MATERIAL SAFETY DATA SHEET

STATEMENT OF HAZARDOUS NATURE:
Hazardous according to the criteria of NOHSC Australia

COMPANY DETAILS:
Syngenta Crop Protection Pty Limited
ABN 33 002 933 717
Level 1, 2-4 Lyon Park Road
NORTH RYDE, NSW 2113

Telephone No.: (02) 8876 8444
24 Hours Emergency No.: 1 800 033 111

IDENTIFICATION

PRODUCT NAME: REGLONE NON-RESIDUAL HERBICIDE

Formulation type:	Aqueous concentrate	**UN number:**	1760
Active ingredients:	Diquat dibromide	**Dangerous goods class:**	8 (corrosive)
Product code:		**Subsidiary risk:**	none
Chemical type:	bipyridilium	**Hazchem code:**	2X
Poisons schedule:	6	**Packing group:**	III
		EPG/IERG:	8A1

USE: Herbicide for the control of a wide range of grasses and broadleaf weeds.

PHYSICAL DESCRIPTION/PROPERTIES

Appearance:	Dark red brown viscous liquid	**Flash Point:**	Does not flash
Odour:	Non-specific	**Flammability:**	not applicable
Boiling/Melting point:	100°C approx.	**Combustibility:**	non combustible
Vapour pressure:	not available	**Solubility in water:**	soluble
Specific gravity:	1.20 g/cm^3 at 20°C	**Volatility:**	not volatile

OTHER PROPERTIES

pH (1% aqueous):	4 – 5.5	**Corrosiveness:**	Corrosive

INGREDIENTS

	CAS No.	Content (%w/v)
Diquat (present as diquat dibromide)	85-00-7	17% (200 g/L)
Water	7732-18-5	> 60%
Other ingredients determined not to be hazardous	---	%

HEALTH HAZARD INFORMATION

HEALTH EFFECTS

ACUTE TOXICITY
This product is **toxic** according to NOHSC Australia.

Ingestion: **HARMFUL**
Swallowing can result in nausea, vomiting, diarrhoea and abdominal pain within a few hours of swallowing. Ulceration of lips, mouth, throat and intestine may follow within 24 – 48 hours. Kidney failure and liver damage may occur at higher doses. In severe cases circulatory collapse, coma and death from respiratory failure/cardiac arrest can occur. The lethal dose for man is approximately 4 – 6 g of diquat (equivalent to approx. 60 mg/kg)

The following acute oral toxicity results have been determined for the active ingredient of the product:
Diquat dibromide: LD_{50} male rats = 214 mg/kg, LD_{50} female rats = 222 mg/kg

Skin contact: **MODERATE IRRITANT**
Contact with skin will result in severe irritation. Can cause inflammation and in severe cases blistering of the skin. Contamination of the nails may cause white spots or cracking and loss of the nail. Normal growth follows without delay. A skin sensitiser. Repeated or prolonged skin contact may lead to allergic contact dermatitis. Absorption of diquat through human skin is poor.
The following acute dermal toxicity results have been determined for the active ingredient of the product:
Diquat dibromide: LD_{50} (rat) > 2000 mg/kg

Eye contact: IRRITANT
Severe damage may be caused. May lead to ulceration of corneal and conjunctival epithelium giving rise to secondary infection.

Inhalation: TOXIC
Highly toxic if inhaled. However, unlikely to be hazardous by inhalation because of low vapour pressure of the material at ambient temperature. Nose bleeding and soreness of the throat may result from spray mist or dust trapped on the nasal mucosa.

CHRONIC TOXICITY
Ingestion studies in animals have shown that repeated doses of diquat produce cataracts in test animals (dog, rat). The no-effect level was 5 ppm in the diet (approx. 0.25 mg/kg body weight per day) for the rat in a two year study. For the dog the no effect level was 0.5 mg cation per kg per day in a one year study. These effects have not been seen in occupationally exposed humans. Diquat has not been shown to be carcinogenic or teratogenic.

The ADI (Acceptable Daily Intake) for humans (diquat dibromide) is 0.002 mg/kg/day.

FIRST AID
OBTAIN IMMEDIATE MEDICAL ATTENTION. SPEED IS ESSENTIAL.

Swallowed:	If poisoning occurs get to a doctor of hospital quickly, warning by telephone of the estimated arrival time so that treatment is not delayed. Do not induce vomiting. DO NOT delay the start of treatment.
Eye:	Immediately irrigate with copious quantities of water for at least 20 minutes. Eyelids to be held open. Urgently seek medical assistance. Transport to hospital or medical centre.
Skin:	Immediately take off all contaminated clothing. Wash skin immediately with water followed by soap and water. If swelling, redness, blistering or irritation occurs seek medical attention. Contaminated clothing should be laundered before reuse.
Inhaled:	Remove victim from exposure. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Obtain immediate medical attention.

ADVICE TO DOCTOR
Give up to 1 litre of 15% aqueous suspension of Fuller's Earth orally or via gastric tube, together with a suitable purgative (200mL of a 20% aqueous solution of mannitol). If ingested, wash out the stomach and test urine for the presence of diquat. If there is severe mouth ulceration give nothing by mouth until patient's condition has improved. Give intravenous fluids only.
Eye contact: severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

PRECAUTIONS FOR USE

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

EXPOSURE STANDARDS
There are no assigned values for this specific product, however, exposure standards for the active ingredient are as follows:

	TWA		STEL	
	ppm	mg/m^3	ppm	mg/m^3
Diquat	--	0.5	--	1

As published by the National Occupational Health and Safety Commission –

TWA – the Time-Weighted Average airborne concentrations over an eight-hour working day, for a five-day working week over an entire working life.
STEL (Short Term Exposure Limit) – the average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour work day. According to current knowledge these concentrations should neither impair the health of nor cause undue discomfort to nearly all workers.
These exposure standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. Exposure Standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.
If the directions for use on the product label are followed, exposure of individuals using the product should not exceed the above standard. The standard was created for workers who are routinely, potentially exposed during manufacture of the product.

Re-entry Period - Do not enter treated areas without protective clothing (waterproof footwear, clothing and gloves) until spray has dried.

ENGINEERING CONTROLS

In the workplace – ensure ventilation is adequate to maintain air concentrations of components below quoted Exposure Standards. Avoid generating and inhaling mists. Keep containers closed when not in use.

PERSONAL PROTECTION

Orica Personal Protection Guide no. 1, 1998: Wear overalls, rubber boots, face shield, safety shoes, gloves (L), apron.
Manufacture, Packaging and Transport: Avoid skin and eye contact and the inhalation of vapour and mist. Wear overalls, face shield, elbow-length impervious gloves, splash apron and rubber boots. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.
If inhalation risk of vapour or spray exists wear organic vapour respirator meeting the requirements of AS/NZ 1715 and AS/NZ 1716.
Preparation and Use of Product: Avoid contact with eyes, skin and clothing. When opening the container and preparing product for use wear overalls, washable hat, elbow-length PVC gloves, face shield or goggles and half-face respirator or disposable respirator. Do not work in spray mist. When there is a risk of exposure to spray mist wear a face mask or respirator covering nose and mouth and capable of filtering spray droplets. A high efficiency type particulate respirator is recommended, but in any event use a respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash contaminated clothing, gloves and face shield or goggles. Avoid contacting vegetation wet with spray, but if necessary to do so, wear waterproof footwear and waterproof protective clothing and gloves.

FLAMMABILITY

Product is non combustible.

SAFE HANDLING INFORMATION

STORAGE AND TRANSPORT

Store in the closed original container in a dry, cool, well-ventilated locked room or place away from children, animals, food, feedstuffs, seed and fertilisers. Do not store for prolonged periods in direct sunlight**. Do not put into drink containers**.

This material is a Schedule 6 Poison and must be stored, maintained and used in accordance with the relevant regulations.

Transport Classification – Road and Rail:

UN No.:	1760	**Proper Shipping Name:**	CORROSIVE LIQUID N.O.S. (CONTAINS DIQUAT DIBROMIDE)
Class:	8		
Packing Group:	III	**Hazchem:**	2X

Segregation Dangerous Goods: Not to be loaded with explosives (class1), dangerous when wet substances (class 4.3), oxidising agents (class 5.1), organic peroxides (class 5.2), radioactive substances (class 7) or food and food packaging in any quantity, however, exemptions may apply. Note that concentrated strong alkalis are incompatible with concentrated strong acids.

SPILLS AND DISPOSAL

In case of spillage it is important to take all steps necessary to:

- Avoid eye and skin contact.
- Avoid contamination of waterways and drains.

Procedure for spill:

(1) Keep all bystanders away.
(2) Wear full length clothing and PVC gloves to prevent skin and eye contamination.
(3) Re-position any leaking containers so as to minimise further leakage.
(4) Dam and absorb spill with an absorbent material (e.g. sand or soil).
(5) Shovel the absorbed spill into drums.
(6) Disposal of the absorbed material will depend upon the extent of the spill.
   - For quantities up to 50L of product bury in a secure landfill site.
   - For quantities greater than 50L seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established.
(7) Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable.
(8) For large spills clear area of all unprotected personnel. Wear protective equipment to prevent skin and eye contamination and inhalation of vapour/mist.
(9) Remove and wash all protective clothing and equipment. Change contaminated clothing immediately. Launder as soon as possible. Shower, using liberal quantities of soap and water on completion of the mopping up operations.

Dispose of empty, used containers by:

(a) Triple rinsing or preferably pressure rinsing containers with water. Add the rinsings to the spray tank. DO NOT dispose of undiluted chemicals on site.
(b) If recycling, replace cap and return clean containers to recycler or designated collection point.
(c) 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.

Returnable containers (110 L):

(a) Empty contents fully into application equipment. Do not rinse.
(b) Close all valves and return to designated collection for re-use.

FIRE/EXPLOSION HAZARD

Not combustible, however, following evaporation of aqueous component residual material may burn. On burning will emit toxic fumes. Fire fighters must wear self contained breathing apparatus if there is risk of exposure to products of combustion.

Suitable extinguishing media: Use water fog (or if unavailable fine water spray), foam, dry agent, (carbon dioxide, dry chemical powder).

OTHER INFORMATION

Ecological information: The active ingredient diquat is toxic to aquatic organisms. 96hr LC_{50} (rainbow trout): 21 mg/L for diquat. The 96 hr LC_{50} (mirror carp): 67 mg/L. Log Pow is – 4.6 so risk of bioaccumulation in an aquatic species is low. Highly toxic to birds. The oral LD_{50} for hens is 200 – 400 mg/kg and partridge is 295 mg/kg.

Environmental fate: Distribution and persistence - diquat is rapidly absorbed and deactivated by soil. There is no mobility in soil or water. There is evidence of photodegradation in water and plants.

Regulatory information:

Hazard category:	T	Toxic
	Xi	Irritant
R-phrases:	R20/22	Harmful by inhalation and if swallowed
	R37	Irritating to respiratory system.
	R43	May cause sensitization by skin contact.
	R48/22	Harmful: danger of serious damage to health by prolonged exposure if Swallowed.
	R50/53	Very toxic to aquatic organisms, may cause long-term advserse effects in the aquatic environment.
S-phrases:	S1/2	Keep locked-up and out of the reach of children
	S13	Keep away from food, drink and animal feeding stuffs.
	S20/321	When using, do not eat, drink or smoke.
	S28	After contact with skin, wash immediately with plenty of water.
	S35	This material and its container must be disposed of in a safe way.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S45	In case of accident of if you feel unwell, seek medical advice immediately (show label where possible).
	S60	This material and/or its container must be disposed of as a hazardous Waste.
	S57	Use appropriate containment to avoid environmental contamination.

Note: This product is a registered agricultural chemical and must therefore be used in accordance with the container label directions. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the Federal health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

CONTACT POINT: Regulatory Affairs Manager – Syngenta Crop Protection - (02) 8876 8444

24 HOURS EMERGENCY CONTACT: 1 800 033 111

This Material Safety Data Sheet 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.

® Registered Trademark.