

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: NUFARM TM + IP SPC FUNGICIDE
EPA Reg. No.: 228-630
Synonyms: Mixture of Thiophanate-methyl and Iprodione
Product Type: Fungicide

Company Name: Nufarm Americas Inc.
150 Harvester Drive, Suite 200
Burr Ridge, IL 60527

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

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2. HAZARDS IDENTIFICATION**Emergency Overview:**

Appearance and Odor: Emulsion liquid.

Warning Statements: Caution. Keep out of reach of children. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing.

Potential Health Effects:

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye Contact: Minimally irritating based on toxicity studies.

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

Ingestion: Slightly toxic if ingested based on toxicity studies.

Inhalation: Low inhalation toxicity based on toxicity studies.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

This product can contaminate surface waters through aerial and ground spray applications. This product is toxic to invertebrates. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Thiophanate-methyl	23564-05-8	19.65
Iprodione	36734-19-7	19.65
Other Ingredients		60.70

4. FIRST AID MEASURES

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 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 on Skin: 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.

5. FIRE FIGHTING MEASURES

Flash Point: >200°F (>93.3°C) (Estimated)

Autoignition Temperature: Not applicable

Flammability Limits: Not applicable

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, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce oxides of carbon, nitrogen and sulfur.

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

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: Pump any free liquid into an appropriate closed container. Collect washings 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:**

Avoid contact with eyes or clothing. Users should wash thoroughly with soap and water 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 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:

Store in a cool, clean, dry place. Do not store at temperatures exceeding 120°F or at temperatures below 32°F. 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.

Personal Protective Equipment:

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:

Mixers, loaders and others exposed to the concentrate and cleaners/repairers of equipment must wear long-sleeved shirt, long pants, chemical-resistant footwear plus socks, chemical-resistant gloves and chemical-resistant apron.

Applicators using handheld equipment must wear coveralls over long-sleeve shirt and long pants, chemical-resistant footwear plus socks, chemical-resistant gloves, chemical-resistant headgear for overhead exposure.

Applicators using mechanical ground equipment must wear long-sleeved shirt, long pants, shoes and socks.

Applicators using truck-mounted equipment with a handgun at the end of the hose (i.e. for commercial turfgrass or ornamental applications) and all the other handlers not specified above must wear long-sleeved shirt, long pants, shoes, socks and chemical-resistant gloves.

An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required, except for applicators using handheld equipment who must wear a dust-mist filtering respirator (NIOSH-approved respirator with any R, P or HE filter). In other situations 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	
Thiophanate-methyl	NE	NE	NE	NE	
Iprodione	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Emulsion liquid.

Boiling Point: Not determined

Solubility in Water: Soluble

Density:	9.6 pounds/gallon	Specific Gravity:	1.152 @ 20°C
Evaporation Rate:	Not determined	Vapor Density:	Not determined
Freezing Point:	Not determined	Vapor Pressure:	Not determined
pH:	7 – 8 (1% solution)	Viscosity:	344.690 cSt @ 20°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

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

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce oxides of carbon, nitrogen and sulfur.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: 1,750 mg/kg (female) (estimated based on mortalities for doses tested)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.03 mg/L

Eye Irritation: Rabbit: Minimally irritating

Skin Irritation: Rabbit: Slightly irritating

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

Subchronic (Target Organ) Effects: Repeated overexposure to thiophanate methyl may cause mild anemia and affect the liver and thyroid. Repeated overexposure to iprodione may cause effects in the liver, adrenal, ovary and/or testes.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to thiophanate methyl may affect the liver and thyroid. Prolonged overexposure to iprodione can cause effects to liver, kidneys, and reproductive system. Thiophanate methyl produced dose-dependent increases in benign liver tumors in mice and thyroid tumors in rats. Iprodione produced benign testicular tumors in rats and benign liver and ovary tumors in mice when tested at a maximum tolerated dose.

Reproductive Toxicity: Neither thiophanate methyl nor iprodione caused reproductive toxicity in multi-generation studies in rats.

Developmental Toxicity: In a rabbit study with thiophanate methyl, slight skeletal variations and decreased fetal weights were observed at doses that were also toxic to mother animals. Iprodione was not a primary developmental toxicant as only minor delays or variations in fetal development were observed at doses that caused maternal toxicity.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that thiophanate methyl is not mutagenic. For iprodione, there is no evidence of effects during *in-vitro* or *in-vivo* studies.

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

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

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 Iprodione Technical:

96-hour LC ₅₀ Bluegill:	3.7 ppm	Bobwhite Quail 8-day Dietary LC ₅₀ :	>5,620 ppm
96-hour LC ₅₀ Rainbow Trout:	4.1 ppm	Bobwhite Quail Oral LD ₅₀ :	>2,000 mg/kg
48-hour EC ₅₀ Daphnia:	0.24 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
96-hour LC ₅₀ Mysid:	0.68 ppm	Mallard Duck Oral LD ₅₀ :	10,437 mg/kg
48-hour Honey Bee Contact LD ₅₀ :	>120 µg/bee		

Environmental Fate:

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. The major routes of dissipation for iprodione are hydrolysis in neutral and alkaline environments and microbial degradation under both aerobic and anaerobic conditions. Soil half-lives range from 7 to >60 days and the average soil half-life is 14 days. Degradation rates vary with soil acidity, soil clay contents and history of the soil fungicide treatment. Iprodione is slightly soluble and moderately to well sorbed by most soils.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

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

Container Handling and Disposal:

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 if available, or reconditioning or puncture and dispose of in a sanitary landfill, or incineration or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORTATION INFORMATION

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

DOT**< 5 gallons per completed package**

Non Regulated

≥ 5 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, iprodione), Marine Pollutant, RQ

IMDG

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

IATA

Non Regulated

15. REGULATORY INFORMATION**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):**

Immediate and Delayed

Section 313 Toxic Chemical(s):

Thiophanate Methyl (CAS No. 23564-05-8) 19.65% by weight in product.

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

Thiophanate Methyl (CAS No. 23564-05-8) 10 pounds

RCRA Waste Code:

Thiophanate Methyl (CAS No. 23564-05-8) U409

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS 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

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