

A close-up photograph of a light green, textured surface covered with numerous small, clear water droplets of varying sizes. The droplets are in sharp focus, reflecting light and creating a shimmering effect. The background is a soft, out-of-focus green.

HYDROGEL

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Situation

- Increased Urbanisation of waterways
- Increased invasiveness and nuisance aquatic weed infestations and vector pests
- Increased variability in water use needs
 1. Water for Human consumption
 2. Access for Fishing commercial domestic
 3. Domestic animals livestock
 4. Hydroelectric dams
 5. Flood control River Bank Erosion
 6. Aesthetics Land Value

Background

- Management of invasive and nuisance plants requires precision due to the concerns of off target plants and animals
- Invasive and nuisance plants are a severe problem with few options available
- Few herbicides have the capability of managing submerged aquatic weeds in flowing waterways













Objective

- Assist in the management of submerged aquatic weeds and to effectively target and eliminate them with approved herbicides
- Diquat is an important tool in managing Aquatic Weeds throughout the world USA, Canada, UK, South Africa and New Zealand and to a limited extent in Australia
- Diquat will be critical in selective management of submerged weeds in highly populated areas

Hydrogel

For the precise placement of the
Herbicide Diquat in Integrated
Weed Management Plans
Controlling

Submerged Noxious Aquatic
Weed Species in flowing
waterways or impoundments

Why Precise Applications

- Apply directly on Target Sites
- Minimise off target effects
- Protection of endangered plant species
- Reduced application rates

What is Hydrogel

- Hydrogel is a Poly Saccharide Starch
- It is a high viscous gel and when mixed with Diquat provides a highly effective herbicide for spot treatment of weeds in waterways
- Precision placement with limited drift off target
- Herbicide gel attaches itself due to positive ionisation attaching itself to Submerged Weeds for an effective kill of the undesirables

Problem areas

- Inflows and outflows of water bodies
- Dams and irrigation flood gates
- Marinas and wharfs
- Navigation channels
- Minimal use of Barriers Weed Harvesters
- Endangered ecological sites

Attributes

- Up to 3.7mg/l concentration in water column
- Treatment of weed not water body
- Heavier than water penetrates thermal layers
- Sticks to submerged plants
- Applied 1-1 Hydrogel and Diquat
- Not used with other products

Hydrogel Diquat Mix

- Active ingredient Diquat Dibromide a non-selective bi-pyridylium herbicide
- Light/ chemical /chlorophyll interaction in green plants
- Hydrogel Diquat sinks down and attaches to plant surfaces
- Diquat is released into the target zone resulting in desiccation and death of the weed

Application

- Hand held spray equipment onto target areas
- Small area and spot application back pack sprayer with solid stream nozzles
- Large areas hand gun with pump to deliver a directed spray 60litres per hectare
- Boat mounted boom spray
- For broadcast or spot spraying
- Flowing water moving upstream flow rates $< 1\text{ms}$
- Treat only problem areas not the water column

Conclusion

- Hydrogel and Diquat is an effective formulation against major weed species
- Hydrogel /Diquat is more effective than current standard treatments in water of high exchanges
- More studies are recommended to better define efficacy in various water exchange rates
- More information is needed on a time X concentration exposure for control of target species













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