

SAFETY DATA SHEET

EMERGENCY CALL: 1-800-424-9300 (CHEMTREC)



1. IDENTIFICATION

PRODUCT NAME: Alligare Diquat Herbicide

DESCRIPTION: A liquid herbicide.

EPA Reg. No.: 81927-35

COMPANY IDENTIFICATION:

Alligare, LLC

13 N. 8th Street

Opelika, AL 36801

2. HAZARD IDENTIFICATION

DANGER

Toxic if inhaled (H331)

Harmful if swallowed (H302)

May be corrosive to metals (H290)

Very toxic to aquatic life with long lasting effects (H400+H410)



HAZARD CLASSIFICATION

Health Hazard

Acute Toxicity, Inhalation

Acute Toxicity, Oral

Category

3

4

Environmental Hazards

Hazardous to the Aquatic Environment, Acute

Hazardous to the Aquatic Environment, Chronic

Category

1

1

Physical Hazard

Corrosive to Metals

Category

1

OTHER HAZARDS THAT DO NOT RESULT IN CLASSIFICATION

None

PRECAUTIONARY STATEMENTS

Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area. (P261+P271)

Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. (P264+P270)

Keep only in original packaging. (P234)

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a poison control center or doctor. Refer to the Specific Treatment information in Section 4 for further instructions. (P304+P340+P311+P321)

Store in a well-ventilated place. Keep container tightly closed. Store locked up. (P403+P233+P405)

IF SWALLOWED: Call a poison control center or doctor if you feel unwell. Rinse mouth. (P301+P312)

Avoid release to the environment. Collect spillage. Absorb spillage to prevent material-damage. (P273+P391+P390)

Dispose of contents / container in accordance with local regulations. Refer to the product label for specific disposal instructions. (P501)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name

Diquat dibromide

Chemical Name

[6,7-dihydrodipyrido(1,2-a:2',1'-c) pyrazinedium dibromide]

CAS #

85-00-7

Composition

37.3%

4. FIRST AID MEASURES

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

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 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.

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.

5. FIREFIGHTING MEASURES

Flash point (PMA-4): N/A

Flammable Limits (LFL-UFL): N/A

Fire and Explosion Hazards: Not a fire or explosion hazard.

Means of Extinction: Foam, dry chemical or CO₂

Fire Fighting Instructions: Evacuate nonessential personnel to prevent exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area and equipment until decontaminated. Dike and collect any runoff to prevent entry to drains or water bodies.

Firefighting Equipment: Self-contained breathing apparatus and full bunker gear.

Hazardous Combustion Products: Thermal decomposition may result in irritating and possibly toxic gasses.

NFPA Ratings: Health – 2 / Flammability – 1 / Reactivity – 0

6. ACCIDENTAL RELEASE MEASURES

Clean up spills immediately observing the precautions in Section 8 of this SDS. Control spill at the source and dike spill to prevent material from entering soil, sewers, waterways or low areas. Cover entire spill with absorbing material and place into compatible disposal containers. Scrub the area with hard water detergent (e.g., Tide, Joy, Spic and Span) and pick up wash liquid with absorbent and place into compatible disposal containers. Once all material is cleaned up and placed in disposal containers, seal the containers and arrange for disposition.

7. HANDLING AND STORAGE

Handling: Avoid breathing spray mist. Avoid contact with eyes or clothing. Remove clothing / PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

Storage: 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.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Handle only with adequate ventilation. Facilities storing or utilizing this material should be equipped with an eyewash station and a safety shower.

Protective Clothing: Chemical-resistant gloves, chemical resistant footwear plus socks, protective eyewear, coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants. Chemical-resistant headgear for overhead exposure. Chemical-resistant apron when cleaning equipment, mixing or loading. Face shield when mixing or loading.

General: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	dark brown liquid	pH:	5.5-6.5
Odor:	odorless	Kinematic viscosity:	1.6264 mP.s
Melting/freezing point:	not available	Solubility:	not available
Boiling point/Boiling range:	not available	Partition coefficient:	not available
Flammability:	not available	Vapor pressure:	not available
Flammability limits (upper/lower):	not available	Density:	1.2006 mg/L
Flash point:	not available	Relative vapor density:	not available
Auto-ignition temperature:	not available	Particle characteristics:	not available
Decomposition temperature:	not available		

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID: Heat, flame and extreme temperatures.

CHEMICAL STABILITY: Stable under normal use and storage conditions.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated may thermally decompose releasing irritation or toxic gasses.

INCOMPATIBILITY WITH OTHER MATERIALS: Product reacts with aluminum to form flammable hydrogen gas, do not store in aluminum containers. Mix, store and apply only in plastic, plastic lined steel, stainless steel or fiberglass containers.

POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

ORAL TOXICITY (rat LD₅₀): 886 mg/kg

DERMAL TOXICITY (rat LD₅₀): > 5,050 mg/kg

INHALATION TOXICITY (rat LC₅₀): 0.62 mg/L (4-hour)

EYE IRRITATION: Rabbit – Mildly irritating

SKIN IRRITATION: Rabbit – Slightly irritating

SKIN SENSITIZATION: Not a contact sensitizer

CARCINOGENICITY:

EPA: Not Listed

ACGIH: Not Listed

IARC: Not Listed

NTP: Not Listed

OSHA: Not Listed

MUTAGENIC TOXICITY: Little evidence of mutagenic effects during *in vivo* or *in vitro* studies.

REPRODUCTIVE TOXICITY: No evidence in animal studies.

12. ECOLOGICAL INFORMATION

This product is toxic to aquatic invertebrates.

The following information is for the active ingredient, Diquat Dibromide:

AQUATIC TOXICITY

Rainbow Trout (96-hr LC₅₀): 14.83 ppm

Daphnia (48-hr EC₅₀): 0.77 ppm

Green Algae (EC₅₀): 9.4 ppb

Chronic estuarine/marine invertebrates (NOAEC): 0.052 mg/L

Duckweed (NOAEC): 0.0012 mg/L

AVIAN TOXICITY

Mallard Duck (8-day Dietary LC₅₀): 60.6 mg/kg

13. DISPOSAL CONSIDERATIONS

Do not contaminate water, food or feed by disposal.

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. Refer to the product label for specific container disposal instructions.

14. TRANSPORT INFORMATION

UN Number:	UN1760
Proper Shipping Name:	Corrosive Liquid, N.O.S. (contains diquat dibromide)
Transport Hazard Class:	8
Packing Group:	III
Hazard Zone:	A
Marine Pollutant:	Yes ¹
Hazardous Substance RQ:	Diquat (CAS #85-00-7): 1,000 lbs. (268 gallons of product)
Labels / Placards:	US-DOT: Class 8 Corrosive Liquid IMDG, IATA: Class 8 Corrosive Liquid
Emergency Guide:	154 (NAERG – North American Emergency Response Guide)
¹ Marine Pollutant Note:	Ground-only shipments are excluded from Marine Pollutant labeling requires as per 49CFR172.101 Appendix B (4). For any shipments involving all or part of the transport by vessel, the shipment must be classified as a Marine Pollutant.

Note: corrosive to aluminum

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

FIFRA –

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. The following is the hazard information as required on the pesticide label:

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION. Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes or clothing.

See inside label booklet for additional Precautionary Statements and Directions for Use including Storage and Disposal instructions.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates.

For Terrestrial Uses, do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

For Aquatic Uses, do not apply directly to water except as specified on this label.

All pesticides are governed under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The regulatory information presented below is pertinent only when this product is handled outside of the normal use and application as a pesticide. This product is excluded from listing requirements under EPA/TSCA.

SARA Title III – Section 302 Extremely Hazardous Substances

Not listed

SARA Title III – Section 311/312 Hazard Categories

Immediate, Delayed

SARA Title III – Section 312 Threshold Planning Quantity

N/A

SARA Title III – Section 313 Reportable Ingredients

None

CERCLA –

Diquat (CAS #85-00-7): 1,000 lbs. (268 gallons of product)

CALIFORNIA PROP 65 STATUS –

This product does not contain any chemical known to the state of California to cause cancer or reproductive toxicity.

CANADA –

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

16. OTHER INFORMATION

THIS INFORMATION IN THIS SDS IS BASED ON DATA AVAILABLE AS OF THE REVISION DATE GIVEN HEREIN, AND BELIEVED TO BE CORRECT. CONTACT ALLIGARE, LLC TO CONFIRM IF YOU HAVE THE MOST CURRENT MSDS. JUDGMENTS AS TO THE SUITABILITY OF THE INFORMATION HEREIN FOR THE INDIVIDUAL'S OWN USE OR PURPOSES IS NECESSARILY THE INDIVIDUAL'S OWN RESPONSIBILITY. ALTHOUGH REASONABLE CARE HAS BEEN TAKEN IN THE PREPARATION OF SUCH INFORMATION, ALLIGARE, LLC EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS, AND ASSUMES NO RESPONSIBILITY AS TO THE ACCURACY OR SUITABILITY OF SUCH INFORMATION FOR APPLICATION TO THE INDIVIDUAL'S PURPOSES OR THE CONSEQUENCES OF ITS USE.

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA APPROVED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

SDS Version: 4.0

Effective Date: 06/12/18

Issue Date 13-Dec-2016

Revision Date 13-Dec-2016

Version 1

1. IDENTIFICATION

Product Identifier

Product Name Sharda Diquat Dibromide 37.3% SL
Alternate Brand Name Dessicash L&A Landscape and Aquatic Herbicide

Other means of identification

Product Code 83529-12
UN/ID no UN3082
Synonyms None
Registration Number(s) 83529-12

Recommended use of the chemical and restrictions on use

Recommended Use Herbicide
Uses advised against No information available

Details of the supplier of the safety data sheet

Manufacturer Address
 P.O. Box 640
 Hockessin, Delaware
 Website: www.shardausa.com
 E-mail: shardain@vsnl.com

Emergency telephone number

Company Phone Number 610-350-6930 (US)
 +91 22 5678 2800 (India)
Emergency Telephone CHEMTREC: 800-424-9300
 CHEMTREC: 703-527-3887
 POISON CONTROL CENTER: 800-222-1222

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Acute toxicity - Inhalation (Dusts/Mists)	Category 2
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Skin sensitization	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1

Label elements

Emergency Overview

Danger

Hazard statements

Harmful if swallowed
 Fatal if inhaled
 Causes skin irritation
 Causes serious eye irritation
 May cause an allergic skin reaction

May cause respiratory irritation
Causes damage to organs through prolonged or repeated exposure
Very toxic to aquatic life
Harmful to aquatic life with long lasting effects



Appearance viscous

Physical state liquid

Odor None

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Wear protective gloves/protective clothing/eye protection/face protection
Contaminated work clothing should not be allowed out of the workplace
Avoid release to the environment

Precautionary Statements - Response

Specific treatment is urgent (see instructions on this label)
Get medical advice/attention if you feel unwell
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation or rash occurs: Get medical advice/attention
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Call a POISON CENTER or doctor/physician if you feel unwell
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Collect spillage

Precautionary Statements - Storage

Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

Very toxic to aquatic life with long lasting effects.

Unknown acute toxicity

0% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Not applicable

Mixture

Chemical Name	CAS No	Weight-%
Inert ingredients *	Proprietary	62.7
Diquat dibromide *	85-00-7	37.3

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General advice	Call a poison control center or doctor for treatment advice. Have the product containers or label with you when calling a poison control center or doctor, or going for treatment.
Eye contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a poison control center or doctor for treatment advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. Call a poison control center or doctor for treatment advice.
Inhalation	Move victim to fresh air. Administer oxygen if breathing is difficult. If breathing is irregular or stopped, administer artificial respiration. Call a physician or poison control center immediately.
Ingestion	If swallowed, call a poison control center or physician immediately. Drink 1 or 2 glasses of water. Rinse mouth. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Use personal protection recommended in Section 8.

Most important symptoms and effects, both acute and delayed

Symptoms	May cause redness and tearing of the eyes. May cause skin irritation. Coughing and/ or wheezing.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	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.
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5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Dry chemical, CO₂, water spray or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal.

Unsuitable extinguishing media Do not scatter spilled material with high pressure water streams.

Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Hazardous combustion products Carbon oxides. Hydrogen halides. Nitrogen oxides (NO_x).

Explosion data

Sensitivity to Mechanical Impact None.
Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective gloves/protective clothing and eye/face protection. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and inhalation of vapors. Ensure adequate ventilation, especially in confined areas.

For emergency responders Use personal protection recommended in Section 8. Ventilate the area.

Environmental precautions

Environmental precautions Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Dike far ahead of spill; use dry sand to contain the flow of material.

Methods for cleaning up Prevent product from entering drains. Take up with sand or other non-combustible absorbent material and place into containers for later disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Do not breathe dust/fume/gas/mist/vapors/spray. Use with local exhaust ventilation.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feeding stuffs. Keep in properly labeled containers.

Incompatible materials Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Diquat dibromide 85-00-7	TWA: 0.5 mg/m ³ inhalable fraction TWA: 0.1 mg/m ³ respirable fraction Skin*	TWA: 0.5 mg/m ³ (vacated)	TWA: 0.5 mg/m ³

Legend

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Skin - Skin Absorber

NIOSH IDLH Immediately Dangerous to Life or Health

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas. And. Showers. Eyewash stations. Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin and body protection Wear suitable protective clothing. Wear protective butyl rubber gloves. Protective shoes or boots.

Respiratory protection Ensure adequate ventilation, especially in confined areas. If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

General Hygiene Considerations When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Wash hands thoroughly after handling. Keep away from food, drink and animal feeding stuffs.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	liquid	Odor	None
Appearance	viscous	Odor threshold	No information available
Color	dark brown		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	4.5	
Melting point / freezing point	No information available	
Boiling point / boiling range	No information available	
Flash point	> 100 °C / 212 °F	Tag Closed Cup
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limit in Air		
Upper flammability limit:	No information available	
Lower flammability limit:	No information available	
Vapor pressure	1.67 mPa	@ 25 °C
Vapor density	No information available	
Relative density	1.488	
Water solubility	No information available	
Solubility in other solvents	No information available	@ 25 °C
Partition coefficient	3.05	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	Not an explosive	
Oxidizing properties	Not applicable	

Other Information

Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	10.06 lb/gal

10. STABILITY AND REACTIVITY

Reactivity

No data available

Chemical stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to avoid

Elevated Temperature. Storage near to reactive materials.

Incompatible materials

Strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Nitrogen oxides (NOx). Carbon oxides. Hydrogen halides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	May be fatal if inhaled. May cause irritation.
Eye contact	Irritating to eyes.
Skin contact	Irritating to skin. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons.
Ingestion	Harmful if swallowed.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Inert ingredients	> 90 mL/kg (Rat)	-	-
Diquat dibromide 85-00-7	= 214 mg/kg (Rat) = 120 mg/kg Rat)	(50 - 100 mg/kg (Rat) = 433 mg/kg (Rat)	-

Information on toxicological effects

Symptoms May cause an allergic skin reaction. May cause skin irritation. May cause redness and tearing of the eyes. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization	May cause sensitization by skin contact.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	Respiratory system.
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure.
Chronic toxicity	Prolonged or repeated exposure increases the risk. Possible risk of irreversible effects. Avoid repeated exposure.
Target Organ Effects	Central nervous system, kidney, liver, blood.
Aspiration hazard	No information available.

Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	1,340.00 mg/kg
ATEmix (inhalation-dust/mist)	0.13 mg/l

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects

62.7 % of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Diquat dibromide 85-00-7	96-hr EC50 (Selenastrum capricornutum) = 0.011 mg/L	96-hr LC50 (Rainbow Trout) = 21 mg/L 96-hr LC50 (Mirror Carp) = 67 mg/L	48-hr EC50 (Daphnia magna) = 1.2 mg/L

Persistence and degradability

Not readily biodegradable. Typical half-life is 1000 d. Diquat dibromide is highly persistent due to strong bonding to clay and unavailability to microbes. Diquat dibromide in soil is not taken up by plants, so any crop can be seeded after application. Diquat dibromide is immobile in soil.

Bioaccumulation

Chemical Name	Partition coefficient
Diquat dibromide 85-00-7	-4.6

Other adverse effects

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT)

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes

Pesticide wastes may be acutely hazardous. Improper disposal is a violation of federal law. Disposal should be in accordance with applicable regional, national and local laws and regulations. Contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance on proper disposal of waste product.

Contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations. Consult product label for additional information. Do not reuse container.

14. TRANSPORT INFORMATION

DOT

Not Regulated (Single Container < RQ)

This product is regulated by US DOT when shipped in single containers with a net weight of 2680 LBS or greater. The transportation information for these containers is provided below.

UN/ID no	UN3082
Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.
Hazard Class	9
Packing Group	III
Reportable Quantity (RQ)	RQ
Special Provisions	8, 146, 173, 335, IB3, T4, TP1, TP29
Description	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Diquat dibromide), 9, III, RQ
Emergency Response Guide Number	171

TDG

Not regulated

IATA

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 Hazard Class 9
 Packing Group III
 ERG Code 9L
 Special Provisions A97, A158, A197
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Diquat dibromide), 9, III

IMDG

UN/ID no UN3082
 Proper shipping name Environmentally hazardous substance, liquid, n.o.s.
 Hazard Class 9
 Packing Group III
 EmS-No F-A, S-F
 Special Provisions 274, 335
 Description UN3082, Environmentally hazardous substance, liquid, n.o.s. (Diquat dibromide), 9, III;
 Marine Pollutant

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
 DSL/NDSL Complies
 EINECS/ELINCS Complies
 IECSC Complies
 KECL Complies
 PICCS Complies
 AICS Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
 EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
 ENCS - Japan Existing and New Chemical Substances
 IECSC - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard Yes
 Chronic Health Hazard Yes
 Fire hazard No
 Sudden release of pressure hazard No
 Reactive Hazard No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Diquat dibromide 85-00-7	-	-	-	X

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Diquat dibromide 85-00-7	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Inert ingredients	-	-	X
Diquat dibromide 85-00-7	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number 83529-13

EPA Statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Difference between SDS and EPA Pesticide label

CAUTION: Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid contact with eyes or clothing.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	Health hazards 3	Flammability 0	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 3*	Flammability 0	Physical hazards 0	Personal protection X
<i>Chronic Hazard Star Legend</i>	* = Chronic Health Hazard			

Issue Date 09-Jun-2016

Revision Date 09-Jun-2016

Revision Note

No information available

Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nufarm Diquat 2 L Herbicide
EPA Reg. No.: 228-675
Synonyms: Diquat Dibromide; 6,7-dihydrodipyrido (1,2-a:2',1'-c) pyrazinedium dibromide
Product Type: Herbicide

Company Name: Nufarm Americas Inc.
 150 Harvester Drive, Suite 200
 Burr Ridge, IL 60527

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
 Call CHEMTREC Day or Night: 1-800-424-9300
 For Medical Emergencies Only, Call 1-877-325-1840

Date of Issue: December 9, 2009 **Supersedes:** New
Sections Revised: New

2. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance and Odor: Dark brown colored liquid.

Warning Statements: Caution. Keep out of reach of children. Harmful if inhaled or swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Avoid contact with eyes or clothing.

Potential Health Effects:

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye Contact: Mildly irritating based on toxicity studies.

Skin Contact: Slightly toxic and slightly based on toxicity studies.

Ingestion: Moderately toxic based on toxicity studies.

Inhalation: Moderately toxic based on toxicity studies.

Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

This product is toxic to aquatic invertebrates.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Diquat dibromide	85-00-7	37.3
Other Ingredients		62.7

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 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 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 on Skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

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.

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.

5. FIRE FIGHTING MEASURES

Flash Point: Not applicable due to aqueous formulation

Autoignition Temperature: Not determined

Flammability Limits: Not determined

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: This product and solutions of this product react with aluminum to produce flammable hydrogen gas. If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce oxides of carbon and nitrogen and fumes of bromide.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 2 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:

Avoid breathing spray mist. Avoid contact with eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (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:

Keep product 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. Do not contaminate water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: Mixers, Loaders, Applicators and other handlers must wear: coveralls over short-sleeved shirt and short pants or coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, chemical-resistant footwear plus socks, chemical-resistant headgear for overhead exposure, chemical-resistant apron when cleaning equipment, mixing, or loading and face shield when mixing or loading. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Diquat dibromide	NE	NE	0.5 (I) (Skin) 0.1(R) (Skin)	NE	mg/m ³

I = Inhalable Fraction
NE = Not Established

R = Respirable Fraction

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Dark brown colored liquid.

Boiling Point: Not determined

Density: 1.2006 g/ ml

Evaporation Rate: Not determined

Freezing Point: Not determined

Solubility in Water: Soluble

Specific Gravity: Not determined

Vapor Density: Not determined

Vapor Pressure: Not determined

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

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 Handling and Disposal:

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT

UN 2927, TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., (DIQUAT DIBROMIDE), 6.1, (8), II

IMDG

UN 2927, TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., (DIQUAT DIBROMIDE), 6.1, (8), II,
MARINE POLLUTANT

IATA

UN 2927, TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S., (DIQUAT DIBROMIDE), 6.1, (8), II

15. REGULATORY INFORMATION**U.S. Federal Regulations:**

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Immediate and Delayed

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

Diquat (CAS No. 85-00-7) 1,000 pounds

RCRA Waste Code:

None

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.



Conforms to HazCom 2012/United States

SDS

Littora

SAFETY DATA SHEET



Littora®

Landscape and Aquatic Herbicide

Section 1. Identification

Product name : Littora® Landscape and Aquatic Herbicide
Other means of identification : EPA Registration Number 67690-53

Supplier's details : SePRO Corporation
11550 North Meridian Street
Suite 600
Carmel, IN 46032 U.S.A.
Tel: 317-580-8282
Toll free: 1-800-419-7779
Fax: 317-580-8290
Monday - Friday, 8am to 5pm E.S.T.
www.sepro.com

Emergency telephone : INFOTRAC - 24-hour service 1-800-535-5053

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation and packaging of this product. For applications and/or use, consult the product label. The label directions supersede the text of this Safety Data Sheet for application and/or use.

Section 2. Hazards identification

Hazard Classification:
Acute Oral Toxicity: Category 4
Acute Dermal Toxicity: Category 4
Acute Inhalation Toxicity: Category 2
Acute Aquatic Toxicity: Category 4

Signal Word: Caution

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

Hazard Pictograms:



Precautionary Statements: Harmful if inhaled. Harmful if swallowed. Causes moderate eye irritation. Avoid breathing spray mist. Remove and wash contaminated clothing before reuse. Wash thoroughly with soap and water after handling before eating, drinking, chewing gum, or using tobacco. Avoid contact with eyes or clothing. Wear protective eyewear. Wear long-sleeved shirt, long pants, socks, shoes and gloves.

Description of Hazards not Otherwise Classified: This pesticide is toxic to aquatic invertebrates.

Section 3. Composition/information on ingredients

<u>Hazardous Component Name</u>	<u>CAS No.</u>	<u>Average % by Weight</u>
Diquat dibromide	85-00-7	37.3%

Section 4. First aid measures

General information:

When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

If inhaled:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferable by mouth-to-mouth if possible.
- Call a poison control center or doctor for future 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 a 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.

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.

Section 5. Fire-fighting measures

Fire Extinguishing Equipment:

Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self contained breathing apparatus.

Fire and Explosion 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.

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.

PPE for firefighters/fire fighting instructions:

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.

Section 6. Accidental release measures

Personal Precautions:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing.

Methods for Cleaning Up:

Control the spill at its source. Contain the spill to prevent from spreading or contaminated 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.

Section 7. Handling and storage

Handling Procedures:

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.

Storing Procedures:

Store the material in 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.

Work/Hygienic Procedures:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing.

Section 8. Exposure controls/personal protection

Exposure Limits:

OSHA PEL	Not established
ACGIH TLV	0.5 mg/m ³ TWA (total No dust); 0.08 mg/m ³ TWA (respirable dust)
NIOSH TWA	0.5 mg/m ³

Engineering Controls:

Mixers and loaders supporting aerial applications are required to use closed systems that provide dermal protection. The closed system must be used in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)]. When using the closed system, mixers and loaders PPE requirements may be reduced or modified as specified in the WPS.

Personal Protective Equipment:

Eye Protection	Use splash-proof goggles if needed to prevent liquid from getting into the eyes.
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.
Skin Protection	Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride [PVC] or Viton), 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.

Section 9. Physical and chemical properties

Appearance	Dark brown liquid
Odor	Odorless
pH	4 - 6
Specific Gravity	1.2 g/mL at 20°C
Melting Point	Not Applicable
Water solubility	718,000 mg/L at 25°C and pH 7.2 (Diquat dibromide)
Vapor Pressure	<10 ⁻⁸ mmHg at 25°C (Diquat dibromide)
Flash point	Not Applicable
Flammable Limits (% in Air)	Not Applicable
Autoignition Temperature	Not Applicable
Flammability	Not Applicable

Section 10. Stability and reactivity

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 Polymerization	Will not occur.
Chemical Stability	Stable under normal conditions.
Materials to Avoid	Strong alkalis and anionic wetting agents (e.g., alkyl and alkylaryl sulfonates). Corrosive to aluminum.
Hazardous Decomposition	Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10. May decompose at high temperatures forming toxic gases.

Section 11. Toxicological information

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	Rat (Female):	LD ₅₀ :	= 886 mg/kg body weight (Slightly Toxic)
Dermal:	Rat:	LD ₅₀ :	> 5,050 mg/kg body weight (Practically Non-Toxic)
Inhalation:	Rat:	LD ₅₀ :	= 0.62 mg/L air – 4 hours
Eye Contact:	Rabbit:		Mildly Irritating
Skin Contact:	Rabbit:		Slightly Irritating
Skin Sensitization:	Guinea Pig:		Not a Sensitizer

Reproductive & Development Effects:

Diquat dibromide:

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/Sub-Chronic 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:

Diquat Dibromide: Eye, kidney

Inert Ingredients: Not Applicable

Section 12. Ecological information

This pesticide is toxic to aquatic invertebrates. **For Terrestrial Uses** do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters. **For Aquatic Uses** do not apply directly to water except as specified on this label.

Summary of EffectsDiquat dibromide:

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

Eco-Acute ToxicityDiquat dibromide:

Fish (Rainbow Trout)	96-hour LC ₅₀	14.83ppm
Fish (Bluegill Sunfish)	96-hour LC ₅₀	13.9ppm
Bird (Mallard Duck)	Oral LD ₅₀	60.6 mg/kg
Bird (Mallard Duck)	8-day dietary LC ₅₀	5000ppm
Bee (Contact)	LD ₅₀	100ug/bee
Invertebrate (Water Flea)	48-hour EC ₅₀	0.77ppm
Green Algae	4-day EC ₅₀	9.4ppb

Eco-Chronic ToxicityDiquat dibromide:

Invertebrate (Water Flea)	21-day LOEC	0.17ppm
Bird (Mallard Duck)	Reproduction LOEL	25ppm
Fish (Fathead Minnow)	34-day LOEC	1.5ppm

Environmental FateDiquat dibromide:

The information presented here is for the active ingredient, diquat dibromide. Stable in soil water. Immobile in soil. Sinks in water (after 24 hr).

Section 13. Disposal considerations

Waste Disposal:

Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Do not flush to surface water or sanitary sewer system.

Disposal:

Do not contaminate water, food or feed by storage. Pesticide wastes are acutely hazardous. 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:

Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke.



Section 14. Transport information

DOT CLASSIFICATION:

UN1760, Corrosive Liquid, N.O.S. (Diquat Dibromide), 8, PGIII

IMDG CLASSIFICATION:

UN1760, Corrosive Liquid, N.O.S. (Diquat Dibromide), 8, PGIII, EmS F-A, S-F, Stowage Category A

IATA CLASSIFICATION:

UN1760, Corrosive Liquid, N.O.S. (Diquat Dibromide), 8, PGIII, Packaging Instruction Y841

Section 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=1,000lbs] 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 704 (National Fire Protection Association):

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

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions.

Date of Issue: May 22, 2017

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



MATERIAL SAFETY DATA SHEET

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 ACCU-GEL AQUATIC
HERBICIDE** Product No.: A13400D

EPA Signal Word: Warning

Active Ingredient(%): Diquat dibromide (16.6%) 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): 100-1194 Section(s) Revised: 1, 8

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	50 ppm TWA ****	No
Diquat dibromide (16.6%)	Not Established	0.5 mg/m ³ TWA (inhalable); 0.1 mg/m ³ TWA (respirable), skin	0.5 mg/m ³ TWA (0.5 total; 0.08 respirable)***	No

*** Syngenta Occupational Exposure Limit (OEL)

**** Recommended by AIHA (American Industrial Hygiene Association)

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

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

May cause eye and skin irritation.

Hazardous Decomposition Products

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

Physical Properties

Appearance: Viscous dark red-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.

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):	> 212°F	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	> 1202 °F	
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.
- 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: Viscous dark red-brown liquid
- Odor: Odorless
- Melting Point: Not Applicable
- Boiling Point: Not Available
- Specific Gravity/Density: 1.12 g/cm³
- pH: 6 - 7.5

Solubility in H₂O

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. See also "Conditions to Avoid", Section 10.
- Hazardous Decomposition Products: Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10. Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion: Slightly Toxic
Oral (LD50 Rat) : 2,869 mg/kg body weight
- Dermal: Practically Non-Toxic
Dermal (LD50 Rat) : > 5,000 mg/kg body weight
- Inhalation: Slightly Toxic
Inhalation (LC50 Rat) : 0.967 mg/l air - 4 hours
- Eye Contact: Mildly Irritating (Rabbit)
- Skin Contact: Moderately 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

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Diquat dibromide: Eye, kidney

Inert Ingredients

Propylene Glycol: CNS, skin, eye, kidney, liver

12. ECOLOGICAL INFORMATION

Summary of Effects

Diquat dibromide:

This material is slightly toxic to fish. Toxic to invertebrates and birds. Practically non-toxic to bees.

Eco-Acute Toxicity

Diquat dibromide: Bees LC50/EC50 47 - 100 ug/bee
Invertebrates (Water Flea) LC50/EC50 0.77 - 1.19 ppm
Fish (Trout) LC50/EC50 14.8 ppm
Fish (Bluegill) LC50/EC50 13.9 ppm
Birds (8-day dietary - Bobwhite Quail) LC50/EC50 106 ppm
Birds (8-day dietary - Mallard Duck) LC50/EC50 980 ppm

Eco-Chronic Toxicity

Diquat dibromide: Not Available

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

Corrosive Liquid, N.O.S. (Diquat Dibromide), 8, UN1760, PGIII

B/L Freight Classification

Herbicides, NOIBN

Comments

International Transportation
Corrosive Liquid, N.O.S. (Diquat Dibromide), Class 8, UN1760, PGIII

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 >= 1,204 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: 1
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: 02/28/2003

Revision Date: 08/05/2004

Replaces: 07/29/2004

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.

RSVP# : SCP-955-00413B

End of MSDS



Syngenta Crop Protection, LLC
Post Office Box 18300
Greensboro, NC 27419

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

1. PRODUCT IDENTIFICATION

Product Name: **TRIBUNE HERBICIDE** Product No.: A12872A
EPA Signal Word: Caution
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): 100-1390 Section(s) Revised: 1

2. HAZARDS IDENTIFICATION

Health and Environmental

Toxic if inhaled. Harmful if swallowed. Causes mild eye and skin irritation.

Hazardous Decomposition Products

Flammable hydrogen gas may be formed on contact with aluminum. See "Conditions to Avoid", Section 10.

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 ³ TWA	0.5 mg/m ³ 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: C, S

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 AND PACKAGING 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: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.
- 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: 1.202 g/ml @ 68°F (20°C)
- pH: 4 - 6

Solubility in H₂O

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.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion:
- Oral (LD50 Female Rat) : 886 mg/kg body weight
- Dermal:
- Dermal (LD50 Rabbit) : > 5050 mg/kg body weight
- Inhalation:
- Inhalation (LC50 Rat) : 0.62 mg/l air - 4 hours
- Eye Contact: Mildly Irritating (Rabbit)
- 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

Ecotoxicity Effects

Diquat Dibromide:

Fish (Rainbow Trout) 96-hour LC50 14.83 ppm

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 ppm

Green Algae 4-day EC50 9.4 ppb

Bird (Mallard Duck) 14-day LD50 60.6 mg/kg

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: Class 8
Identification Number: UN 1760
Packing Group: PG III

Comments

Water Transport - International
Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide), Marine Pollutant
Hazard Class: Class 8
Identification Number: UN 1760
Packing Group: PG III

Air Transport
Proper Shipping Name: Corrosive Liquid, N.O.S. (Diquat Dibromide)
Hazard Class: Class 8
Identification Number: UN 1760
Packing Group: PG III

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 \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: 12/10/2010

Revision Date: 3/1/2011

Replaces: 2/4/2011

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

Material Safety Data Sheet

EMERGENCY

FOR CHEMICAL EMERGENCY: SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT CALL
CHEMTREC - DAY or NIGHT - (800) 424-9300

Product Name: **AB WEEDTRINE D**

SECTION I - GENERAL INFORMATION

Manufacturer's Name: APPLIED BIOCHEMISTS
W175 N11163 Stonewood Drive
Suite 234
Germantown, WI 53022-4799
(800) 558-5106

Trade Name & Synonyms: **AB WEEDTRINE D**
Chemical Name & Synonyms: **DIQUAT DIBROMIDE**
Generic Description: **AQUATIC PESTICIDE**
Formula: **PROPRIETARY**
D.O.T. Proper Shipping Name: **CORROSIVE LIQUID N.O.S. (Diquat as Dibromide Salt)**
U.N. or N.A. Identification #: **U.N. 1760, P.G. III**
D.O.T. Hazard Class: **8**
D.O.T. Emergency Response Guide (1997 ed.): **154**

Not regulated by DOT for ground shipments [see exception for material corrosive to steel/aluminum 49 CFR 173.154 (d)].

Hazardous Mat'ls ID System Values (HMIS): Health -2 Flammability -0 Reactivity -1 Personal Protection - D
Nat'l Fire Protection Assn. (NFPA 704M): Health -2 Flammability -0 Reactivity -0 Specific Hazard:

SECTION II - HAZARDOUS INGREDIENTS

Hazardous Component(s)	CAS#	PEL	TLV
Diquat Dibromide	85-00-7	0.5 mg/m ³	0.5 mg/m ³

Ingredients listed in this section have been determined to be hazardous as defined in 29 CFR 1910.1200. Materials determined to be health hazards are listed if they comprise 1% or more of the composition. Materials identified as carcinogens are listed if they comprise 0.1% or more of the composition. Information on proprietary materials is available as provided in 29 CFR 1910.1200 (i) (1).

SECTION III - PHYSICAL DATA

Boiling Point (F):	212°F	Specific Gravity (water = 1):	1.05 @24°C
Vapor Pressure (mm Hg):	NOT DETERMINED	% Volatile (by Volume):	NOT DETERMINED
Vapor Density (air = 1):	> 1	Evaporation Rate: (Ether = 1)	< 1
Melting Point (F):	NOT DETERMINED	pH:	6.0 - 7.5
Solubility in Water:	COMPLETE		
Appearance & Odor:	BROWN COLOR LIQUID, SLIGHT ODOR.		

SECTION IV - FIRE & EXPLOSION DATA

Flash Point (F): NON-FLAMMABLE Method:
Extinguishing Media: WATER, CARBON DIOXIDE, DRY CHEMICAL. POLYMER FOAM FOR LARGE FIRES.
Special Fire Fighting Procedures: AVOID BREATHING SMOKE AND MISTS
Unusual Fire & Explosion Hazards: NONE

SECTION V - REACTIVITY DATA

Stability - Unstable X Stable
Conditions to Avoid: INTENSE HEAT
Incompatibility (Materials to Avoid): STRONG BASES AND ANIONIC WETTING AGENTS. ALUMINIUM
Hazardous Decomposition Products: TOXIC BROMINE COMPOUNDS AND OXIDES OF NITROGEN.
Hazardous Polymerization: Will Occur X Will Not Occur
Conditions to Avoid: MIXING WITH OTHER CHEMICALS.

AB WEEDTRINE D
 =====
SECTION VI - HEALTH HAZARD DATA
 =====

Acute Health Hazards: ORAL LD₅₀(RAT) = 3400 mg/Kg
 Chronic Health Hazards: NONE KNOWN
 Signs & Symptoms of Exposure: IRRITATING TO SKIN AND EYES. MAY BE FATAL IF SWALLOWED.
 Medical Conditions Generally Aggravated by Exposure: NONE KNOWN

Chemical Listed as Carcinogen or Potential Carcinogen by:

National Toxicology Program:	Yes:	No:	✓
I.A.R.C. Monographs:	Yes:	No:	✓
O.S.H.A.	Yes:	No:	✓

Emergency & First Aid Procedures: FOR PRINCIPLE ROUTE OF ENTRY, SEE APPROPRIATE EMERGENCY PROCEDURES BELOW.
 NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

Route of Entry: Inhalation: REMOVE TO FRESH AIR.
 Eyes: FLUSH WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. GET MEDICAL ATTENTION.
 Skin: WASH THE AREA WITH LARGE AMOUNTS OF SOAP AND WATER FOR AT LEAST 15 MINUTES. SEE A DOCTOR IF RASH OCCURS.
 Ingestion: IMMEDIATELY CALL A DOCTOR. IF CONSCIOUS, INDUCE VOMITING.

 =====
SECTION VII - SPILL OR LEAK PROCEDURES
 =====

Steps to be Taken in Case Material is Released or Spilled:
 CLEAN UP ALL SPILLS BY USING APPROPRIATE ABSORBENT.
 PLACE ABSORBENT IN A DISPOSABLE CONTAINER.

Waste Disposal Methods: DISPOSE OF BY METHODS APPROVED BY LOCAL, STATE AND FEDERAL REGULATIONS.

 =====
SECTION VIII - SPECIAL PROTECTION AND CONTROL MEASURES
 =====

Respiratory Protection (Specify Type):

Ventilation -	Local Exhaust:	MECHANICAL	Special Exhaust:
	Mechanical Exhaust:	YES	Other Exhaust:

Protective Equipment - Gloves: RUBBER Eye Protection: FACE SHIELD

Other Protective Equipment: RUBBER APRON AND BOOTS.

Work or Hygienic Practices: USE SAFE CHEMICAL HANDLING PROCEDURES SUITABLE FOR THE HAZARDS PRESENTED BY THIS MATERIAL.

 =====
SECTION IX - SPECIAL PRECAUTIONS
 =====

Precautions to be Taken in Handling and Storage:
 STORE IN A COOL PLACE. DO NOT GET ON SKIN, EYES OR CLOTHING.

Other Precautions: AVOID BREATHING MIST. DO NOT CONTAMINATE WATER, FOOD OR FEED BY STORAGE, DISPOSAL OR CLEANING OF EQUIPMENT.
KEEP OUT OF REACH OF CHILDREN

=====

THESE DATA ARE OFFERED IN GOOD FAITH AS TYPICAL VALUES AND NOT AS A PRODUCT SPECIFICATION. NO WARRANTY, EITHER EXPRESSED OR IMPLIED, IS HEREBY MADE. THE RECOMMENDED INDUSTRIAL HYGIENE AND SAFE HANDLING PROCEDURES ARE BELIEVED TO BE GENERALLY APPLICABLE. HOWEVER, EACH USER SHOULD REVIEW THESE RECOMMENDATIONS IN THE SPECIFIC CONTEXT OF THE INTENDED USE AND DETERMINE WHETHER THEY ARE APPROPRIATE.

PB

Date of Last Revision: 11/20/03