

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Product Name:** Spirato IMTM 348 FS**EPA Reg. No.:** 55146-153**Product Type:** Seed Treatment**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 exactly the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION**For EPA FIFRA-Specific Information see Section 15****HEALTH HAZARDS:**

Acute Toxicity Oral

Category 4

Mutagen

Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute

Category 2

Hazardous to aquatic environment, chronic

Category 2

SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Harmful if swallowed. Suspected of causing genetic defects. Toxic to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves and clothing. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

If swallowed: Call a poison center if you feel unwell. Rinse mouth. If exposed or concerned: Get medical advice or attention.

Store locked up.

Dispose of contents in accordance with local, state, and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Imidacloprid	138261-41-3	19.5 – 20.8
Metalaxyl	57837-19-1	4.75 – 5.35
Thiophanate-methyl	23564-05-8	3.10 – 3.50
Fludioxonil	131341-86-1	0.70 – 0.92
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Imidacloprid, Metalaxyl, Fludioxonil

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

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water. 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 irritation occurs and persists.

If Inhaled: Move person to fresh air. Call a poison control center or doctor for further treatment advice.

If Swallowed: Call a poison control center or doctor for treatment advice. Do not give any liquid to the person. 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 on Skin or Clothing: Take off contaminated clothing. Rinse skin with plenty of water. Call a poison control center or doctor for treatment advice if irritation occurs and persists.

Most Important symptoms/effects, acute and delayed: May cause mild eye and skin irritation. Harmful if swallowed. Suspected of causing genetic defects.

Indication of Immediate medical attention and special treatment if needed, if necessary: No immediate medical attention should be necessary.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, water spray or fog.

Special Fire Fighting Procedures: Firefighters should wear NIOSH 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, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

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

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Avoid creation of dusty conditions. Scrape up and place in appropriate closed container. Wash entire spill area with a detergent slurry, absorb and sweep into

container for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

HANDLING: Do not get in eyes or on clothing or skin. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE: Do not contaminate water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Eye/Face Protection: Not normally required. To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, socks and shoes. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Imidacloprid	NE	NE	NE	NE	
Metalaxyl	NE	NE	NE	NE	
Thiophanate-methyl	NE	NE	NE	NE	
Fludioxonil	NE	NE	NE	NE	
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid, red
Odor:	Mild, sweet
Odor threshold:	No data available
pH:	4.69 (1% dispersion)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	No data available
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available

Vapor density:	No data available
Relative density:	1.173 g/cm ³ (@ 25° C)
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	266 cPs (@ 25° C, 50 speed) and 309 cPs (@ 38° C, 50 speed)
VOC Emission Potential (%)	No data available

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 normally reactive.

Chemical Stability: Stable under normal handling conditions.

Possibility of Hazardous Reactions: None known.

Conditions to Avoid: None known.

Incompatible Materials: Avoid strong oxidizers.

Hazardous Decomposition Products: Thermal decomposition may release oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation

Symptoms of Exposure:

Eye Contact: Mildly irritating based on toxicity studies.

Skin Contact: Minimally toxic and slightly irritating based on toxicity studies.

Ingestion: Harmful if ingested based on toxicity studies.

Inhalation: Low inhalation toxicity based on toxicity studies.

Delayed, immediate and chronic effects of exposure: None expected.

Toxicological Data:

Data from laboratory studies conducted are summarized below:

Oral: Rat LD₅₀: 1,750 mg/kg (females)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.05 mg/L

Eye Irritation: Rabbit: Non-irritating (MMTS = 0)

Skin Irritation: Rabbit: Non-irritating (PDII = 0)

Skin Sensitization: Not a contact sensitizer in mice following repeated skin exposure.

Subchronic (Target Organ) Effects: None known.

Carcinogenicity / Chronic Health Effects: None known.

Reproductive Toxicity: None of the ingredients are classified as reproductive toxins.

Developmental Toxicity: None of the ingredients are classified as developmental toxins.

Genotoxicity: Contains Thiophanate-methyl which is suspected of causing genetic defects.

Assessment Carcinogenicity: None of the ingredients are classified as carcinogens by IARC, NTP, or OSHA.

12. ECOLOGICAL INFORMATION

Ecotoxicity: In soils, metalaxyl is moderately stable under normal environmental conditions. The primary routes of dissipation in surface soil are aerobic soil metabolism from microbial degradation and uptake by plants. Hydrolysis, photolysis and volatilization are not significant routes of breakdown. Metalaxyl is very water soluble and variably binds to organic materials in the soils. In the aquatic environment, metalaxyl degrades moderately under both aerobic and anaerobic conditions by microbial degradation.

Thiophanate methyl degrades primarily to MBC whether on foliage, in soil or in water in a matter of days. Both photolysis and hydrolysis are important routes of degradation. MBC is microbially degraded, but stable to aqueous photodegradation, stable to hydrolysis at pH values ranging from 5 to 7 and stable to soil photolysis. Metabolism under aerobic and anaerobic conditions in both soil and water proceeds at a slow rate. Under application conditions, average half-lives are about 20 to 50 days, but may be as short as a few days with repeated use.

Fludioxonil, does not bioaccumulate, however it is persistent in soil and is stable in water. It has low mobility in soil. The material sinks in water (after 24 hours).

Environmental Fate:

Data on Imidacloprid Technical:

96-hour LC ₅₀ Rainbow Trout:	211 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	1535 ppm
96-hour LC ₅₀ Bluegill:	105 mg/l	Bobwhite Quail Oral LD ₅₀ :	152 mg/kg
48-hour EC ₅₀ Daphnia:	85 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>4797 ppm
48-hour Honey Bee Contact LD ₅₀ :	0.078 µg/bee	House Sparrow Oral LD ₅₀ :	41 mg/kg

Data on Metalaxyl Technical:

96-hour LC ₅₀ Bluegill:	>139 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	>10,000 ppm
96-hour LC ₅₀ Rainbow Trout:	>130 mg/l	Mallard Duck Oral LD ₅₀ :	>10,000 ppm
48-hour EC ₅₀ Daphnia Magna:	121 mg/l		

Data on Thiophanate Methyl Technical:

96-hour LC ₅₀ Bluegill:	>41 ppm	Bobwhite Quail 8-day Dietary LC ₅₀ :	>10,000 ppm
96-hour LC ₅₀ Rainbow Trout:	8.3 ppm	Mallard Duck Oral LD ₅₀ :	4,640 mg/kg
48-hour EC ₅₀ Daphnia:	5.4 ppm	48-hour Honey Bee Contact LD ₅₀ :	>100 µg/bee
96-hour LC ₅₀ Mysid:	1.1 ppm		

Data on Fludioxonil Technical:

Bluegill 96-hour LC ₅₀ :	0.74 ppm	Bobwhite Quail Oral LD ₅₀ :	>5,200 ppm
Rainbow Trout 96-hour LC ₅₀ :	0.47 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5,200 ppm
Daphnia 48-hour EC ₅₀ :	0.90 ppm	Honey Bee Oral LD ₅₀ :	> 25 µg/bee

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide is a violation of Federal law.

Container Handling and Disposal: Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. 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. Offer for recycling if available. 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 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.

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

DOT

< 12 Gallons per completed package

Non Regulated

≥ 12 Gallons but < 119 Gallons per completed package

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), RQ

≥ 119 Gallons per completed package

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), Marine Pollutant, RQ

IMDG

UN 3082, Environmentally hazardous substances, liquid, n.o.s., 9, III, (thiophanate-methyl), Marine Pollutant,

IATA

Non 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 swallowed.

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):

Acute Health

Section 313 Toxic Chemical(s):

Thiophanate-methyl

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

Thiophanate-methyl

10 lbs.

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.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

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NEW