

**Syngenta Crop Protection, Inc.**  
**Post Office Box 18300**  
**Greensboro, NC 27419**

**In Case of Emergency, Call**  
**1-800-888-8372**

**1. PRODUCT IDENTIFICATION**

Product Name: **REWARD LANDSCAPE AND AQUATIC HERBICIDE** Product No.: A12872A  
 EPA Signal Word: Warning  
 Active Ingredient(%): Diquat dibromide (37.3%) CAS No.: 85-00-7  
 Chemical Name: [6,7-dihydrodipyrido(1,2-a:2',1'-c)pyrazinediium dibromide]  
 Chemical Class: Bipyridilium (dipyridilium) contact herbicide  
 EPA Registration Number(s): 100-1091 **Section(s) Revised: 2, 12**

**2. HAZARDS IDENTIFICATION**
Health and Environmental

Toxic by inhalation. Irritating to eyes and skin. Harmful if swallowed.

Hazardous Decomposition Products

Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10.  
 May decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Dark brown liquid  
 Odor: Odorless

Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with aluminum.  
 During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Diquat dibromide (37.3%)	Not Established	0.5 mg/m <sup>3</sup> TWA (inhalable); 0.1 mg/m <sup>3</sup> TWA (respirable), skin	0.5 mg/m <sup>3</sup> TWA (0.5 total; 0.08 respirable) ***	No

\*\*\* Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.  
 Syngenta Hazard Category: B

**4. FIRST AID MEASURES**

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center 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 after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- 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 Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

#### Notes to Physician

To be effective, treatment for ingestion of the product must begin IMMEDIATELY. Treatment consists of binding the active ingredient, diquat, in the gut with suspensions of activated charcoal or bentonite clay, administration of cathartics to enhance elimination and removal of diquat from the blood by charcoal hemoperfusion or continuous hemodialysis.

#### Medical Condition Likely to be Aggravated by Exposure

None known.

## **5. FIRE FIGHTING MEASURES**

### Fire and Explosion

Flash Point (Test Method):	Not Applicable	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Applicable	
Flammability:	Not Applicable	

### Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with aluminum.  
During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

### In Case of Fire

Use dry chemical, foam or CO2 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.

## **6. ACCIDENTAL RELEASE MEASURES**

### In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). 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**

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.

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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

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.
Eye Contact:	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.
Skin Contact:	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.
Inhalation:	A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark brown liquid
Odor:	Odorless
Melting Point:	Not Applicable
Boiling Point:	Not Available
Specific Gravity/Density:	1.20 g/ml @ 68°F (20°C)
pH:	4 - 6

### Solubility in H<sub>2</sub>O

Diquat dibromide: 718,000 mg/l @ 68°F (20°C) and pH 7.2

### Vapor Pressure

Diquat dibromide: < 10(-8) mmHg @ 77°F (25°C)

## 10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Concentrate should not be stored in aluminum 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 aluminum.
Hazardous Decomposition Products:	Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10. May decompose at high temperatures forming toxic gases.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Slightly Toxic</u>	
	Oral (LD50 Female Rat) :	= 886 mg/kg body weight
Dermal:	<u>Practically Non-Toxic</u>	
	Dermal (LD50 Rat) :	> 5,050 mg/kg body weight
Inhalation:	<u>Slightly Toxic</u>	
	Inhalation (LC50 Rat) :	= 0.62 mg/l air - 4 hours
Eye Contact:	Irritant	
Skin Contact:	Slightly Irritating (Rabbit)	

Skin Sensitization: Not a Sensitizer (Guinea Pig)

#### Reproductive/Developmental Effects

Diquat dibromide: Mutagenicity: No evidence in in vivo assays.

Development Toxicity: In rabbit studies a small percentage of fetuses had minor defects at 3 and 10 mg ion/kg/d.

#### Chronic/Subchronic Toxicity Studies

Diquat dibromide: Kidney weight decreases and cataracts seen in dogs at 12.5 mg ion/kg/d.

No evidence for neurotoxic effects in rats dosed up to 400 ppm ion in the diet for 13 weeks.

#### Carcinogenicity

Diquat dibromide: No evidence of carcinogenicity in rat and mouse studies.

#### Other Toxicity Information

None

#### Toxicity of Other Components

Not Applicable

#### Target Organs

##### Active Ingredients

Diquat dibromide: Eye, kidney

##### Inert Ingredients

Not Applicable

## 12. ECOLOGICAL INFORMATION

#### Summary of Effects

Diquat dibromide:

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

#### Eco-Acute Toxicity

Diquat dibromide:

Fish (Rainbow Trout) 96-hour LC50 14.83 ppm

Fish (Bluegill Sunfish) 96-hour LC50 13.9 ppm

Bird (Mallard Duck) LD50 Oral 60.6 mg/kg

Bird (Bobwhite Quail) 8-day dietary LC50 2932

Bird (Mallard Duck) 8-day dietary LC50 > 5000 ppm

Bee (Contact) LD50 100 ug/bee

Invertebrate (Water Flea) 48-hour EC50 0.77 ppm

Green Algae 4-day EC50 9.4 ppb

#### Eco-Chronic Toxicity

Diquat dibromide:

Invertebrate (Water Flea) 21-day LOEC 0.17 ppm

Bird (Mallard Duck) Reproduction LOEL 25 ppm

Fish (Fathead Minnow) 34-day LOEC 1.5 ppm

#### Environmental Fate

Diquat dibromide:

The information presented here is for the active ingredient, diquat dibromide.

Stable in soil and water. Immobile in soil. Sinks in water (after 24 h).

## 13. DISPOSAL CONSIDERATIONS

#### Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

### **14. TRANSPORT INFORMATION**

#### DOT Classification

Ground Transport - NAFTA

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

#### B/L Freight Classification

Herbicides, NOI (NMC Class 60)

#### Comments

Water Transport - International

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

Air Transport - International

Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)

Hazard Class or Division: Class 8

Identification Number: UN 1760

Packing Group: PG III

Packing Instructions: Passenger - 818, Cargo 820

Packaging Limitations: Inner packages over 5 liters and single packages over 60 liters cannot be shipped by cargo aircraft;

Inner packages over 2.5 liters and outer packages over 5 liters cannot be shipped by passenger aircraft.

### **15. REGULATORY INFORMATION**

#### EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard  
Chronic Health Hazard

Section 313 Toxic Chemicals: Not Applicable

#### California Proposition 65

None

#### CERCLA/SARA 302 Reportable Quantity (RQ)

Report product spills  $\geq$  268 gal. (based on diquat [RQ = 1,000 lbs.] content in the formulation)

#### RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

#### TSCA Status

Exempt from TSCA, subject to FIFRA

### **16. OTHER INFORMATION**

NFPA Hazard Ratings

Health: 2  
Flammability: 1  
Instability: 0

HMIS Hazard Ratings

Health: 2  
Flammability: 1  
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 4/11/2002

Revision Date: 6/27/2007

Replaces: 6/21/2005

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS