

MATERIAL SAFETY DATA SHEET



Date of Issue: 19 March, 2008

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name **Prep[®] 720 Growth Regulator**

Other names None

Product codes and pack sizes 4207709 (20 L), 4207733 (200 L), 4207903 (1000 L)

Chemical group Ethylene generator

Recommended use Plant growth regulator for agricultural use - for accelerated boll opening and pre-conditioning before defoliation of cotton

Formulation Soluble concentrate (SL)

Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022

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2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARDOUS SUBSTANCE (see Risk phrases below) - DANGEROUS GOOD
Corrosive. Harmful to aquatic organisms.

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R20/21 - Harmful by inhalation and in contact with skin.
R34 – Causes burns.

Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13

ADG classification Dangerous goods for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Class 8, CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains ethephon), UN 3265, Packing Group III. See Section 14.

SUSDP classification (Poison Schedule) Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Ethephon	[16672-87-0]	720
Other ingredients, including water (non-hazardous)	---	582

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

Inhalation	If inhaled remove to fresh air and keep at rest. Obtain immediate medical advice as above.
Skin contact	Remove all contaminated clothing immediately. Wash affected areas with plenty of water for at least 15 minutes. Obtain immediate medical advice as above.
Eye contact	Rinse eyes immediately with plenty of clean water including under eyelids for at least 15 minutes. Obtain urgent medical attention preferably from an eye specialist.
Ingestion	Wash out mouth with water. Do not induce vomiting. Have patient sip a glass of water. Keep patient at rest and get to a doctor or hospital quickly. Activated charcoal may be advised. Give atropine if instructed. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.
First Aid Facilities	Ensure eyewash and shower facilities are available.
Medical attention	This material possesses the characteristics of a strong acid and may cause mucosal damage, including irreversible eye damage. Victims of severe over-exposure by inhalation should be kept under medical observation for up to 72 hours in case of delayed onset of pulmonary oedema. In a patient with severe over-exposure by ingestion, careful gastric lavage is required due to the possibility of stomach or oesophageal perforation. Gastric lavage with charcoal is recommended following ingestion, and further treatment if necessary. This material is an acid, but the use of alkaline substances to neutralise it is contraindicated. This product contains an organophosphorus compound and is therefore expected to be a cholinesterase inhibitor, but in practice no inhibiting properties have been detected. Treat symptoms.

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, foam, carbon dioxide, dry agent
Hazards from combustion products	The product itself does not burn. In a fire, formation of carbon monoxide, carbon dioxide, phosphorus oxides (e.g. phosphorus pentoxide) and hydrogen chloride can be expected.
Precautions for fire fighters	Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep out of smoke and fight fire from upwind position. Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, spray with water to cool. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of extinguishing agent and spillage safely later.
Hazchem code	2X

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6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled material or contaminated surfaces. Do not smoke, eat or drink during the clean up process. Wear acid resistant boots and personal protective clothing and equipment as detailed in Section 8 PERSONAL PROTECTION. Keep people and animals away. Prevent spilled material from entering drains or watercourses. Absorb spill with absorbent material, sweep up and collect and store in properly labelled drums for disposal. Seal drums and label ready for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. The product attacks eyes. Protect eyes while using. Repeated minor exposure may have a cumulative poisoning effect. Obtain an emergency supply of atropine tablets 0.6 mg. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing. Ensure application equipment is thoroughly cleaned and scrubbed after using this product to avoid corrosion.
Storage	Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Protect from frost. DO NOT store in carbon steel. Ensure that no metal is in contact with product during short-term or long-term storage, e.g. taps on flexible couplings.
Flammability	Not flammable or combustible

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	No exposure standards have been assigned by the National Occupational Health and Safety Commission.
Biological limit values	None allocated
Engineering controls	Control process conditions to avoid contact. Use in a well-ventilated area only. Consider mechanical ventilation.
Personal Protective Equipment	Eyes: Product attacks the eyes. Wear face shield or goggles. Clothing: Cotton overalls buttoned to the neck and wrist Gloves: Elbow-length PVC or nitrile gloves Respiratory: Wear an AS/NZS 1715/1716 approved respirator suitable for organic vapour/mist if working in areas with insufficient ventilation and exposure to vapours or mists is possible.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Colourless to light brown liquid
Odour:	Mild characteristic
pH:	0.8 at 20 °C
Vapour pressure:	< 0.01 mPa at 20 °C (ethephon)
Vapour density:	Not available
Boiling point:	Not available
Freezing/melting point:	Not available
Solubility:	Completely miscible with water.
Density:	Approximately 1.302 g/mL at 20°C
Flash Point:	Not flammable or combustible
Flammability (explosive) limits:	Not available
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	<i>Ethephon</i> : Log P_{ow} = < -2.2 at 25°C

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Elevated temperatures. Freezing will affect physical condition of the product, but will not damage the material.
Incompatible materials	Zinc, iron, copper, strong bases, strong oxidising agents, mild steel, aluminium, sodium chlorate
Hazardous decomposition products	In a fire, formation of carbon monoxide, carbon dioxide, phosphorus oxides (e.g. phosphorus pentoxide) and hydrogen chloride can be expected.
Hazardous reactions	Corrodes metals in the presence of water or moisture. Risk of ethylene emission with increasing pH.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Harmful if inhaled. May cause respiratory tract irritation.
Skin contact	Harmful if absorbed through skin. Severe skin irritant. Causes redness, swelling, burns.
Eye contact	Corrosive – causes irreversible eye damage. Causes burns, corneal opacity.
Ingestion	Harmful if swallowed. May cause burns to mouth, throat, oesophagus and stomach.

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11. TOXICOLOGICAL INFORMATION - continued

ANIMAL TOXICITY DATA

Acute toxicity studies have not been performed on this product containing 720 g/L (approx 55%) active ingredient. The acute and non-acute information pertains to the technical-grade active ingredient, Ethephon (~70-75% a.i.)

Acute:

Oral toxicity	LD ₅₀ male rat: 3730 mg/kg LD ₅₀ female rat: 2210 mg/kg
Dermal toxicity	LD ₅₀ male rabbit: 1710 mg/kg LD ₅₀ female rabbit: 1390 mg/kg
Inhalation toxicity	LC ₅₀ rat (4 hour): 4.5 mg/L (Determined in the form of liquid aerosol)
Skin irritation	Severely irritating (rabbit)
Eye irritation	Corrosive (rabbit)
Sensitisation	Non sensitising (guinea pig)

Chronic:

Prolonged contact can cause chronic bronchitis. Repeated minor exposure may have a cumulative poisoning effect. In animal studies ethephon was shown not to be carcinogenic or mutagenic, and did not cause reproductive or teratogenic effects.

12. ECOLOGICAL INFORMATION

Prep 720 is harmful to aquatic organisms. It has low toxicity to birds, bees and earthworms. DO NOT contaminate streams, rivers, or waterways with Prep 720 or the used containers.

Ecotoxicity	<i>Fish toxicity:</i>	LC ₅₀ (96 h) rainbow trout (<i>Onchorhynchus mykiss</i>) > 100 mg/L (similar formulation)
	<i>Daphnia toxicity:</i>	EC ₅₀ (48 h) water flea (<i>Daphnia magna</i>) > 721 mg/L (ethephon)
	<i>Algal toxicity:</i>	
	Growth rate:	EC ₅₀ (72 h) algae (<i>Scenedesmus subspicatus</i>) 56 mg/L (similar formulation)
	Growth rate:	EC ₅₀ (72 h) algae (<i>Chlorella vulgaris</i>) 29 mg/L (ethephon)
	<i>Bird toxicity:</i>	LD ₅₀ bobwhite quail 1072 mg/kg (ethephon)

Environmental fate, persistence and degradability, mobility Ethephon is rapidly degraded in soil, has a low mobility and is unlikely to leach. It is sensitive to UV irradiation.

13. DISPOSAL CONSIDERATIONS

When returnable container is empty or contents no longer required return it to the point of purchase. For non-returnable containers, triple or preferably pressure rinse before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product through a reputable waste contractor.

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14. TRANSPORT INFORMATION

UN number	3265
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains ethephon)
Class and Subsidiary	8
Risk	No subsidiary risk
Packing Group	III
EPG	Guide 36 – Dangerous Goods – Initial Emergency Response Guide
Hazchem code	2X
Marine Pollutant	No

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

Australian Pesticides and Veterinary Medicines Authority approval number: 42096 See also Section 2.

16. OTHER INFORMATION

Trademark information Prep® is a Registered Trademark of Bayer.

Preparation information Replaces September 26, 2007 MSDS.
Reason for change: handling information to include atropine and updated acute toxicity information.

This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace.

Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

END OF MSDS