



### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** SPIRATO 480 FS  
**EPA Reg. No.:** 55146-116  
**Product Type:** Fungicide  
**Company Name:** Nufarm Americas Inc.  
 11901 S. Austin Avenue  
 Alsip, IL 60803  
 1-800-345-3330

**Telephone Numbers:** For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,  
 Call CHEMTREC Day or Night: 1-800-424-9300  
 For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

### 2. HAZARDS IDENTIFICATION

**PHYSICAL HAZARDS:**

None

**HEALTH HAZARDS:**

Eye Damage/Irritation

Category 2B

**ENVIRONMENTAL HAZARDS:**

None

**SIGNAL WORD (OSHA):**

WARNING

**HAZARD STATEMENTS:**

Causes eye irritation.

**PRECAUTIONARY STATEMENTS**

Wash hands and exposed areas thoroughly after handling.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice.

Dispose of contents and container in accordance with local regulations.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Fludioxonil	131341-86-1	39 – 41.5
Glycerol	56-81-5	2.9 – 3.2
Other ingredients	Trade Secret	Trade Secret

**Synonyms:** Mixture of Fludioxonil

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

### 4. FIRST AID MEASURES

**If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

**If in Eyes:** Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

**If on Skin or Clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

**If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

**Most Important Symptoms/effects:** Eye exposure may cause slight irritation. Skin exposure may cause irritation.

**Indication of immediate medical attention and special treatment needed:** There is no specific antidote if this product is ingested. Treat symptomatically.

## 5. FIRE FIGHTING MEASURES

**Extinguishing Media:** Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

**Special Fire Fighting Procedures:** Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

**Unusual Fire and Explosion Hazards:** If water is used to fight fire or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.

**Hazardous Decomposition Materials (Under Fire Conditions):** May produce gases such as hydrogen chloride and oxides of carbon and nitrogen.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment, and emergency procedures:** Follow exposure controls/personal protection outlined in Section 8.

**Methods and materials for containment and cleaning up:** 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 place in a disposal container, seal container and arrange for disposition.

## 7. HANDLING AND STORAGE

### PRECAUTIONS FOR SAFE HANDLING:

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.

### CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:

Store in original container only. Keep container closed when not in use. Do not store near food or feed. In case of spill on floor or paved surfaces, mop and remove to chemical waste storage area until proper disposal can be made if product cannot be used according to the label. Do not contaminate water, food or feed by storage or disposal.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### Engineering Controls:

Use effective engineering controls to comply with occupational exposure limits (if applicable).

### Individual Protection Measures:

**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, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

**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.

### Exposure Guidelines:

Component	OSHA		ACGIH		Other	Source
	TWA	STEL	TWA	STEL		
Fludioxonil	NE	NE	NE	NE	10 mg/m <sup>3</sup> TWA	Manufacturer

Glycerol (glycerin mist)	15 mg/m <sup>3</sup>	NE	15 mg/m <sup>3</sup>	NE		
Other Ingredients	NE	NE	NE	NE	NE	NE

NE = Not Established

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Beige liquid
<b>Odor:</b>	Mild
<b>Odor threshold:</b>	No data available
<b>pH:</b>	7-8
<b>Melting point/freezing point:</b>	No data available
<b>Initial boiling point and boiling range</b>	> 212° F (>100° C)
<b>Flash point:</b>	Does not flash up to 212°F (100° C)
<b>Evaporation rate:</b>	No data available
<b>Flammability:</b>	Contains no flammable ingredients
<b>Upper/lower flammability or explosive limits:</b>	Not applicable
<b>Vapor pressure:</b>	No data available
<b>Vapor density:</b>	No data available
<b>Relative density:</b>	1.19 g/ml @ 20° C
<b>Solubility(ies):</b>	Fludioxonil 1.8 mg/L @ 25° C
<b>Partition coefficient: n-octanol/water:</b>	No data available
<b>Autoignition temperature:</b>	No data available
<b>Decomposition temperature:</b>	No data available
<b>Viscosity:</b>	4,160 cPs (Brookfield, 2.5 RPM @ 24 ° C)

**Note:** Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

### 10. STABILITY AND REACTIVITY

**Reactivity:** Not reactive.

**Chemical Stability:** This material is stable under normal handling and storage conditions.

**Possibility of hazardous reactions:** Will not occur.

**Conditions to Avoid:** None known.

**Incompatible Materials:** None known.

**Hazardous Decomposition Products:** None known.

### 11. TOXICOLOGICAL INFORMATION

**Potential Health Effects:**

**Likely Routes of Exposure:** Dermal, Inhalation

**Symptoms of Exposure:**

**Eye Contact:** Minimally irritating. Vapors and mist may cause irritation.

**Skin Contact:** Slightly irritating to skin.

**Ingestion:** Slightly toxic if ingested based on toxicity studies.

**Inhalation:** Low inhalation toxicity based on toxicity studies.

**Delayed, immediate and chronic effects of exposure:** Eye irritation, Respiratory system effects

**Toxicological Data:**

Data from laboratory studies conducted on a similar, but not identical, formulation:

**Oral, Rat LD<sub>50</sub>:** >5,050 mg/kg (female)

**Dermal, Rat or Rabbit LD<sub>50</sub>:** >2,020 mg/kg

**Inhalation, Rat 4-hr LC<sub>50</sub>:** > 3.77 mg/L

**Eye Irritation, Rabbit:** Minimally irritating

**Skin Irritation, Rabbit:** Non-irritating

**Skin Sensitization, Guinea Pig:** Not considered a sensitizer

**Chronic/Subchronic (Target Organ) Effects:** Fludioxonil: Liver and kidney toxicity at high dose levels.

**Carcinogenicity / Chronic Health Effects:** Fludioxonil: Marginal increase (7%) of liver tumors (female, rats: 3,000 ppm); Within historical control range (1 – 10%).

**Reproductive and Developmental Toxicity:** Fludioxonil: Delayed development at doses causing maternal toxicity.

**Germ Cell Mutagenicity:** Not mutagenic.

**Assessment Carcinogenicity:** None listed with ACGIH, IARC, NTP or OSHA.

**12. ECOLOGICAL INFORMATION****Environmental Hazards:**

This product is toxic to fish, aquatic invertebrates, and oysters and shrimp.

**Ecotoxicity:**

Data on Fludioxonil Technical

<b>Rainbow Trout</b> 96-hour LC <sub>50</sub> :	0.47 ppm	<b>Bobwhite Quail</b> 14-day LD <sub>50</sub> :	>2000 mg/kg
<b>Green Algae</b> 5-day EC <sub>50</sub> :	0.087 ppm		
<b>Daphnia</b> 48-hour EC <sub>50</sub> :	0.9 ppm		

**Environmental Fate:**

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)

**13. DISPOSAL CONSIDERATIONS****Waste Disposal Method:**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

**Container Handling and Disposal:**

**Nonrefillable Containers 5 Gallons or Less:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

**Nonrefillable containers larger than 5 gallons:** Nonrefillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure-rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**Refillable containers larger than 5 gallons:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**14. TRANSPORTATION INFORMATION**

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

**DOT:**

Non Regulated

**IMDG:**

UN3082, Environmentally Hazardous substance, liquid, n.o.s. (fludioxonil), 9, PG III, Marine Pollutant

**IATA:**

Not Regulated

**15. REGULATORY INFORMATION****EPA FIFRA INFORMATION**

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if inhaled. Avoid breathing vapor or spray mist. Causes moderate eye irritation. Harmful if absorbed through the skin. Avoid contact with eyes, skin, or clothing. Remove contaminated clothing and wash clothing before reuse.

**U.S. FEDERAL REGULATIONS**

**TSCA Inventory:** This product is exempted from TSCA because it is solely for FIFRA regulated use.

**SARA Hazard Notification/Reporting:****Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):**

Immediate and Delayed

**Section 313 Toxic Chemical(s):**

None

**Reportable Quantity (RQ) under U.S. CERCLA:**

None

**RCRA Waste Code:**

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

**State Information:** Other state regulations may apply. Check individual state requirements.

**California Proposition 65:** Not Listed.

**16. OTHER INFORMATION****National Fire Protection Association (NFPA) Hazard Rating:**

**Rating for this product: Health: 1 Flammability: 1 Reactivity: 0**

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

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