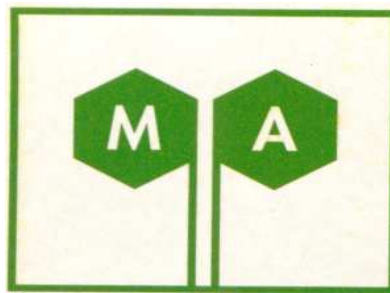


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**Product : Makhro Paraquat**



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### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT NAME: Makhro Paraquat**

**ADDRESS: P O Box 498 21 Viben Street**  
**Brackenfell Brackenfell**  
**7561 7560**

**PHONE No: 021 982 1460**  
**EMERGENCY No.: Toll free number (24 hours): 082911**  
**For overseas customers (24 hours): +27-11-254 1911**

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### 2. COMPOSITION / INFORMATION ON INGREDIENTS:

#### PRODUCT DESCRIPTION:

A bipyridyl contact herbicide. An aqueous solution containing emetic, stench surfactants and dye.

	<b>CAS-No</b>	<b>g /kg</b>
<b>Ingredients:</b>		
Paraquat ion	4685-14-7	200
Pyridine Bases	68391-11-7	10
Paraquat Emetic	27277-00-5	<10
Alkylphenol Ethoxylate		<100
<b>Chemical name:</b>	1,1'-Dimethyl-4,4'-bipyridylium dichloride	
<b>Chemical family:</b>	Bipyridylium	
<b>Chemical formula:</b>	C <sub>12</sub> H <sub>14</sub> Cl <sub>2</sub> N <sub>2</sub>	
<b>UN No.</b>	3016	
<b>Risk phrases:</b>	R24/25, R26, R36/37/38, R41, R48/22,R51/53	

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### 3. HAZARDS IDENTIFICATION:

**Toxicity class:** WHO (a.i.) II; EPA (formulation) II

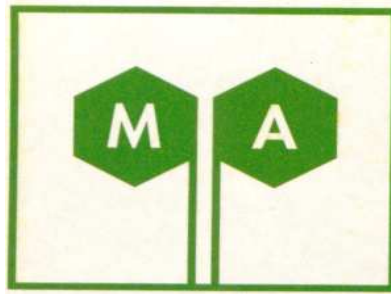
#### **Ingestion:**

PARAQUAT CAN KILL IF SWALLOWED. Rapid treatment is essential. The immediate effects of poisoning depend on the dose of paraquat absorbed into the blood. The immediate effects of poisoning usually are abdominal discomfort, soreness and inflammation of the mouth, throat and oesophagus, difficulty in swallowing and later, diarrhoea. Kidney and liver damage may appear 1-3 days after exposure. Lethal poisoning occurs at >40mg paraquat ion/kg body weight and the effects are nausea and vomiting, and can cause death within 48 hours.

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### 3. HAZARDS IDENTIFICATION (Contd.):

**Eye:**

A severe eye irritant. Eye irritation may be delayed. May lead to ulceration of corneal and conjunctival epithelium giving rise to secondary infection. Although healing may be slow, the injury is superficial and with proper medical care will be complete, even in severe cases.

**Skin:**

Contact with skin will result in irritation. Can cause inflammation and severe cases blistering of the skin. Contamination of the nails may cause white spots or in severe cases cracking and loss of the nail. Normal growth follows without delay. Intact skin is a very effective barrier to paraquat. Damaged skin removes the barrier and paraquat may be absorbed with effects as outlined above under 'swallowed'.

**Inhaled:**

Inhalation of vapour is not likely due to low vapour pressure. Inhalation of spray droplets can result in nose bleeds, irritation and soreness of the throat if trapped in the nasal passage. Inhalation of respirable (very small) spray droplets is unlikely however inhalation of respirable spray droplets can result in pulmonary oedema up to 48 hours after exposure and could prove fatal.

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### 4. FIRST-AID MEASURES:

**Ingestion:**

If poisoning occurs get to a doctor or hospital quickly, warning by telephone of the estimated arrival time so that treatment is not delayed. Give up to 1 litre of 15% aqueous suspension of Fuller's Earth or soil (preferably clay) orally or by gastric tube, together with a suitable purgative. If more than 15 minutes from a hospital induce vomiting by tickling back of the throat with a clean blunt instrument or using fingers in the throator Ipecac Syrup APF. Do not delay the start of treatment.

**Eye:**

Immediately irrigate with copious quantities of water for at least 15 minutes. Eyelids to be held open. Remove clothing if contaminated and wash skin. Seek immediate medical assistance.

**Skin:**

Immediately take off all contaminated clothing. Wash skin immediately with water followed by soap and water. Seek immediate medical advice.

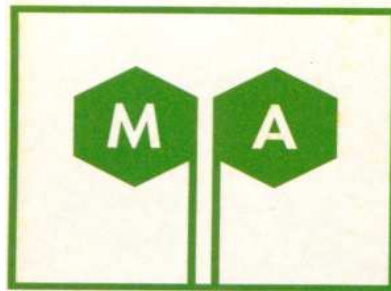
**Inhaled:**

Remove victim from exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Seek medical advice.

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#### 4. FIRST-AID MEASURES (Contd.):

**Advice to Physician:**

Rapid treatment for paraquat poisoning is essential. For further advice contact the Poisons Information Centre in each state capital city. Refer to a booklet entitled "The Treatment of Paraquat Poisoning: A Guide For Doctors" (1985 or later edition) - available at most major treatment hospitals.

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#### 5. FIRE-FIGHTING MEASURES:

**Fire and Explosion Hazards:**

Technical aqueous solution presents no ignition hazards. Keep fire exposed container cool by spraying with water.

**Extinguishing media:**

For small fires, use foam, carbon dioxide or dry powder extinguishant. For large fires, use foam or water-fog; avoid use of water jet. Contain run-off water with, for example, temporary earth barriers.

**Fire Fighting Protective Equipment:**

A self contained breathing apparatus and suitable protective clothing must be worn in fire conditions.

**Hazardous Decomposition Products:** Decomposes on heating emitting soot, smoke, decomposition products and carbon monoxide. Fire Fighting Procedures Fire fighters to wear self-contained breathing apparatus (SCBA) if exposed to products of decomposition. Full protective clothing is also recommended.

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#### 6. ACCIDENTAL RELEASE MEASURES:

Clear area of all unprotected personnel. Do not allow traffic to pass over contaminated area. Contain using sand and soil prevent runoff into drains and waterways. Do not smoke, drink or eat during clean up operations. Use absorbent (soil, sand, vermiculite or other inert material).

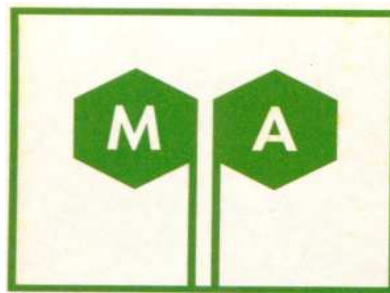
Collect and seal in properly labelled drums for disposal and sweep the area. If the area is still damp, repeat procedure.

**Note:** Paraquat is bound strongly to clay-based materials and thus effectively deactivated. To eliminate any traces of unabsorbed material, dose the spill area with sodium hypochlorite or bleach solution, allow to stand for about 30 mins then hose down with water as a final clean up.

Bury sweepings and damaged containers under 50cm of soil in a selected dump remote from dams and watercourses. Refer to local government Authority for information on a suitable site.

If contamination of crops or waterways has occurred advise Emergency Services or Department of Agriculture. If contamination of sewers or waterways has occurred also advise Emergency Services.

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## 7. HANDLING AND STORAGE:

### Handling:

Read the label before use.

#### *Safe handling advice:*

Avoid all contact by mouth. Avoid contact with skin and eyes. Do not breath spray. When using do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking.

### Storage:

*Safe storage advice:* Store under lock and key. Keep in original container, tightly closed, out of reach of children. Store in a cool, dry place away from farm feeds and food stuff.

### Storage Life:

Physically and chemically stable for a least 2 years when stored in the original unopened sales container at ambient temperatures. Do not store for prolonged periods in direct sunlight.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION:

### Exposure standards:

#### *Paraquat Dichloride*

(Worksafe Australia)

0.1 mg/m<sup>3</sup> [TWA] respirable dust or mist.

(American Conference of Govt. Ind. Hygienists) 0.1 mg/m<sup>3</sup> [TWA] respirable dust or mist.

### Personal protection:

When using this product refer to label for details.

### Hazardous ingredients:

Paraquat Emetic

8 hr TWA 0.02 mg/m<sup>3</sup>

Pyridine Bases

8 hr TWA 1 ppm

5 mg/m<sup>3</sup>

Skin: Can be absorbed through skin

### Hazardous ingredient:

Paraquat dichloride OES/HSE

(Respirable Dust)

8 hr TWA 0,1 mg/m<sup>3</sup>

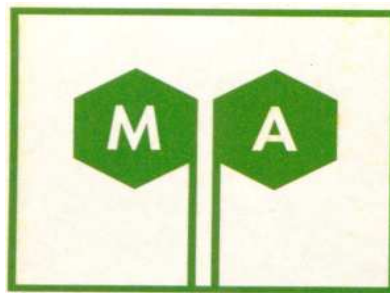
### Engineering Controls

Maintain adequate ventilation at all times. Keep upwind. Wear a respirator if ther is a risk of inhaling the mist. Local exhaust ventilation system is recommended if a mist is formed in an enclosed area.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION (Contd.):

### Personal Protection Equipment:

Avoid skin, eye contact and inhalation of mist. When opening the container and preparing product for use wear elbow length gloves, face shield or goggles.

**Clothing:** PVC apron or splash suit.

**Gloves:** PVC.

**Eyes:** Chemical goggles, face shield or safety glasses with side shields to protect eyes.

**Respiratory Protection:** Avoid breathing the mist. If natural or local exhaust ventilation is not adequate, select and use a respirator for mists in accordance with AS/NZS 1715/1716.

If clothing becomes contaminated with product, remove the clothing immediately. Wash before re-use. After use and before eating, drinking or smoking, wash the hands, arms and face thoroughly with soap and water. After each day's use, wash all protective clothing.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES:

<b>Form</b>	: liquid.
<b>Colour</b>	: dark blue
<b>Odour</b>	: distinctive; characteristic of pyridine bases
<b>Boiling point</b>	: approx. 100 °C aqueous solution
<b>Flash point</b>	: Not applicable
<b>Autoignition temp.</b>	: Not available.
<b>Vapour Pressure</b>	: Not available.
<b>Density</b>	: 1,08 g/mℓ
<b>Solubility</b>	: soluble in water.
<b>pH-value (quant.)</b>	: 6,5 - 7,5
<b>Partition Coefficient</b>	: Kow logP= -4.5(20 °C)
<b>Oxidising Properties</b>	: Not applicable.

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## 10. STABILITY AND REACTIVITY:

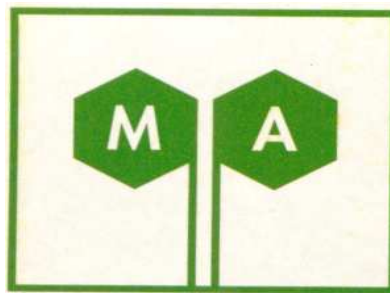
### Hazardous Reactions: (materials to avoid)

Strong alkalis, acids, oxidizing agents. Paraquat is highly corrosive to most metals e.g., aluminium, zinc, iron.

### Hazardous decomposition product(s) :

Combustion or thermal decomposition will evolve toxic and irritant vapours.

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## 11. TOXICOLOGY INFORMATION:

### ACUTE TOXICITY (LETHAL DOSES)

Lowest recorded lethal dose for humans LDLo: 43 mg/kg  
Lowest published toxic conc'n for man TDLo : 32 mg/kg

**LD<sub>50</sub> Oral male rats** : 707 mg formulation/kg  
**LD<sub>50</sub> Oral female rats** : 612 mg formulation/kg

**LD<sub>50</sub> Dermal male rats** : 590 mg formulation/kg  
**LD<sub>50</sub> Dermal female rats** : 735 mg formulation/kg

### Inhalation

Nose bleeding and soreness of the throat may result from spray mist or dust trapped on the nasal mucosa. If this occurs review spraying and handling technique.

**Skin Irritation** : Moderate/severe irritant to rabbit skin.

**Eye Irritation** : Moderate irritant to rabbit eyes.

**May cause eye irritation in man.**

**Skin Sensitisation Buehler** : It is not a skin sensitiser in animal tests.

**Respiratory Irritation** : High concentrations of mist may be irritant to the respiratory tract.

**Long Term Exposure** : No long term risks to man are associated with the normal handling and use of this material.

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## 12. ECOLOGICAL INFORMATION:

### Environmental fate:

#### Toxicity:

#### Birds:

#### Oral LD<sub>50</sub>:

Bobwhite quail: 175 mg/kg

Mallard duck: 199 mg/kg

#### Fish:

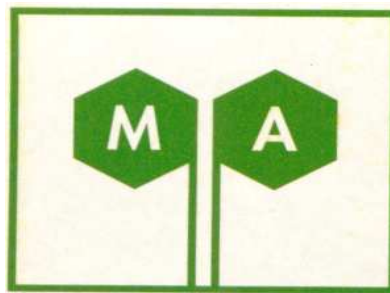
Harmful to fish.

96HR LC<sub>50</sub> (Rainbow trout): 55 mg/L (static).

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## 12. ECOLOGICAL INFORMATION (Contd.):

**Daphnia EC<sub>50</sub> (48h):** 6.1 mg/l

**Algae:**

Toxic to algae.

**EbC<sub>50</sub> (96h):** 0.1 mg/l

**ErC<sub>50</sub> :** 0.28 mg/l

**Earthworms:** >1380 mg/kg soil.

**Mobility:**

The substance does not leach.

The substance does not bioaccumulate.

Paraquat is rapidly absorbed and de-activated by soil.

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## 13. DISPOSAL CONSIDERATIONS:

Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage. Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. Break, crush, puncture and bury empty containers in a local authority landfill. If not available bury the containers below 500mm in a disposal pit specifically marked and set up for this purpose clear of waterways, vegetation and roots. Empty containers and product should not be burnt.

Do not re-use containers for any other purpose.

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## 14. TRANSPORT INFORMATION:

**UN No.:** 3016

**ROAD**

**ADR/IRD**

Shipping name: Bipyridilium pesticide, liquid, toxic (Paraquat 200 g/l )

Class: 6.1

Classification code: T6

Packing group: III

Label: 6.1

Hazard ID no. 60

**IMDG/IMO**

Shipping name: Bipyridilium pesticide, liquid, toxic (Paraquat 200 g/l )

Packaging group: III

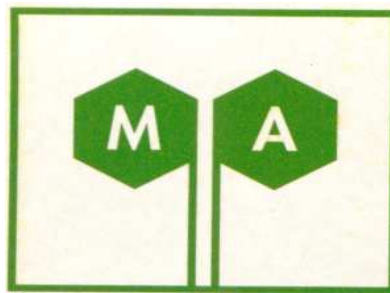
Label: 6.1 **MARINE POLLUTANT**



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#### 14. TRANSPORT INFORMATION (Contd.):

##### AIR/IATA

Shipping name: Bipyridilium pesticide, liquid, toxic(Paraquat 200 g/l )

Class 6.1  
Label Toxic  
Packaging Group III  
Passenger Aircraft Y611 (max 2 L) 611 (max 60 L)  
Cargo Aircraft 618 (max 220 L)

**UK classification** Not available.

**Tremcard No.:** 61GT6-III

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#### 15. REGULATORY INFORMATION:

**Hazard symbols:** T+, N

**Indication of danger:** Very Toxic, Dangerous to the environment.

##### Risk Phases

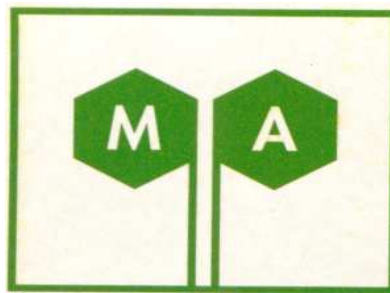
**R24/25** Toxic in contact with skin and if swallowed.  
**R26** Very toxic by inhalation.  
**R36/37/38** Irritating to eyes, respiratory system and skin.  
**R41** Risk of serious damage to eyes.  
**R48/25** Toxic: danger of serious damage to health by prolonged exposure if swallowed.  
**R51/53** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

##### Safety Phrases

**S1/2** Keep locked up and out of reach of children.  
**S13** Keep away from food, drink and animal feeding stuffs.  
**S23** Do not breathe mists.  
**S24/25** Avoid contact with skin and eyes.  
**S26** After contact with eyes, rinse immediately with water and seek medical advice.  
**S28** After contact with skin, wash immediately with soap and water.  
**S36/37/39** Wear suitable protective clothing, gloves and eye/face protection.  
**S38** In case of insufficient ventilation, wear suitable respiratory protection.  
**S45** In case of accident or if you feel unwell, seek medical advice immediately  
**S42** During spraying, wear suitable respiratory equipment.  
**S46** If swallowed, seek medical advice immediately and show this container or label.



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**15. REGULATORY INFORMATION (Contd.):**

- S60** This material and its container must be disposed of as hazardous waste.
- S61** Avoid release to the environment. Refer to special instructions/Safety data sheets.

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**16. OTHER INFORMATION:**

**References:**

- The Pesticide Manual; Thirteenth Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- Dangerous Goods Regulations; IATA International Air Transport Association, 41st Edition, Effective 1 January 2006.
- IMDG Code, Vol. 2, 2005 Edition.
- EXTOXNET, Pesticide Information Profiles, Revised June 1996. The primary files are maintained and archived at the Oregon State University.

**Use: An agricultural/horticultural herbicide.**

**Read the label before you apply the product.**

The information on this sheet is not a specification, it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage and use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.

All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors or omissions or the consequence thereof.

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**END OF MSDS.**