



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nufarm T-PAC SPC MEC Plant Growth Regulator
EPA Reg. No.: 228-635
Product Type: Plant Growth Regulator

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 Certain sections are superseded by federal law governed by EPA for a registered pesticide.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

HEALTH HAZARDS:

Eye Irritation	Category 2B
Reproductive Toxicity	Category 2

ENVIRONMENTAL HAZARDS:

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

SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Causes eye irritation. Suspected of damaging fertility or the unborn child by ingestion. 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. Use personal protective equipment as required. Wash thoroughly after handling. Avoid release to the environment.

IF exposed or concerned: Get medical advice. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice. Collect spillage.

Store locked up.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Trinexapac-ethyl	95266-40-3	11 - 12
Other ingredients including Tetrahydrofurfuryl Alcohol (THFA)	97-99-4	88.7 Trade Secret

Synonyms: Sulfur, Sulphur

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 for several minutes. Remove contact lenses, if present, then continue rinsing eye. Call a poison control center or doctor for 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 Inhaled: Move person to fresh air. Call a poison control center or doctor for further treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin with plenty of water for several minutes. Call a poison control center or doctor for treatment advice.

Most important symptoms/effects, acute and delayed: Causes eye irritation. May cause mild skin irritation. Suspected of damaging fertility or the unborn child.

Indication of immediate medical attention and special treatment if needed, if necessary: Immediate medical attention should not be required.

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: Store in a cool, dry place and avoid excess heat. Do not store below 0°F. If crystals form, store above 70°F, shaking periodically until crystals are dissolved.

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	
Trinexapac-ethyl	NE	NE	NE	NE	
Other ingredients	NE	NE	NE	NE	
Tetrahydrofurfuryl Alcohol (THFA)	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear liquid
Odor:	No data available
Odor threshold:	No data available
pH:	3 – 4 (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:	1.075 g/cm
Solubility(ies):	Dispersible

Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	44.114 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

Reactivity: Not 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: Temperatures below 0°F and excessive heat.

Incompatible Materials: Strong oxidizing agents: bases and acids.

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

11. TOXICOLOGICAL INFORMATION

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

Symptoms of Exposure:

Eye Contact: Mildly to moderately 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 reported.

Toxicological Data:

Data from laboratory studies conducted are summarized below:

Oral: Rat LD₅₀: > 5,050 mg/kg (male)

Dermal: Rat LD₅₀: >2,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.75 mg/L

Eye Irritation: Rabbit: Moderately irritating

Skin Irritation: Rabbit: Non-irritating

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

Subchronic (Target Organ) Effects: Repeated overexposure to trinexapac-ethyl may cause effects to liver, kidney and brain. Repeated overexposure to THFA may cause effects to eyes, respiratory system and central nervous system.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to trinexapac-ethyl may cause effects to liver, kidney and brain at doses > 5000 ppm. Trinexapac-ethyl produced a slight increase in forestomach tumors in male rats at high doses (20,000 mg/kg/day); however, this is not considered toxicologically relevant to humans. In a mouse study, there were no significant treatment-related increases in any tumors. The U.S. EPA has classified trinexapac-ethyl as "not likely to be carcinogenic to humans."

Prolonged overexposure to THFA may affect the kidneys.

Reproductive Toxicity: Animal tests with trinexapac-ethyl have not demonstrated reproductive effects. In animal study, THFA may cause adverse reproductive effects.

Developmental Toxicity: At the highest dose tested, developmental toxicity was observed in the rat and rabbit with no evidence of material toxicity. A developmental NOAEL was determined. Studies in laboratory animals with THFA have shown early resorptions, decreased fetal and material body weights.

Genotoxicity: Tests with trinexapac-ethyl have shown no evidence of mutagenicity. *In-vitro* and animal genetic toxicity studies with THFA were negative.

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

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Trinexapac-ethyl Technical:

96-hour LC ₅₀ Bluegill:	>130 ppm	Bobwhite Quail 8-day Dietary LC ₅₀ :	>5,200 ppm
96-hour LC ₅₀ Rainbow Trout:	65.7 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5,200 ppm
48-hour EC ₅₀ Daphnia:	>142.5 ppm	Mallard Duck Oral LD ₅₀ :	>2,000 mg/kg
48-hour Honey Bee Contact LD ₅₀ :	47 µg/bee		

Environmental Fate:

Trinexapac-ethyl is moderately mobile in soil. The primary pathway for dissipation of trinexapac-ethyl in soils is by microbial degradation and average half-life range from 7 to 25 days. Trinexapac-ethyl is stable to hydrolysis at acidic and neutral conditions and appears to hydrolyze under basic conditions. The average half-life for aqueous photolysis is 18 days. Trinexapac-ethyl has a low bioaccumulation potential.

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 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, if available, 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 smoke.

14. TRANSPORTATION INFORMATION

DOT

Non Regulated

IMDG

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Trinexapac-ethyl), 9, III, Marine Pollutant

IATA

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Trinexapac-ethyl), 9, III, Marine Pollutant

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

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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