1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **SALIENT™ TMI Seed Treatment**
EPA Reg. No.: 55146-159
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 Certain sections are superseded by federal law governed by EPA for a registered pesticide.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

PHYSICAL HAZARDS:
Not Hazardous

HEALTH HAZARDS:

Reproductive Toxicity	Category 2
Specific target organ toxicity- Repeated exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 1
Hazardous to aquatic environment, chronic	Category 1

SIGNAL WORD:
WARNING

HAZARD STATEMENTS:
Suspected of damaging fertility or the unborn child. May cause damage to organs (heart, liver, blood chemistry, and thyroid). Very 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. Do not breath mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Avoid release to the environment.

If exposed or concerned: Get medical advice.

Store locked up.

Collect spillage.

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	5.0 – 6.0
Difenoconazole	119446-68-3	3.2 – 3.8
Metalaxyl	57837-19-1	1.5 – 2.0
Tebuconazole	107534-96-3	0.3 – 0.5
Glycerin	56-81-5	3.0 – 5.0
Propylene glycol	57-55-6	3.0 – 5.0
Other ingredients	Trade Secret	77.0 – 84.0

Synonyms: None

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

4. FIRST AID MEASURES

If Swallowed: 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. Get medical attention if symptoms persist

If Inhaled: Move person to fresh air. Get medical attention if symptoms persist.

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. 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.

Most Important symptoms/effects, acute and delayed: 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:** None expected.

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: 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 cool dry location. Do not store in direct hot sunlight. Do not store above 90°F for prolonged periods of time. After prolonged storage in intense cold, allow product to return to approximately 75°F before using. 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.
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:

	OSHA		ACGIH		
Component	**TWA**	**STEL**	**TWA**	**STEL**	**Unit**
Imidacloprid	NE	NE	NE	NE	
Difenoconazole	NE	NE	NE	NE	
Metalaxyl	NE	NE	NE	NE	
Tebuconazole	NE	NE	NE	NE	
Glycerol (Glycerin Mist)	15 (T) 5 (R)	NE	15	NE	mg/m^3
Propylene glycol	10 (WEEL)	NE	NE	NE	mg/m^3
Other ingredients	NE	NE	NE	NE	

T = Total Dust
R = Respirable Fraction
NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Red liquid
Odor:	Mildly bitter
Odor threshold:	No data available
pH:	6.0 – 8.0 (1% w/w 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:	1.07 g/ml
Solubility(ies):	Forms suspension in water
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	800 - 1300 cps (@ 20 rpm #2 spindle 20ºC)

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

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

Toxicological Data:
Data from laboratory studies conducted on a substantially similar composition are summarized below:
Oral: Rat LD_{50}: >2,000 mg / kg (no mortalities at this dose)
Dermal: Rat LD_{50}: >2,000 mg/kg (no mortalities at this dose)
Inhalation: Rat 4-hr LC_{50}: >5.18 mg/L (No mortalities at this dose)
Eye Irritation: Rabbit: Minimally irritating (MMTS = 8.7)
Skin Irritation: Rabbit: Slightly irritating (PDII = 0.9)
Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to metalaxyl may affect the liver.
Carcinogenicity / Chronic Health Effects: 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.
Reproductive Toxicity: In animal studies, metalaxyl 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: 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.
Genotoxicity: 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.

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
96-hour LC_{50} Mysid:	0.038 ppm	House Sparrow Oral LD_{50}:	41 mg/kg
48-hour Honey Bee Contact LD_{50}:	0.078 μg/bee	48-hour Honey Bee Oral LD_{50}:	0.0039 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 Difenoconazole Technical:			
96-hour LC_{50} Rainbow Trout:	1.06 ppm	Mallard Duck 14-day LD_{50}:	>2,150 mg/kg
48-hour LC_{50} Daphnia magna:	0.77 ppm		

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-live 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. Difenoconazole is stable in soil and water and has low to moderate mobility in soil. Difenoconazole sinks in water (after 24 hours).

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

This pesticide's 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 by use 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 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. 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 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.

14. TRANSPORTATION INFORMATION

DOT
Not Regulated

IMDG
Not Regulated

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 swallowed. Harmful if absorbed through skin. Harmful if inhaled. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist or vapor

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for Research and Development Use under FIFRA.

SARA Hazard Notification/Reporting:
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):
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: 2 **Flammability:** 0 **Reactivity:** 0
Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

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