benzodioxalcarbonitrile Fungicide

EPA Registration Number(s): 100-969

Section(s) Revised: 2, 8

2. 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>Crystalline Silica, Quartz</td>
<td>10 mg/m³/(%SiO₂+2) (respirable dust)</td>
<td>0.05 mg/m³ (respirable silica)</td>
<td>0.05 mg/m³ (respirable dust)**</td>
<td>IARC Group 2A</td>
</tr>
<tr>
<td>Sodium Sulfate</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
<td>No</td>
</tr>
<tr>
<td>Talc</td>
<td>20 mppcf (containing &lt;1% quartz) TWA</td>
<td>2 mg/m³ (respirable; &lt;1% crystalline silica) TWA</td>
<td>2 mg/m³ (respirable) TWA **</td>
<td>IARC Group 3</td>
</tr>
<tr>
<td>Fludioxonil (50%)</td>
<td>Not Established</td>
<td>Not Established</td>
<td>10 mg/m³ TWA***</td>
<td>No</td>
</tr>
</tbody>
</table>

** recommended by NIOSH
*** 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: Off-white powder
Odor: Sweet, soap-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.
5. FIRE FIGHTING MEASURES

Fire and Explosion

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point (Test Method):</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable Limits (% in Air):</td>
<td>Lower: % Not Applicable, Upper: % Not Applicable</td>
</tr>
<tr>
<td>Autoignition Temperature:</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flammability:</td>
<td>Not Flammable</td>
</tr>
</tbody>
</table>

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. Sweep up material and place in a 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.
9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Off-white powder
Odor: Sweet, soap-like
Melting Point: 392°F
Boiling Point: Not Applicable
Specific Gravity/Density: 0.37 g/cm³
pH: 8 - 9 (1% solution in H₂O @ 77°F (25°C))

Solubility in H₂O
Fludioxonil: 1.8 mg/l @ 77°F (25°C)

Vapor Pressure
Fludioxonil: 2.9 x 10(-9) 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: Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)
Ingestion: Practically Non-Toxic
Oral (LD₅₀ Rat) : > 5,050 mg/kg body weight
Dermal: Slightly Toxic
Dermal (LD₅₀ Rabbit) : > 2,020 mg/kg body weight
Inhalation: Practically Non-Toxic
Inhalation (LC₅₀ Rat) : > 6.5 mg/l air - 4 hours
Eye Contact: Slightly Irritating (Rabbit)
Skin Contact: Slightly Irritating (Rabbit)
Skin Sensitization: Not a Sensitizer (Guinea Pig)

Reproductive/Developmental Effects
Fludioxonil: Delayed development at doses causing maternal toxicity.

Chronic/Subchronic Toxicity Studies
Fludioxonil: Liver and kidney toxicity at high dose levels.

Carcinogenicity
Fludioxonil: Marginal increase (7%) of liver tumors (female, rats: 3,000 ppm); Within historical control range (1 to 10%).

Other Toxicity Information
12. ECOLOGICAL INFORMATION

Toxicity of Other Components

Crystalline Silica, Quartz
Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers.

Sodium Sulfate
Exposure may cause irritation of the nose, throat and lungs. Repeated or prolonged contact to the skin results in dermatitis. May cause mild irritation to the eyes.

Talc
Limited potential for respiratory disease.

Target Organs

Active Ingredients
- **Fludioxonil**: Liver, kidney

Inert Ingredients
- Crystalline Silica, Quartz: Respiratory tract
- Sodium Sulfate: Respiratory tract, skin, eye
- Talc: Respiratory tract

Eco-Acute Toxicity

**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

Eco-Chronic Toxicity

**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

Environmental Fate

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

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
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

<table>
<thead>
<tr>
<th>NFPA Hazard Ratings</th>
<th>HMIS Hazard Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health: 1</td>
<td>Health: 1</td>
</tr>
<tr>
<td>Flammability: 1</td>
<td>Flammability: 1</td>
</tr>
<tr>
<td>Instability: 0</td>
<td>Reactivity: 0</td>
</tr>
</tbody>
</table>

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

Original Issued Date: 03/30/2004
Revision Date: 10/22/2004
Replaces:

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.

RSVP# : SCP-955-00432B

End of MSDS