

# MATERIAL SAFETY DATA SHEET



Date of Issue: September 26, 2007

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product name** Finish<sup>®</sup> 720 Boll Opener and Defoliation Enhancer

**Other names** None

**Product codes and pack sizes** 4276719 (20 L)

**Chemical group** Ethylene generator and carboxylic acid

**Recommended use** Plant growth regulator for agricultural use

**Formulation** Liquid concentrate (LC)

**Supplier** Bayer CropScience Pty Ltd ABN 87 000 226 022

**Address** 391 - 393 Tooronga Road, East Hawthorn  
Victoria 3123, Australia

**Telephone** (03) 9248 6888

**Facsimile** (03) 9248 6800

**Website** [www.bayercropscience.com.au](http://www.bayercropscience.com.au)

**Contact** Development Manager (03) 9248 6888

**Emergency Telephone Number** 1800 033 111 – Orica SH&E Shared Services

## 2. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW**  
**HAZARDOUS SUBSTANCE (see Risk phrases below) - DANGEROUS GOOD**  
**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.  
Corrosive - risk of serious damage to eyes.

**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, cyclanilide), 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
Cyclanilide	[113136-77-9]	90
Propane-1,2-diol	[57-55-6]	21
Other ingredients, including water (non-hazardous)	---	581

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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.**

<b>Inhalation</b>	If inhaled remove to fresh air and keep at rest. Obtain immediate medical advice as above.
<b>Skin contact</b>	Remove all contaminated clothing immediately. Wash affected areas with plenty of water for at least 15 minutes. Obtain immediate medical advice as above.
<b>Eye contact</b>	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.
<b>Ingestion</b>	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.
<b>First Aid Facilities</b>	Ensure eyewash and shower facilities are available.
<b>Medical attention</b>	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

<b>Extinguishing media</b>	Foam, water, carbon dioxide, dry agent
<b>Hazards from combustion products</b>	The product itself will burn. In a fire, formation of carbon monoxide, carbon dioxide, nitrogen oxides, phosphorus oxides (e.g. phosphorus pentoxide) and hydrogen chloride can be expected.
<b>Precautions for fire fighters</b>	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.
<b>Hazchem code</b>	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. Eliminate any ignition sources. 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 will damage eyes and skin. Harmful by inhalation. Repeated minor exposure may have a cumulative poisoning effect. Do not inhale vapour or spray mist. If product on skin immediately wash area with soap and water. If product in eyes wash it out immediately with water. 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 dry, 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** Combustible liquid, Class C1 - flashpoint between 61° C and 150° C.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure standards** For propylene glycol (propane-1,2-diol) the NOHSC Occupational Exposure Limits are: TWA: 150 ppm or 474 mg/m<sup>3</sup> (vapour and particulates) and 10 mg/m<sup>3</sup> (particulates only)

### Definitions

*Exposure standard – Time Weighted Average (TWA)* means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

**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 or equivalent clothing

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:	Brown opaque liquid suspension
Odour:	Odourless
pH:	1.7 at 1% w/w
Vapour pressure:	Not available
Vapour density:	Not available
Boiling point:	Not available
Freezing/melting point:	Not available
Solubility:	Dispersible in water.
Density:	Approximately 1.412 g/mL at 20 °C
Flash Point:	> 93 °C Pensky-Martens Closed Cup
Flammability (explosive) limits:	LEL: 2.6; UEL: 12.6 Vol. %
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	<i>Ethephon</i> : Log $P_{ow}$ = < -2.2 at 25°C <i>Cyclanilide</i> : Log $P_{ow}$ = 3.25 at 21°C

## 10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Heat, flames and sparks. 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, tin, sodium or magnesium chlorate
Hazardous decomposition products	In a fire, formation of carbon monoxide, carbon dioxide, nitrogen oxides, 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. Skin irritant, causing redness and swelling on prolonged contact.
Eye contact	Corrosive – causes irreversible eye damage, 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 - PRODUCT

#### Acute:

Oral toxicity	LD <sub>50</sub> rat: 2000 to 5000 mg/kg
Dermal toxicity	LD <sub>50</sub> rabbit: > 2000 mg/kg
Inhalation toxicity	LC <sub>50</sub> rat (4 hour): > 2.51 mg/L (ethephon) LC <sub>50</sub> rat (4 hour): > 5.15 mg/L (cyclanilide)
Skin irritation	Moderately irritating (rabbit)
Eye irritation	Severely irritating (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.

Cyclanilide was not mutagenic in the Ames test. It did not exhibit any carcinogenic potential when tested in rats and mice, and it was not a developmental or reproductive toxicant.

## 12. ECOLOGICAL INFORMATION

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

Ecotoxicity	<u>Similar formulation</u>	
	<i>Fish toxicity:</i>	LC <sub>50</sub> (96 h) rainbow trout ( <i>Onchorhynchus mykiss</i> ) > 100 mg/L
	<i>Algal toxicity:</i>	
	Growth rate:	EC <sub>50</sub> (72 h) algae ( <i>Scenedesmus subspicatus</i> ) 56 mg/L
	<u>Ethephon</u>	
	<i>Daphnia toxicity:</i>	EC <sub>50</sub> (48 h) water flea ( <i>Daphnia magna</i> ) > 721 mg/L
	<i>Algal toxicity:</i>	
	Growth rate:	EC <sub>50</sub> (72 h) algae ( <i>Chlorella vulgaris</i> ) 29 mg/L
	<i>Bird toxicity:</i>	LD <sub>50</sub> bobwhite quail 1072 mg/kg
	<u>Cyclanilide</u>	
	<i>Fish toxicity:</i>	LC <sub>50</sub> (96 h) rainbow trout > 11 mg/L LC <sub>50</sub> (96 h) bluegill sunfish > 16 mg/L LC <sub>50</sub> (96 h) sheepshead minnow > 49 mg/L
	<i>Daphnia toxicity:</i>	EC <sub>50</sub> (48 h) water flea ( <i>Daphnia magna</i> ) > 13 mg/L
<i>Algal toxicity:</i>	Moderately toxic	
<i>Bird toxicity:</i>	LD <sub>50</sub> bobwhite quail 216 mg/kg LD <sub>50</sub> mallard duck > 215 mg/kg	

**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. Cyclanilide has a low to moderate persistence in the environment with DT<sub>50</sub> 15-49 days under aerobic conditions. It degrades primarily by microbial activity. Medium to low mobility (average K<sub>oc</sub> 346) and consequently little potential for leaching.

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## 13. DISPOSAL CONSIDERATIONS

Triple or preferably pressure rinse containers 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.

## 14. TRANSPORT INFORMATION

UN number	3265
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (contains ethephon, cyclanilide)
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: 52047 See also Section 2.

## 16. OTHER INFORMATION

**Trademark information** Finish® is a Registered Trademark of Bayer.

**Preparation information** Replaces August 2, 2006 MSDS.  
Reasons for change: Finish 720 is not classified as a Marine Pollutant.

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