SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: ETHREL® BRAND ETHEPHON PLANT REGULATOR
MSDS Number: 102000004255
EPA Registration No.: 264-267

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle PK, NC 27709
USA

For MEDICAL, TRANSPORTATION or other EMERGENCY call: 1-800-334-7577 (24 hours/day)
For Product Information call: 1-866-99BAYER (1-866-992-2937)

SECTION 2. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview: Danger! Corrosive - causes irreversible eye damage. Hazard to humans and domestic animals. Harmful if swallowed, inhaled or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Irritation of mucous membranes. Do not breathe vapours or spray mist.

Physical State: liquid
Odor: characteristic
Appearance: colourless to amber
Exposure routes: Inhalation, Skin contact, Ingestion, Eye contact

Immediate Effects
- Eye: Corrosive - causes irreversible eye damage. Liquid or vapor can cause irritation, redness, tearing. Eye injury may persist for several days. Do not get in eyes.
- Skin: May cause irritation, redness, swelling on prolonged contact. Avoid contact with skin.
- Ingestion: May cause burns to mouth and esophagus, chest pain, abdominal pain. Harmful if swallowed.
- Inhalation: Mists may cause upper respiratory tract irritation, coughing, sore throat. Irritation of mucous membranes. Harmful if inhaled.

Medical Conditions Aggravated by Exposure: Skin contact may aggravate existing skin disease. Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous Component Name</th>
<th>CAS-No.</th>
<th>Average % by Weight</th>
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<tr>
<td>Ethephon</td>
<td>16672-87-0</td>
<td>21.70</td>
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</table>

SECTION 4. FIRST AID MEASURES

**General**
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

**Eye**
Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

**Skin**
Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately. Take off contaminated clothing and shoes immediately.

**Ingestion**
Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.

**Inhalation**
If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately. Move to fresh air. Keep patient warm and at rest.

**Notes to physician**
- **Hazards**: Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.
- **Treatment**: There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

After oral ingestion of undiluted ethephon, treatment must follow the regimens for acid ingestion. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable.

SECTION 5. FIRE FIGHTING MEASURES

<table>
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<th>Property</th>
<th>Value</th>
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</thead>
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</tr>
<tr>
<td>Autoignition temperature</td>
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</table>
Lower Flammability Limit

no data available

Upper Flammability Limit

no data available

Explosiveness

no data available

Fire and Explosion Hazards

In the event of fire the following may be released:
Carbon monoxide (CO)
Hydrogen chloride (HCl)
nitrogen oxides (NOx)

Suitable extinguishing media

Water spray, Carbon dioxide (CO2), Foam, Dry powder

Fire Fighting Instructions

Do not allow run-off from fire fighting to enter drains or water courses. Use appropriate extinguishing media for material that is supplying fuel.

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Methods for cleaning up

Recover the product by pumping, suction or absorption using a dry and inert absorbent clay. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean floors and contaminated objects with plenty of water. Decontaminate tools and equipment following cleanup.

Additional advice

Do not allow to enter soil, waterways or waste water canal. Information regarding waste disposal, see section 13. Information regarding personal protective equipment, see section 8. Use personal protective equipment.

SECTION 7. HANDLING AND STORAGE

Handling procedures

No specific precautions required when handling unopened packs/containers; follow relevant manual handling advice.

Avoid contact with skin, eyes and clothing.

Storing Procedures

Keep containers tightly closed in a dry, cool and well-ventilated place. Store in a place accessible by authorized persons only. Protect from freezing.

Keep away from food, drink and animal feedingstuffs.

Work/Hygienic Procedures

Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.
Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

**Min/Max Storage Temperatures**

- **Recommended minimum transport/storage temperature:** -7 °C / 19 °F
- **Recommended maximum transport/storage temperature:** 40 °C / 104 °F

### SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### General Protection

Follow manufacturer’s instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry. Eye wash facility and safety shower should be available. Train employees in safe use of the product.

#### Eye/Face Protection

- Safety glasses, in case of increased risk, also a face shield or splash goggles

**Hand protection**

Chemical resistant nitrile rubber gloves

**Body Protection**

Wear long-sleeved shirt and long pants and shoes plus socks.

**Respiratory protection**

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

colourless to amber

**Physical State**

liquid

**Odor**

characteristic

**pH**

cia. 0.8 (100 %) Determined in the undiluted form.

**Vapor Pressure**

< 0.013 hPa at 25 °C

**Vapor Density (Air = 1)**

no data available

**Specific Gravity**

1.106 at 25 °C

**Density**

cia. 1.11 g/cm³ at 20 °C

**Evaporation rate**

no data available
Material Safety Data Sheet
ETHREL® BRAND ETHEPHON PLANT REGULATOR

Boiling Point no data available
Melting / Freezing Point -5 °C / 23 °F
Water solubility soluble
Decomposition temperature 170 °C
Partition coefficient: n-octanol/water no data available

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid Exposure to moisture. Heat, flames and sparks.
Incompatibility Zinc
Iron
Copper
Strong oxidizing agents
Bases
Mild steel
Aluminium

Hazardous Decomposition Products
Thermal decomposition
Carbon monoxide
Carbon dioxide (CO2)
Hydrogen chloride (HCl)
nitrogen oxides (NOx)

Hazardous reactions
Corrodes metals in the presence of water or moisture.
Risk of ethylene emission in case of increasing pH.
No dangerous reaction known under conditions of normal use.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute inhalation and sensitization studies were bridged from studies on the technical-grade active ingredient, ethephon. All other acute toxicity data have been bridged from similar formulations containing similar percentages of ethephon. The non-acute information pertains to technical-grade ethephon.

Acute oral toxicity male/female combined rat: LD50: > 5,000 mg/kg
Acute dermal toxicity male/female combined rabbit: LD50: > 2,000 mg/kg
Acute inhalation toxicity  

male/female combined rat: LC50: 4.5 mg/l  
Exposure time: 4 h  
The value mentioned relates to the active ingredient.  
Determined in the form of liquid aerosol.  
(actual)  

male/female combined rat: LC50: 18.0 mg/l  
Exposure time: 1 h  
The value mentioned relates to the active ingredient.  
Determined in the form of liquid aerosol.  
Extrapolated from the 4 hr LC50.  
(actual)  

Skin irritation  
rabbit: Moderate skin irritation.  

Eye irritation  
rabbit: corrosive  

Sensitisation  
guinea pig: Non-sensitizing. The value mentioned relates to the active ingredient.  

Chronic toxicity  
Ethephon caused cholinesterase inhibition and/or clinical signs of toxicity in chronic toxicity studies in rats and dogs.  

Assessment Carcinogenicity  
Ethephon was not carcinogenic in lifetime feeding studies in rats and mice.  

ACGIH  
None.  

NTP  
None.  

IARC  
None.  

OSHA  
None.  

Reproductive toxicity  
REPRODUCTION: 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.  

DEVELOPMENTAL TOXICITY: Ethephon was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed but were considered secondary to maternal toxicity.  

Neurotoxicity  
Ethephon did not cause delayed neurotoxicity in hens. Ethephon was not a neurotoxicant in acute and subchronic neurotoxicity screening studies in rats.  

Mutagenicity  
Ethephon was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.  

SECTION 12. ECOLOGICAL INFORMATION
Environmental precautions

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift.

Ecological Information

If more information is required, call the product information number listed in Section 1.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Dispose in accordance with all local, state/provincial and federal regulations. Follow advice on product label and/or leaflet. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law.

Container Disposal

Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.

RCRA Information

Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14. TRANSPORT INFORMATION

49CFR

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IMDG

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IATA

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This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: INHIBITORS, MODIFIERS OR REGULATORS, plant growth

### SECTION 15. REGULATORY INFORMATION

<table>
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**US Federal Regulations**

**TSCA list**

None.

**US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)**

None.

**SARA Title III - Section 302 - Notification and Information**

None.

**SARA Title III - Section 313 - Toxic Chemical Release Reporting**

None.

**US States Regulatory Reporting**

**CA Prop65**

This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

**US State Right-To-Know Ingredients**

None.

**Canadian Regulations**

**Canadian Domestic Substance List**

None.

**Environmental**

**CERCLA**

None.

**Clean Water Section 307 Priority Pollutants**

None.

**Safe Drinking Water Act Maximum Contaminant Levels**

None.
SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):
Health - 3    Flammability - 1    Reactivity - 0    Others - none

Health - 3    Flammability - 0    Physical Hazard - 0    PPE -
0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Updated due to new system and numbering scheme. The following sections have been revised: Section 14: Transport Information.

Revision Date: 08/19/2010

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