SAFETY DATA SHEET

Dy-quat®

Date of Issue: August 2015

1. SUBSTANCE/PREPARATION AND COMPANY IDENTIFICATION

Chemical name of active ingredient(s): **200 g/L Diquat**
Recommended use: **Herbicide**

Supplier: **Etec Crop Solutions Ltd**
PO Box 51584
Pakuranga
Auckland
Emergency telephone number: **0800 Poison (0800 764 766) 24 Hours**

2. HAZARDS IDENTIFICATION

Hazard Classification: **6.1C, 6.3A, 6.9A, 8.1A, 9.1A, 9.3C**
Required identification Details: May be fatal if swallowed, inhaled or absorbed through the skin.
May cause skin irritation.
May cause eye damage from repeated oral exposure at high Dose rates.
Product can decompose at high temperatures forming toxic gases

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation Information on hazardous ingredients

Common name	CAS No	%
Diquat as dibromide	85-00-7	20%
Inerts		to 1170 g/L

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST-AID MEASURES

Description of necessary first aid measures:

Effects and symptoms

First-aid measures

Inhalation: Move person to fresh air. If person is not breathing, call an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control centre or doctor for further treatment advice.

Ingestion: Call a poison control centre or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

Skin contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15- 20 minutes. Call a poison control centre or doctor for treatment advice

Eye contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice

Notes to a physician: There is no specific antidote if this product is ingested. Treat symptomatically

Workplace facilities:

Required Instructions:

5. FIRE-FIGHTING MEASURES

HAZCHEM Code:

Extinguishing media : Use dry chemical, foam or CO_2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

Hazardous thermal (de)composition products: This product may form flammable and explosive hydrogen gas when in contact with aluminum.

Protection of fire-fighters:

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:

Environmental precautions:

Methods for cleaning up: Control the spill at its source. Contain the spill to prevent it

from spreading, contaminating soil, or entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. If a solid, sweep up material and place in a compatible disposal container. If a liquid, cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent. Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Handling: This product reacts with aluminum to produce flammable hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings.

Storage: Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Packaging materials:

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Workplace Exposure Guidelines

The following recommendations for exposure controls/ personal protection are intended for the manufacture, formulation and packaging of the product.
For commercial applications and on-farm applications consult.

Workplace exposure standards:

Application in the workplace:

Exposure Standards outside:
The workplace:

Engineering measures

Hierarchy of controls:

Exposure control measures:

No Hazard indication:

Ventilation specification:

Personal Protective Equipment

Detail specifications for equipment:

Respiratory system:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapour cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying\respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.
Skin and body:	Where contact is likely, wear chemical-resistant (such as Nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
Hands:	
Eyes:	Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped With an eyewash facility and a safety shower.
Ingestion:	Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Reddish brown liquid
Colour:	Reddish brown
Odour:	slight odour
pH:	
Vapour Pressure:	$<10^{-8}$ mmHg at 25°C
Vapour Density:	
Boiling Point:	NA
Freezing/melting point:	NA
Solubility:	718,000 mg/L at 20°C and pH 7.2
Specific gravity or density:	1.17 g/ml at 20°C
Information for flammable material including: - **Lower and upper flammability limits** - **Flashpoint (state test Method**	NA
Auto – ignition Temperature:	NA
Octanol/water partition coefficient:	
Explosion properties:	
Oxidation properties:	

10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Conditions to avoid:	Concentrate should not be stored in aluminium containers. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
Materials to avoid:	Strong alkalis and anionic wetting agents (e.g., alkyl and alkylaryl sulfonates). Corrosive to aluminium.
Hazardous decomposition Products:	Can decompose at high temperatures forming toxic gases. Flammable hydrogen gas may be formed on contact with aluminium. See "Conditions to Avoid", Section 10.
Hazardous polymerization:	Will not occur.
Specific Data:	
Hazardous reactions :	

11. TOXICOLOGICAL INFORMATION

(Finished product)

Acute toxicity – Oral LD_{50} :	1080mg/Kg for male rats and 1260mg/Kg for female rats.
Acute toxicity – Dermal LD_{50} :	More than 5000mg/Kg for rats.
Acute toxicity – Inhalation:	
Skin irritation :	Slight irritant.
Eye irritation:	non irritant.
Sensitization :	Not a sensitizer
Neurotoxicity	No evidence for neurotoxic effects in rats dosed up to 400ppm ion in the diet for 13 weeks.
Chronic toxicity : Diquat dibromide:	Kidney weight decreases and cataracts seen in dogs at 12.5 mg ion/kg/d.
Carcinogenicity: Diquat dibromide:	No evidence of carcinogenicity in rat and mouse studies.
Mutagenicity:	
Reproduction toxicity: Diquat dibromide:	Mutagenicity: No evidence in in vivo assays. Development Toxicity: In rabbit studies a small percentage of foetuses had minor defects at 3 and 10 mg ion/kg/d.
Other information : Diquat dibromide:	Target organs: Eye, kidney

12. ECOLOGICAL INFORMATION

Diquat dibromide:

Ecotoxicity	
Fish	LC_{50} (96 h) for rainbow trout 39, mirror carp 125 mg/l
Daphnia magna	LC_{50} (48 h) 2.2 ug/l
Algae	EC_{50} (96 h) 21 ug/l.
Bees	LD_{50} (oral, 120 h) 22 ug/bee.
Birds	Acute oral LD_{50} for mallard ducks 155, partridges 295 mg/kg
Worms:	LC_{50} (14 d) 243 mg/kg.

Persistence/degradability Soil

Rapidly degraded by soil micro-organisms, DT_{50} of unadsorbed diquat <1 w; strong binding in soil increases persistence. Strongly bound and inactivated by soil and aquatic sediments and does not leach into groundwater; Kd >10 000.

Environmental Fate:

No data available for the formulation. The information presented here is for the active ingredient, diquat dibromide.

Animals:

In rats, following oral administration of diquat dibromide, the dose is completely eliminated in the urine and faeces within 4 days.

Plants:

Metabolic breakdown of diquat dibromide does not occur in plants. On plant surfaces, photochemical degradation occurs.

Soil/Environment:

Rapidly degraded by soil micro-organisms, DT_{50} of unadsorbed diquat <1 w; strong binding in soil increases persistence. Strongly bound and inactivated by soil and aquatic sediments and does not leach into groundwater; Kd >10 000.

13. DISPOSAL CONSIDERATIONS

Methods of disposal :

Product disposal: This product is toxic by inhalation and skin absorption and must be handled with caution. Do not contaminate waterways by cleaning of equipment or by disposal of astes. Untreated effluent should not be discharged where it will drain into lakes, streams, or ponds. Disposal should be in accordance with local, state or national legislation.

Container disposal: Do not distribute or make available, furnish or reuse product containers. Remove all product residues from container and puncture or otherwise destroy empty container before disposal.

14. TRANSPORT INFORMATION

International transport regulations

International transport regulations:

UN number:	**1760**
DG Class:	**8**
Packing Group:	**III**
Proper shipping name :	**Corrosive liquid N.O.S. (Diquat 20%)**

15. REGULATORY INFORMATION

ACVM Registered Number:	P8148
HSNO Approval Code:	HSR000446

16. OTHER INFORMATION

Additional information:

Disclaimer

Information given in this SDS are based upon up to date information available at the time of issue. To the extent permitted by law, users of these information accept that neither the manufacturer, Etec Crop Solutions Limited as distributor, nor any other distributor have any liability or responsibility whatsoever for any loss, damage or injury whether in contract or tort, whether direct, indirect or consequential howsoever arising in connection with the supply of these information.

Trademarks

Dy-quat is a registered trademark of Etec Crop solutions Ltd