



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sativa® IMF Max
EPA Reg. No.: 55146-119
Product Type: Insecticide and 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 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 Certain sections are superseded by federal law governed by EPA for a registered pesticide.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

PHYSICAL HAZARDS:

Not Hazardous

HEALTH HAZARDS:

Acute toxicity, oral Category 4

ENVIRONMENTAL HAZARDS:

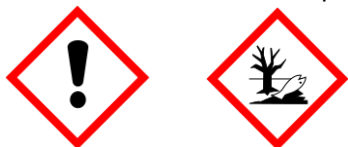
Chronic aquatic toxicity category Category 2

SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Harmful if swallowed. Toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves and eye protection.

IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

Collect spillage. Avoid unintended release to the environment.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Imidacloprid	138261-41-3	10.6 - 11.8
Metalaxyl	57837-19-1	0.54 - 0.66
Tebuconazole	107534-96-3	0.40 - 0.50
Fludioxonil	131341-86-1	0.32 - 0.40
Glycerin	56-81-5	3.9 - 4.2
Other ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Fludioxonil, Imidacloprid, Metalaxyl and Tebuconazole

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

4. FIRST AID MEASURES

If Swallowed: Call 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 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 several minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation develops and persists.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water. Get medical attention if irritation develops.

If Inhaled: Move person to fresh air. Get medical attention if symptoms develop. **Most Important symptoms/effects, acute and delayed:** Harmful if swallowed. Inhalation of mist may cause respiratory irritation. May cause mild eye and skin irritation. May cause adverse effects on reproduction.

Indication of Immediate medical attention and special treatment if needed, if necessary: Prompt medical attention is recommended for ingestion.

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 and hydrogen chloride.

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. Absorb residue with inert material. Place in a suitable 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. Avoid breathing mists or sprays. 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: Store in a cool place, **DO NOT** store in direct sunlight. Protect from freezing temperatures. 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. Washing facilities should be readily accessible to the work area.

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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	
Tebuconazole	NE	NE	NE	NE	
Imidacloprid	NE	NE	NE	NE	
Metalaxyl	NE	NE	NE	NE	
Fludioxonil	NE	NE	NE	NE	
Glycerin Mist	15 (T) 5 (R)	NE	NE	NE	mg/m ³

T = Total Dust

R = Respirable Fraction

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Red colored liquid
Odor:	Mild odor
Odor threshold:	No data available
pH:	6.65 (1% solution)
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:	1.065 g/cm ³ (@ 20°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:	496 cPs @ 25°C and 404 cPs @ 41°C (Brookfield 50 RPM)

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

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

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

Incompatible Materials: Strong oxidizing agents: bases and acids; potassium permanganate.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon and nitrogen and hydrogen chloride.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin contact, eye contact, inhalation

Symptoms of Exposure:

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.

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

Toxicological Data:

Data from laboratory studies conducted on this product are summarized below:

Oral: Rat LD₅₀: 1,750 mg/kg (female)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >5.14 mg/L (No mortalities at the highest dose tested)

Eye Irritation: Rabbit: Minimally irritating (MMTS = 2.7)

Skin Irritation: Rabbit: Slightly irritating (PDII = 0.8)

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

Subchronic (Target Organ) Effects: Repeated overexposure to imidacloprid, may affect heart, thyroid, blood chemistry, and liver. Repeated overexposure to metalaxyl may affect the liver. Repeated overexposure to fludioxonil may cause effects in the kidney and liver. Prolonged overexposure to tebuconazole may cause effects to liver, spleen, adrenals and/or eyes

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to imidacloprid can cause effects to the thyroid. Imidacloprid did not cause cancer in laboratory animal studies. The U.S. EPA has given imidacloprid a Group E classification (evidence of non-carcinogenicity in humans). Prolonged overexposure to metalaxyl may affect liver and blood. Metalaxyl did not cause cancer in laboratory animals. The U.S. EPA has given metalaxyl a Class E classification (evidence of non-carcinogenicity for humans). Prolonged overexposure to tebuconazole may cause effects to liver, spleen, adrenals and/or eyes. Tebuconazole was not carcinogenic in a chronic feeding study in rats. In a mice study, there was an increased incidence of liver tumors at the highest dose tested, a dose exceeding the Maximum Tolerated Dose (MTD). EPA classified tebuconazole as a Group C (possible human carcinogen) chemical based on liver tumors. Fludioxonil did not cause cancer in laboratory animals.

Reproductive Toxicity: In a two-generation reproduction study in rats, imidacloprid produced reduced mean body weights and body weight gains. No other reproductive effects were observed. In animal studies, Metalaxyl and Fludioxonil did not interfere with reproduction. Animal studies on tebuconazole resulted in decreased pup body weights and smaller litters at doses that were also toxic to mother animals.

Developmental Toxicity: Rat and rabbit studies on imidacloprid resulted in skeletal abnormalities, increased resorptions (rabbits) and reduced body weight gains at doses that were also toxic to mother animals. For metalaxyl, a study using rats resulted in maternal toxicity and fetotoxicity at the higher dose levels. However, no treatment-related developmental effects were noted in a study using rabbits. In animal studies with tebuconazole, developmental effects were observed at doses that were also toxic to the maternal animal. In rabbits, developmental toxicity was observed at doses of 30 mg/kg/day with major malformation at 100 mg/kg/day. Fludioxonil did not cause birth defects in animals.

Genotoxicity: The imidacloprid mutagenicity studies, taken collectively, demonstrate that imidacloprid is not genotoxic or mutagenic. No mutagenic effect was found in various tests with microorganisms and mammals with metalaxyl. Neither *in vitro* nor *in vivo* tests on tebuconazole demonstrated mutagenic effects. *In vitro* bacterial assays and animal tests with fludioxonil did not demonstrate mutagenic effects.

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

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Imidacloprid Technical:

96-hour LC ₅₀ Rainbow Trout:	211 mg/l	Japanese Quail Oral LD ₅₀ :	31 mg/kg
48-hour EC ₅₀ Daphnia:	85 mg/l	Bobwhite Quail Oral LD ₅₀ :	152 mg/kg
48-hour Honey Bee Oral LD ₅₀ :	0.0039 µg/bee	House Sparrow Oral LD ₅₀ :	41 mg/kg
48-hour Honey Bee Contact LD ₅₀ :	0.078 µg/bee		

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:	132 mg/l	Mallard Duck Oral LD ₅₀ :	1,466 mg/kg
48-hour EC ₅₀ Daphnia:	29 mg/l		

Data on Tebuconazole Technical:

96-hour LC ₅₀ Bluegill Sunfish:	5.7 ppm	Bobwhite Quail Oral LD ₅₀ :	1,988 mg/kg
96-hour LC ₅₀ Rainbow Trout:	4.4 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>4,816 ppm
48-hour LC ₅₀ Daphnia magna:	4.0 ppm		

Data on Fludioxonil Technical:

96-hour LC ₅₀ Bluegill Sunfish:	0.74 ppm	Bobwhite Quail 8-day Oral LD ₅₀ :	>5200 ppm
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96-hour LC ₅₀ Rainbow Trout:	0.47 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5200 ppm
48-hour LC ₅₀ Daphnia magna:	0.90 ppm	48-hour Honey Bee Contact LD ₅₀ :	> 25 ug/bee

Environmental Fate:

Hydrolysis half-life of imidacloprid is greater than 30 days at pH 7 and 25°C. The aqueous photolysis half-life is less than 3 hours. The soil surface photolysis of imidacloprid has a half-life of 39 days, and in soil, the half-life ranged from 26 to 229 days. 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. Tebuconazole is soluble in water. It is stable to hydrolysis and photolysis on soil and in water. The photolysis half-life of tebuconazole in soil averages 190 days and in water averages 590 days. Tebuconazole has a low to moderate mobility in soils. Absorption to soil increases as level of organic matter and clay increases. 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).

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. Triple rinse or pressure rinse container (or equivalent) promptly after emptying. Offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. **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.

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 and, if possible, spray all sides while adding 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. For final disposal, offer for recycling if available. If recycling or reconditioning is not available, puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities.

14. TRANSPORTATION INFORMATION

DOT

Not Regulated

IMDG

Not Regulated

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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.

WARNING. Causes substantial but temporary eye injury. Causes skin irritation. Harmful if swallowed. Do not get in eyes or on clothing.

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, Chronic Health

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.

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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