



Material Safety Data Sheet

ETHREL® BRAND ETHEPHON PLANT REGULATOR

MSDS Number: 102000004255

MSDS Version 1.0

Revision Date: 01/30/2009

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name ETHREL® BRAND ETHEPHON PLANT REGULATOR
MSDS Number 102000004255
Product Use Plant growth regulator.

Bayer CropScience Inc
 #100 - 3131 - 114th Avenue SE
 Calgary, AB T2Z 3X2
 Canada

For MEDICAL, TRANSPORTATION or other EMERGENCY call 1-800-334-7577 (24 hours/day)
 For Product Information call: 1-888-283-6847

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Ethephon	16672-87-0	21.70

SECTION 3. 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. Do not breathe vapours or spray mist. Irritation of mucous membranes.

Physical State liquid

Odor not significant

Appearance colourless to amber

Routes of Exposure 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.



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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 4. FIRST AID MEASURES

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 poison control center or doctor for treatment advice.
Skin	Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a poison control center or doctor for treatment advice.
Ingestion	Never give anything by mouth to an unconscious person. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Have person sip a glass of water if able to swallow. Call a poison control center or doctor immediately for treatment advice.
Inhalation	If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice. Take affected person to fresh air.
Notes to Physician Hazards	Consideration should be given to the possibility that over exposure to materials other than this product may have occurred.
Treatment	There is no specific antidote. All treatment should be based on observed signs and symptoms of distress in the patient. Probable mucosal damage may contraindicate the use of gastric lavage. In case of ingestion, the stomach should be emptied by gastric lavage under qualified medical supervision. This material is an acid, but the use of alkaline substances to neutralize is contraindicated.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	not applicable
Fire and Explosion Hazards	The product itself does not burn.



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Under fire conditions, toxic, corrosive fumes are emitted.

Suitable Extinguishing Media

Product itself is non-combustible; fire extinguishing measures to suit surroundings.

Fire Fighting Instructions

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

Methods for Cleaning Up

Wear appropriate gear for the situation. See Personal Protection information in Section 8.

Pump any free liquid into an appropriate closed container. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean floors and contaminated objects with plenty of water. Collect washings for disposal. Decontaminate tools and equipment following cleanup.

Additional Advice

Do not empty into drains. If spilled on the ground, the affected area should be removed to a depth of one or two inches and placed in an appropriate container. Do not allow to enter soil, waterways or waste water canal.

SECTION 7. HANDLING AND STORAGE

Handling Procedures

Smoking, eating and drinking should be prohibited in the application area.

Avoid inhalation of vapour or mist. Do not contaminate water sources, food or feedstuffs when disposing of left-over material. Avoid getting material on clothing. Do not ingest. Do not get in eyes, on skin, or on clothing.

Storing Procedures

Keep out of the reach of children. Protect against frost.

Store in original container in a secured, dry storage area. Do not contaminate water, food, or feed by storage or disposal. Store in cool place.

Work/Hygienic Procedures

Handle in accordance with good industrial hygiene and safety practice.

Wash hands always before eating, drinking, smoking or using the toilet.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash contaminated clothing before reuse.



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Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Then wash thoroughly and put on clean clothing. Keep and wash PPE separately from other laundry.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your local and regional regulatory agencies, consult the agency responsible for pesticide regulation.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General Protection	Assistance with selection, use and maintenance of worker protection equipment is generally available from equipment manufacturers.
Eye/Face Protection	Safety glasses, and in case of increased risk face shield or splash goggles An emergency eye wash must be readily accessible to the work area.
Hand Protection	Chemical resistant nitrile rubber gloves
Body Protection	Wear long-sleeved shirt and long pants and shoes plus socks. An emergency shower must be readily accessible to the work area.
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	not significant
pH	0.8 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



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Density	1.11 g/cm ³ at 20 °C
Boiling Point	no data available
Melting/Freezing Point	-5 °C / 23 °F
Water Solubility	soluble
Decomposition Temperature	170 °C

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Elevated temperatures. Extreme humidity.
Incompatibility	zinc iron copper strong oxidizing agents bases mild steel aluminium
Hazardous Decomposition Products	Thermal decomposition Carbon monoxide carbon dioxide (CO ₂) hydrogen chloride (HCl) nitrogen oxides (NO _x)
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

NOTE: 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 rat: LD50: > 5,000 mg/kg
Acute Dermal Toxicity	male/female rabbit: LD50: > 2,000 mg/kg



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Acute Inhalation Toxicity	male/female 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 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
Sensitization	guinea pig: Non-sensitizing. The value mentioned relates to the active ingredient.
Chronic Toxicity	Ethephon caused decreased body weights, cholinesterase inhibition, and organ effects (thyroid, kidney, liver) in chronic toxicity studies in rats. Cholinesterase inhibition, smooth muscle atrophy in the gut and decreases in body weight, spleen weight, hemoglobin and hematocrit, were observed in chronic toxicity studies in dogs treated with ethephon.
Assessment Carcinogenicity	Ethephon was not carcinogenic in oncogenicity studies in rats and mice.
ACGIH	None.
NTP	None.
IARC	None.
OSHA	None.
Reproductive & Developmental Toxicity	DEVELOPMENTAL: Data from the ethephon developmental toxicity studies in rats and rabbits show no evidence of a potential for developmental effects (malformations or variations) at doses that are not maternally toxic. REPRODUCTION: Ethephon caused decreased pup body weights at the highest dose in a two generation study in rats. No effects were observed on fertility, gestation, mating, organ weights or histopathology.
Neurotoxicity	There was no evidence of ethephon causing delayed neurotoxicity in hens. Ethephon produced transient neurobehavioral effects at high doses without correlating morphological changes in the neural tissues in an acute neurotoxicity



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screening study in rats.

Ethephon did not produce neurobehavioral effects or morphological changes in the neural tissues in a subchronic neurotoxicity screening study in rats.

Mutagenicity

The ethephon mutagenicity studies, taken collectively, demonstrate that the active ingredient is not genotoxic or mutagenic.

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.

Ecological Information

Non-hazardous for bees.

For ecotoxicological data call the product information phone number listed in Section 1.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Pesticide wastes are acutely 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 Disposal

Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

SECTION 14. TRANSPORT INFORMATION

TDG (Canada):
CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Ethephon), Class 8, UN3265, P.G. III

SECTION 15. REGULATORY INFORMATION

US Federal Regulations

TSCA list

None.



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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.

International Regulations

European Inventory of Existing Commercial Substances (EINECS)

Ethephon 16672-87-0

SECTION 16. OTHER INFORMATION

NFPA 704 (National Fire Protection Association):

Health - 3 Flammability - 1 Reactivity - 0 Others - none

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason to Revise: Revised due to Material Safety Data Sheet system number changes.

Prepared by the HSE Department of Bayer CropScience Inc. (306)-721-0310.

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