



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: TERMINATE™ Cotton Harvest Aid

EPA Reg. No.: 228-727

Product Type: Cotton Harvest Aid

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 the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide.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:

Corrosive to metals Category 1

HEALTH HAZARDS:

Serious eye damage Category 1

Skin irritation Category 2

Specific target organ toxicity – Repeated exposure Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute Category 2

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

May be corrosive to metals. Causes serious eye damage. Causes skin irritation. May cause damage to organs (kidneys, red blood cells) through prolonged or repeated exposure. Toxic to aquatic life.



PRECAUTIONARY STATEMENTS

Keep only in original container. Absorb spillage to prevent material damage. Store in corrosive resistant container.

Wear eye protection/face protection. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison control center or doctor for treatment advice.

Avoid breathing mist, vapor, or spray. Use only outdoors or in a well-ventilated area. If inhaled, move person to fresh air and keep comfortable for breathing. Call a poison control center or doctor for further treatment advice.

Wash hands thoroughly after handling. Wear protective gloves. If on skin: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Do not breathe fume/mist/vapors/spray. Get medical advice/attention if you feel unwell. Dispose of contents/container in accordance with local/regional/national/international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Ethephon	16672-87-0	50.3 – 53.4
Cyclanilide	113136-77-9	3.1 – 3.4
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Ethephon and Cyclanilide

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 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 or Clothing: 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, if possible. Call a poison control center or doctor for further treatment advice.

Most Important symptoms/effects, acute and delayed: Causes serious eye damage. Causes skin irritation. May cause damage to organs (kidneys, red blood cells) through prolonged or repeated exposure.

Indication of immediate medical attention and special treatment if needed: Nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms. Treat symptomatically. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. No specific antidote is available. If ingested, probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials. Dry chemical, carbon dioxide, foam, or water spray.

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: This product is combustible. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride and oxides of carbon.

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 Clean-Up and Disposal: If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more 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, on skin or clothing. 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. This product is very acidic and can damage acrylic plastics, certain paints, and metals after prolonged exposure.

STORAGE:

Store between 0° to 50° C (32° to 122° F) in an area that is away from ignition sources. Avoid freezing. If freezing occurs, thaw and remix before using. Avoid contact with metals due to the corrosive properties of the formulation. If container is broken or contents have spilled, follow all precautions indicated above and clean up immediately. Before cleaning up, put on full length trousers, long-sleeved shirt, protective gloves, and goggles or face shield. Soak up spill with absorbent media such as sand, earth or other suitable material and dispose of waste at an approved waste disposal facility.

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: To avoid contact with eyes, wear face shield, 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-sleeved shirt and long pants, shoes plus socks, and chemical-resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber, or butyl rubber. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors 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	
	TWA	STEL	TWA	STEL
Ethephon	NE	NE	NE	NE
Cyclanilide	NE	NE	NE	NE
Other Ingredients	N/A	N/A	N/A	N/A

NE = Not Established

N/A= Not Applicable

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brown liquid
Odor:	Mild, sweet odor
Odor threshold:	No data available
pH:	1.87
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	>100° C (>212° F)
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	12.6% / 2.5% (V)
Vapor pressure:	No data available
Vapor density:	No data available

Relative density:	1.393 g/cm ³ (11.6 lbs/gal) @ 24° C
Solubility(ies):	Dispersible
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	13080 cPs (Brookfield viscometry 2.5 rpm @ 24° 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 self-reactive, water-reactive, or spontaneously combustible

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

Possibility of Hazardous Reactions: None known

Conditions to Avoid: Excessive heat. Do not store near heat, flame, or sparks. This product is very acidic and can damage acrylic plastics, certain paints, and metals after prolonged exposure.

Incompatible Materials: Strong oxidizing agents: bases and acids.

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

11. TOXICOLOGICAL INFORMATION

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

Symptoms of Exposure: Respiratory irritation, Eye irritation, Skin irritation

Delayed, immediate and chronic effects of exposure: Respiratory irritation, Eye irritation, Skin irritation. May cause damage to organs (kidneys, red blood cells) through prolonged or repeated exposure.

Toxicological Data:

Data from laboratory studies conducted on a similar, but not identical, formulation:

Oral, Rat LD₅₀: 2,000 – 5,000 mg/kg

Dermal, Rat or Rabbit LD₅₀: >2,000 mg/kg

Inhalation, Rat 4-hr LC₅₀: >2.5 mg/l (no mortality at highest dose tested)

Eye Irritation, Rabbit: Corrosive – causes irreversible eye damage.

Skin Irritation, Rabbit: Moderately irritating

Skin Sensitization, Guinea Pig: Not considered a sensitizer

Subchronic (Target Organ) Effects: Repeated overexposure to ethephon may cause cholinesterase inhibition, red blood cell effects and/or kidney effects.

Carcinogenicity / Chronic Health Effects: Ethephon was not carcinogenic in lifetime feeding studies in rats and mice. Cyclanilide does not exhibit carcinogenic potential when tested in rats and mice.

Reproductive Toxicity: Ethephon was not a reproductive toxicant in a two-generation study in rats. Toxicity in the offspring occurred at doses producing systemic toxicity in parental animals. Cyclanilide was not considered a primary reproductive toxicant in rats. Pup body weights were decreased but were considered secondary to maternal toxicity.

Developmental Toxicity: Ethephon was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed but were considered secondary to maternal toxicity. Cyclanilide was not considered a developmental toxicant when tested in rats and rabbits.

Germ Cell Mutagenicity: Ethephon was not mutagenic or genotoxic based on the overall weight of evidence in a battery of *in vitro* and *in vivo* tests. Cyclanilide was not mutagenic or genotoxic based on the overall weight of evidence in a battery of mutagenicity studies.

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

12. ECOLOGICAL INFORMATION

Environmental Hazards:

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate.

Ecotoxicity:

Studies based on the active ingredient Ethephon:

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96-hour LC ₅₀ Fathead Minnow:	88 mg/L	Bobwhite Quail Oral LD ₅₀	596 mg/kg
48-hour EC ₅₀ Daphnia:	54 ppm	Mallard Duck 8-day Dietary LC ₅₀ :	>5,000 ppm
Studies based on the active ingredient Cyclanilide:			
96-hour LC ₅₀ Rainbow Trout:	11 mg/L	120-hour Green Algae EC ₅₀	1.7 mg/L
48-hour EC ₅₀ Daphnia:	5 mg/L		

Environmental Fate:

Ethephon is stable to hydrolysis in acidic water, but does rapidly hydrolyze in neutral and alkaline environments with a half-life ranging from a few days to a few weeks. Ethephon is stable to photolysis in water with an estimated half-life of 139 days. Photodegradation on soil does not appear to be a significant route of dissipation. Ethephon degrades fairly rapidly in soil under aerobic and in water under anaerobic conditions with half-life ranging from 7 to 30 days. Ethephon is characterized as having moderate to low mobility in soil.

Cyclanilide is not readily biodegradable

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Pesticide wastes are hazardous. 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, if available, or reconditioning, if appropriate, 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. **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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by other procedures approved by State and local authorities.

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. 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

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

DOT:

UN3265, Corrosive liquid, Acidic, Organic, n.o.s. (ethephon, citric acid), 8, PG III

IMDG:

UN3265, Corrosive liquid, Acidic, Organic, n.o.s. (ethephon, citric acid), 8, PG III

IATA:

UN3265, Corrosive liquid, Acidic, Organic, n.o.s. (ethephon, citric acid), 8, PG III

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.

DANGER. Corrosive. Causes irreversible eye damage. Harmful if swallowed. Harmful if inhaled or absorbed through the skin. Avoid contact with skin. Causes skin irritation. Do not get in eyes, on skin, or clothing. Avoid breathing vapor or spray mist. Keep away from domestic animals. Avoid contamination of food.

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 370.66):**

Immediate and Delayed

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: 3 Flammability: 1 Reactivity: 1

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.

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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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