Rotam North America, Inc.

1400 NW 107th Avenue
Suite 310
Miami, FL 33172
Phone: 305 559 2221
Fax: 786 272 0552

MATERIAL SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name: Rowrunner ATO Herbicide
EPA Reg. No.: 82542-14-83979

Distributor: Rotam North America, Inc.
1400 NW 107th Avenue, Suite 310
Miami, FL 33172
1-866-927-6826 (toll free); 1-305-599-2221

Emergency Contacts: CHEMTREC: 800-424-9300
National Poison Information Center: 800-222-1222

Chemical Name: Diquat dibromide
6,7-dihydrodipyrido(1,2-a:2',1'-c)pyrazinediium dibromide
Chemical Family: Bipyridylium (dipyridilium)
Chemical Formula: $C_{12}H_{12}Br_2N_2$
Product Use: Herbicide
Prepared by: Rotam North America, Inc.

Section 2. Composition/Information on Ingredients

Active Ingredient	CAS Number	Content	OSHA PEL	ACGIH TLV	NTP/IARC/OSHA Carcinogen
Diquat dibromide	85-00-7	37.3%	Not established	0.5 mg/m^3 TWA	No

Section 3. Hazards Identification

EMERGENCY OVERVIEW: CAUTION. Harmful if inhaled. Harmful if swallowed. Causes moderate eye and skin irritation. Avoid breathing spray mist.

ROUTES OF ENTRY: Ingestion, Dermal, Absorption, Inhalation

POTENTIAL HEALTH EFFECTS:
EYES: Mild irritant
SKIN: Mild irritant
INGESTION: Slight toxicity
INHALATION: Slight toxicity

ACUTE HEALTH HAZARDS: Toxic by inhalation. Harmful if swallowed. Causes mild eye and skin irritation.

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.

Section 4. First Aid Measures

IF INHALED	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
IF SWALLOWED	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
NOTE TO PHYSICIAN: To be effective, treatment for diquat poisoning must begin IMMEDIATELY. Treatment consists of binding 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.	

Section 5. Fire Fighting Measures

This product is non-flammable and non-explosive.

Firefighting Media: Foam, carbon dioxide, dry chemical

SPECIAL FIRE FIGHTING PROCEDURES: This product may form flammable and explosive hydrogen gas when in contact with aluminum. Evacuate area and fight fire upwind from a safe distance to avoid hazardous vapors and decomposition products. Prevent use of contaminated buildings, area, and equipment until decontaminated. Foam and/or dry chemicals are preferred to minimize environmental contamination. If water is used, dike and collect water to prevent run off. Wear self-contained breathing apparatus and full fire fighting turn-out gear (Bunker gear).

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition or combustion may produce irritating and possibly toxic gases.

Section 6. Accidental Release Measures

In case of spill or leak:

Control the spill at its source. Contain the spill to prevent 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. 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 disposal.

Section 7. Handling and Storage

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

Handling: Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.
Storage: Do not contaminate water, food, or feed by storage, disposal, or cleaning of equipment. Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Do not contaminate feed, foodstuffs, or drinking water. Do not store or transport near feed or food. Store at temperatures above 32°F.

Section 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.

SKIN CONTACT: Wear coveralls over long-sleeved shirt and long pants; Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride; and Chemical-resistant footwear plus socks. For overhead exposure, wear chemical-resistant headgear. Wear chemical-resistant apron when cleaning equipment, mixing, or loading.

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.

Section 9. Physical and Chemical Properties

Appearance:	Dark brown
Physical State:	Liquid
Odor:	Mild characteristic odor
pH:	4.0 - 8.0
Vapor Pressure (mmHg):	<10 (-8) mmHg @ 25^{o}C
Specific Gravity/Density:	1.20 g/ml @ 20^{o}C
Solubility in Water:	718,000 mg/L @ 20^{o}C and pH 7.2

Section 10. Stability and Reactivity

Stability: Stable under recommended storage conditions.
Incompatible Material: Strong alkalis and anionic wetting agents (e.g. alkyl and alkylaryl sulfonated). Corrosive to aluminum.

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.

Hazardous Decomposition Products: Flammable hydrogen gas may be formed on contact with aluminum. Can decompose at high temperatures forming toxic gases.

Hazardous polymerization: Will not occur.

Section 11. Toxicological Information

Acute Oral Toxicity: LD_{50} for female rats is >300 mg/kg and <2000 mg/kg.
Acute Dermal Toxicity: LD_{50} for rats >2000 mg/kg
Acute Inhalation Toxicity: LC_{50} (4hr) is 0.62 mg/L air
Skin Contact: Slightly irritating
Eye Contact: Mildly irritating
Skin Sensitization: Not a sensitizer

Reproductive/Developmental Effects:

Mutagenicity: No evidence in in vivo assays.
Developmental toxicity: In rabbit studies a small percentage of fetuses had minor defects at 3 and 10 mg ion/kg/d.

Chronic/Subchronic toxicity: Kidney weight decrease and cataracts seen in dog at 12.5 mg/ion/kg/d. No evidence for neurotoxic effects in rats dosed up to 400ppm in the diet for 13 weeks.

Carcinogenicity: No evidence of carcinogenicity in the rat and mouse studies

Target organs: Eye, kidney

Section 12. Ecological Information

Diquat dibromide is toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment (based on technical product).

Ecotoxicity Effects:

Fish (Rainbow Trout) 96-hour LC50 14.83 ppm
Bird (Mallard Duck) LD50 60.6 mg/kg
Invertebrate (Water Flea) 48-hour EC50 0.77 ppm
Green Algae 4-day EC50 9.4 ppb

Environmental Fate

Diquat dibromide is stable in soil water, immobile in soil, and sinks in water (after 24 hr).

Section 13. Disposal Considerations

Pesticide Disposal: Open dumping is prohibited. Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA regional office for guidance.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container promptly after emptying. Triple rinse container according to label instructions.

Section 14. Transport Information

US DOT Classification

Proper Shipping Name:	Corrosive Liquid, N.O.S. (diquat dibromide, 37.3%)
Class:	8
UN No.:	1760
Packaging Group:	III

B/L FREIGHT CLASSIFICATION: Herbicides, NOI (NMC Class 60)

Section 15. Regulatory Information

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Section 313 Toxic Chemicals: Not Applicable

California Proposition 65

None

CERCLA/SARA 302 Reportable Quantity (RQ)

Report product spills >= 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

Section 16. Other Information

NFPA Hazard Ratings:

Health - 2	0 = minimal hazard
Flammability - 1	1 = slight hazard
Reactivity - 0	2 = moderate hazard
Others - none	3 = severe hazard
	4 = extreme hazard

Disclaimer: The information provided by Rotam North America, Inc. contained herein is given in good faith and correct to the best of our knowledge. However, the information given is designed only as guidance for safe handling, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification.

Preparation Information: MSDS Date: 10/28/2011