

# MATERIAL SAFETY DATA SHEET



Date of Issue: March 28, 2007

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Product name** Reign<sup>®</sup> Plant Growth Regulator

**Other names** None

**Product codes and pack sizes** 4273647 (20 L), 6362613 (110 L), 4273906 (1000 L)

**Chemical group** Quaternary ammonium

**Recommended use** Agricultural plant growth regulator

**Formulation** Aqueous concentrate (AC)

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

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**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* NON-HAZARDOUS SUBSTANCE – NON-DANGEROUS GOOD

**Hazard classification** Not Hazardous (National Occupational Health and Safety Commission - NOHSC)

**Risk phrases** None

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

**ADG classification** Not a "Dangerous good" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. See Section 14.

**SUSDP classification (Poison Schedule)** Schedule 5 (Standard for the Uniform Scheduling of Drugs and Poisons)

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Mepiquat chloride	[24307-26-4]	50 (≡ 38 g/L mepiquat)
Other ingredients, including water	Non-hazardous	950

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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 medical advice if symptoms persist.
<b>Skin contact</b>	Immediately remove all contaminated clothing and footwear. Wash the skin thoroughly with soap and water. Seek medical aid if symptoms persist.
<b>Eye contact</b>	Immediately rinse eyes thoroughly, including under eyelids, with lukewarm water for 15 minutes. Seek medical advice.
<b>Ingestion</b>	Wash out mouth with water. Do NOT induce vomiting. Give water to drink. Keep patient at rest and seek medical advice as above. Do not give anything by mouth to a person who is unconscious or semi-conscious.
<b>First Aid facilities</b>	Provide washing facilities in the workplace.
<b>Medical attention</b>	No cases of human poisonings with this product have been reported. Overexposure may result in slight narcosis. Ingestion of large amounts may result in gastric disturbances, including muscle spasms. Gastric lavage should be considered in cases of significant ingestions, within the first 2 hours. Administration of activated charcoal and sodium sulphate is always advisable in significant ingestions. As there is no specific antidote, treatment has to be symptomatic and supportive.

## 5. FIRE FIGHTING MEASURES

<b>Extinguishing media</b>	Water spray, alcohol-resistant foam, dry agent, carbon dioxide.
<b>Hazards from combustion products</b>	In a fire, toxic decomposition products such as nitrogen oxides and hydrochloric acid may be evolved.
<b>Precautions for fire fighters</b>	Product is not combustible. Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). If it can be done safely, remove intact containers from exposure to fire. Otherwise, use water spray to cool them. Keep unnecessary people away. Bund area to prevent contamination of water sources. Dispose of fire control water and spillage safely later.
<b>Hazchem code</b>	None

## 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled material or contaminated surfaces. When dealing with spills, do not eat, drink or smoke. Wear protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. Keep people and animals away and upwind. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

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## 7. HANDLING AND STORAGE

<b>Handling</b>	Keep out of reach of children. Avoid contact with eyes and skin. Wash hands after use. After each day's use, wash gloves and any other protective equipment.
<b>Storage</b>	Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.
<b>Flammability</b>	Product is not flammable or combustible.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>Exposure standards</b>	There are no applicable NOHSC exposure standards.
<b>Biological limit values</b>	None allocated
<b>Engineering controls</b>	Control process conditions to avoid contact. Use in a well-ventilated area only.
<b>Personal Protective Equipment</b>	To avoid eye and skin contact, wearing the following personal protective clothing and equipment is recommended: <ul style="list-style-type: none"><li>▪ Safety goggles.</li><li>▪ Cotton overalls buttoned to the neck and wrist</li><li>▪ Elbow-length PVC gloves</li><li>▪ Respiratory protection is not normally required. If inhalation of product or spray is likely, an AS/NZS 1715/1716 approved respirator should be worn.</li></ul>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Clear light red liquid
<b>Odour:</b>	Negligible
<b>pH:</b>	6.0 to 8.5 (undiluted) at 20° C
<b>Vapour pressure:</b>	< 1 x 10 <sup>-11</sup> mPa at 20° C ( <i>mepiquat chloride</i> )
<b>Vapour density:</b>	Not available
<b>Boiling point:</b>	~ 100° C
<b>Freezing/melting point:</b>	~ - 2° C (freezing point)
<b>Solubility:</b>	Completely miscible in water
<b>Density:</b>	Approximately 1.0 g/mL at 20° C
<b>Flash Point:</b>	Not flammable or combustible
<b>Flammability (explosive) limits:</b>	Not applicable
<b>Auto-ignition temperature:</b>	The product is not self-ignitable.
<b>Partition coefficient (octanol/water):</b>	<i>Mepiquat chloride</i> : Log P <sub>ow</sub> = - 3.55 (pH 7)

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## 10. STABILITY AND REACTIVITY

<b>Chemical stability</b>	Stable under normal conditions of use.
<b>Conditions to avoid</b>	Avoid extremes of temperature and direct sunlight.
<b>Incompatible materials</b>	Bases, amines. Corrosive to aluminium.
<b>Hazardous decomposition products</b>	In a fire, nitrogen oxides and hydrogen chloride may be formed.
<b>Hazardous reactions</b>	None known.

## 11. TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

<b>Inhalation</b>	Low toxicity by inhalation.
<b>Skin contact</b>	Not expected to irritate the skin.
<b>Eye contact</b>	May irritate the eyes.
<b>Ingestion</b>	Product toxicity is low but may be harmful if a large amount is swallowed.

### ANIMAL TOXICITY DATA - *PRODUCT*

#### Acute:

<b>Oral toxicity</b>	LD <sub>50</sub> rat: > 6000 mg/kg
<b>Dermal toxicity</b>	LD <sub>50</sub> rat: > 5000 mg/kg
<b>Inhalation toxicity</b>	LC50 rat (4 h): > 10.3 mg/L
<b>Skin irritation</b>	Not irritating (rabbit)
<b>Eye irritation</b>	Not irritating (rabbit)
<b>Sensitisation</b>	Not sensitising (guinea pig)

#### Chronic:

Studies indicate that mepiquat chloride is not mutagenic, oncogenic or teratogenic and did not cause reproductive effects.

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## 12. ECOLOGICAL INFORMATION

This product has a low toxicity to birds, fish, bees and earthworms. It is harmful to Daphnia. DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

**Ecotoxicity**                      Mepiquat chloride:  
*Fish toxicity:* LC<sub>50</sub> (96 h) rainbow trout 4300 mg/L  
*Daphnia toxicity:* LC<sub>50</sub> (48 h) water flea (*Daphnia magna*) 68.5 mg/L  
*Algal toxicity:* EC<sub>50</sub> (72 h) algae (*Pseudokirchneriella subcapitata*) > 1000 mg/L  
*Bird toxicity:* Acute oral LD<sub>50</sub> bobwhite quail > 2000 mg/kg

**Environmental fate, persistence and degradability, mobility**                      Mepiquat chloride is readily biodegradable. DT<sub>50</sub> of mepiquat chloride in soil is 11 – 40 days at 20° C and 40% of water-holding capacity.

## 13. DISPOSAL CONSIDERATIONS

### *(20 L containers)*

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.

### *Container with dry-break connection (110, 1000 L)*

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products.

Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Bayer CropScience Pty Ltd.

### *Schutz container with camlock valve connection (1000 L)*

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. The container must be vented before discharging contents. To empty connect a camlock fitted hose to the bottom valve. Remove top cap when discharging for venting purposes. When the container is empty, close all caps and valves and return the container to the point of purchase.

Dispose of waste product via a licensed disposal contractor to an approved landfill.

## 14. TRANSPORT INFORMATION

UN number	Not applicable
Proper shipping name	Not applicable
Class and Subsidiary Risk	Not applicable
Packing Group	Not applicable
EPG	Not applicable
Hazchem code	Not applicable
Marine Pollutant	No

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## 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988.

Australian Pesticides and Veterinary Medicines Authority approval number: 53328

See also Section 2.

## 16. OTHER INFORMATION

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

**Preparation information**                      Replaces August 1, 2002 MSDS.  
Reasons for revision: 16 heading format, product codes and pack sizes, Medical attention, Chronic toxicity, Ecological Information, Disposal, Registered Trademark.

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