



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

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Sativa™ 318 FS Fungicide  
**EPA Reg. No.:** 55146-101  
**Synonyms:** Tebuconazole: Alpha-[2-(4-chlorophenyl)ethyl]-alpha-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol  
**Product Type:** Fungicide  
**Company Name:** Nufarm Americas Inc. AGT Division  
150 Harvester Drive, Suite 200  
Burr Ridge, IL 60527  
**Date of Issue:** August 27, 2008  
**Sections Revised:** New  
**Supersedes:** New

### 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance and Odor:** Off-white colored liquid with a mild odor.

**Warning Statements:** Keep out of reach of children. CAUTION. Harmful if swallowed, absorbed through skin or inhaled. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist.

**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:** Minimally toxic based on toxicity studies.

**Inhalation:** Low inhalation toxicity based on toxicity studies. Inhalation of glycerin mists may cause irritation of respiratory tract.

**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 pesticide is toxic to mammals, fish and aquatic invertebrates.

See Section 12: ECOLOGICAL INFORMATION for more information.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Tebuconazole	107534-96-3	28.3
Other Ingredients Including: Glycerin	56-81-5	71.7

**4. FIRST AID MEASURES**

**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 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 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.

**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.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** Not applicable due to aqueous formulation

**Autoignition Temperature:** Not determined

**Flammability Limits:** Not determined

**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 and nitrogen.

**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 skin, eyes or clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum or using the toilet. Remove and wash contaminated clothing before reuse.

**Storage:**

Store in a cool, dry place and in such a manner as to prevent cross-contamination with other pesticides, fertilizers, food and feed. Store in original container and out of the reach of children, preferably in a locked storage area. 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:** To avoid contact with skin, wear long pants, long-sleeved shirt or coveralls, socks, shoes and chemical-resistant gloves made of waterproof material. 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	
Tebuconazole	NE	NE	NE	NE	
Glycerin Mist	15 (T) 5 (R)	NE	10	NE	mg/m <sup>3</sup>

T = Total Dust

R = Respirable Fraction

NE = Not Established

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance and Odor:** Off-white colored liquid with a mild odor.

**Boiling Point:** Not determined

**Density:** 9.10 pounds/gallon

**Evaporation Rate:** Not determined

**Freezing Point:** Not determined

**pH:** 6.97 (1% solution)

**Solubility in Water:** Dispersible

**Specific Gravity:** 1.091 @ 24°C

**Vapor Density:** Not determined

**Vapor Pressure:** Not determined

**Viscosity:** 1156 cps (10 rpm @ 25°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, fire and freezing.

**Incompatible Materials:** Not known.

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

**Hazardous Reactions:** Hazardous polymerization will not occur.

## 11. TOXICOLOGICAL INFORMATION

### **Toxicological Data:**

Data from laboratory studies on this product are summarized below:

**Oral:** Rat LD<sub>50</sub>: >5,000 mg/kg (female)

**Dermal:** Rat LD<sub>50</sub>: >5,050 mg/kg

**Inhalation:** Rat 4-hr LC<sub>50</sub>: >2.25 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.

**Carcinogenicity / Chronic Health Effects:** 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:** Animal studies on tebuconazole resulted in decreased pup body weights and smaller litters at doses that were also toxic to mother animals.

**Developmental Toxicity:** In animal studies with tebuconazole, developmental effects were observed at doses that were also toxic to the maternal animal.

**Genotoxicity:** Neither *in vitro* nor *in vivo* tests on tebuconazole demonstrated mutagenic effects.

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

See Section 2: HAZARDS IDENTIFICATION for more information.

## 12. ECOLOGICAL INFORMATION

### **Ecotoxicity:**

Data on Tebuconazole Technical:

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

### **Environmental Fate:**

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.

## 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.

### **Container Handling and Disposal:**

**Nonrefillable container.** Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. 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.

**Refillable Container:** Refill this container with pesticide only. Do not reuse this container for any other purpose. Close all openings and replace all caps. Contact Nufarm's Customer Service Department at 1-800-345-3330 to arrange for return of the empty refillable container.

<b>14. TRANSPORTATION INFORMATION</b>
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Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

**DOT**

Non Regulated

**IMDG**

Non Regulated

**IATA**

Non Regulated

<b>15. REGULATORY INFORMATION</b>
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**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):**

None

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

None

**RCRA Waste Code:**

None

**State Information:**

Other state regulations may apply. Check individual state requirements.

**California Proposition 65:** Not Listed

<b>16. OTHER INFORMATION</b>
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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.

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