

FOR ANY EMERGENCY, 24 HOURS / 7 DAYS, CALL:	1-800-654-6911 (OUTSIDE USA: 1-423-780-2970)
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC®:	1-800-424-9300 (OUTSIDE USA: 1-703-527-3887)
FOR ALL MSDS QUESTIONS & REQUESTS, CALL:	1-800-511-MSDS (OUTSIDE USA: 1-423-780-2347)

PRODUCT NAME: AB HARVESTER

1. PRODUCT AND COMPANY IDENTIFICATION

Supplier Applied Biochemists (WI) W175 N11163 Stonewood Drive , Suite 234 Germantown, WI, 53022 United States	REVISION DATE: 01/31/2012 SUPERCEDES: 06/25/2010
Telephone: +12622554449 Telefax: +12622554268 Web: www.appliedbiochemists.com	MSDS Number: 000000012600 SYNONYMS: CHEMICAL FAMILY: None DESCRIPTION / USE: None established FORMULA: None established

Manufacturer
Advantis Technologies
1400 Bluegrass Lakes Parkway
Alpharetta, GA 30004
United States of America

2. HAZARDS IDENTIFICATION

OSHA Hazard
Classification:

Mild eye irritant, Mild skin irritant, Eye hazard, Toxic by inhalation.

Routes of Entry:	Skin Eyes Ingestion Inhalation
Chemical Interactions:	None known.
Medical Conditions Aggravated:	Pre-existing kidney disease, Eye disease, Pre-existing liver diseases

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Human Threshold Response Data

Odor Threshold Not established for product.

Irritation Threshold Not established for product.

Hazardous Materials Identification System / National Fire Protection Association Classifications

<u>Hazard Ratings :</u>	<u>Health</u>	<u>Flammability</u>	<u>Physical / Instability</u>	<u>PPI / Special hazard.</u>
HMIS	2*	0	0	
NFPA	2	0	0	

Immediate (Acute) Health Effects

Inhalation Toxicity:	Not expected to be an inhalation hazard at ambient conditions. Because of its low volatility, exposure to vapors is unlikely and no significant adverse effects to health will occur from inhalation. However, the inhalation of hot vapors or mist may cause nausea and respiratory tract irritation. Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract. Any irritation would be transient with no permanent damage expected. Harmful if inhaled.
Skin Toxicity:	May cause skin irritation. Not expected to be toxic from dermal contact.
Eye Toxicity:	May cause eye irritation. No corneal involvement or visual impairment is expected.
Ingestion Toxicity:	Harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.
Acute Target Organ Toxicity:	May cause mild skin and eye irritation. Ingestion may cause mild gastrointestinal discomfort., Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract.

Prolonged (Chronic) Health Effects

Carcinogenicity:	The carcinogenicity has been evaluated through animal study and it was found not to be carcinogenic.
Reproductive and Developmental Toxicity:	No reproductive or developmental risk to humans is expected from exposure to this product. The active ingredient in this product has been tested in laboratory animals and no evidence of teratogenicity or reproductive toxicity was seen.
Inhalation:	There are no known or reported effects from chronic exposure except for effects similar to those experienced from acute exposure.
Skin Contact:	Animal studies suggest that chronic (repeated) overexposure may result in damage to the kidneys.

Skin Absorption:	Prolonged or repeated exposure, may lead to harmful amounts of material being absorbed through the skin. May cause kidney damage based on animal data.
Ingestion:	There are no known or reported effects from chronic ingestion except for effects similar to those experienced from single exposure.
Eye Contact:	May cause cataract formation with prolonged or repeated exposure.
Sensitization:	This material tested negative for skin sensitization in animals.
Chronic Target Organ Toxicity:	Animal studies suggest that chronic (repeated) overexposure may result in damage to the liver and kidney., May cause cataract formation with prolonged or repeated exposure.
Supplemental Health Hazard Information :	Medical Surveillance: Consideration should be given to putting in place a medical surveillance program to monitor Diquat levels of employees potentially exposed to Diquat dibromide. Workers with prolonged exposures to Diquat dibromide at levels approaching 0.5 mg/m3 should be given frequent eye examinations to detect early changes indicative of cataract formation.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<u>CAS OR CHEMICAL NAME</u>	<u>CAS #</u>	<u>% RANGE</u>
diquat dibromide	85-00-7	>=

4. FIRST AID MEASURES

General Advice:	Call a poison control center or doctor for treatment advice. For 24-hour emergency medical assistance, call Arch Chemical Emergency Action Network at 1-800-654-6911. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
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 a poison control center or doctor for further 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 a poison control center or doctor for treatment advice.
Eye Contact:	IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Ingestion: 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.

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.

5. FIRE FIGHTING MEASURES

Flammability Summary (OSHA): The product is not flammable., Not combustible., The substance or mixture is not classified as pyrophoric., Not explosive

Flammable Properties

Flash Point: not applicable

Fire / Explosion Hazards: Reacts with most metals to form flammable hydrogen gas.

Extinguishing Media: Carbon dioxide (CO₂) Dry powder Foam

Fire Fighting Instructions: Use water spray to cool unopened containers. In case of fire, use normal fire-fighting equipment and the personal protective equipment recommended in Section 8 to include a NIOSH approved self-contained breathing apparatus.

Hazardous Combustion Products: During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection for Emergency Situations: Use the personal protective equipment recommended in Section 8 and a NIOSH approved self-contained breathing apparatus.

Spill Mitigation Procedures

Air Release: Keep people away from and upwind of spill/leak.

Water Release: If the product contaminates rivers and lakes or drains inform respective authorities.

Land Release: Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). The product should not be allowed to enter drains, water courses or the soil.

Additional Spill Information : Prevent further leakage or spillage if safe to do so. Evacuate personnel to safe areas. Use personal protective equipment as required.

7. HANDLING AND STORAGE

Handling: Do not take internally. Avoid contact with skin, eyes and clothing. Upon contact with skin or eyes, wash off with water. Avoid breathing mist or vapor.

Storage: Store in a cool, dry and well ventilated place. Isolate from incompatible materials. Contact with reactive metals, e.g., aluminum may result in the generation of flammable hydrogen gas. Do not store in aluminum containers.

Incompatible Materials for Storage: Refer to Section 10, "Incompatible Materials."

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation: Local exhaust ventilation or other engineering controls are normally required when handling or using this product to keep airborne exposures below the TLV, PEL or other recommended exposure limit.

Protective Equipment for Routine Use of Product

Respiratory Protection : Wear a NIOSH approved respirator if levels above the exposure limits are possible., A NIOSH approved full-face air purifying respirator with organic vapor/acid gas cartridge. Air purifying respirators should not be used in oxygen deficient or IDLH atmospheres or if exposure concentrations exceed ten (10) times the published limit.

Skin Protection : Avoid contact with skin. Impervious gloves

Eye Protection: Safety goggles

Protective Clothing Type: Polyethylene and ethylene vinyl alcohol copolymer such as 4H.

General Protective Measures: Ensure that eyewash stations and safety showers are close to the workstation location. Medical Surveillance: Consideration should be given to putting in place a medical surveillance program to monitor Diquat levels of employees potentially exposed to Diquat dibromide. Workers with prolonged exposures to Diquat dibromide at levels approaching 0.5 mg/m³ should be given frequent eye examinations to detect early changes indicative of cataract formation.

Exposure Limit Data

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>Name of Limit</u>	<u>Exposure</u>
diquat dibromide	85-00-7	ACGIH	0.5 mg/m ³ TWA Inhalable fraction
diquat dibromide	85-00-7	ACGIH	0.1 mg/m ³ TWA Respirable fraction

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	liquid
Form	No data.
Color:	No data.
Odor:	No data.
Molecular Weight:	None established
Specific Gravity :	1.2
pH :	20 °C 4.0 - 6.0
Boiling Point:	no data available
Freezing Point:	not applicable
Melting Point:	not applicable
Density:	Not applicable
Bulk Density:	no data available
Vapor Pressure:	
Vapor Density:	no data available
Viscosity:	no data available no data available
Solubility in Water:	718 g/l 20 °C
Partition coefficient n-octanol/water:	Not applicable
Evaporation Rate:	no data available
Oxidizing:	None established
Volatiles, % by vol.:	no data available
VOC Content	no data available
HAP Content	Not applicable

10. STABILITY AND REACTIVITY

Stability and Reactivity Summary: Stable under normal conditions.
 Conditions to Avoid: Heat.
 Chemical Incompatibility: Aluminium, strong alkalies
 Hazardous Decomposition Products: Carbon oxides, nitrogen oxides (NOx)
 Decomposition Temperature: No data

11. TOXICOLOGICAL INFORMATION

Component Animal Toxicology

Oral LD50 value:

diquat dibromide LD50 Believed to be 215 - 235 mg/kg rat

Component Animal Toxicology

Dermal LD50 value:

diquat dibromide LD50 > 400 mg/kg rabbit

Component Animal Toxicology

Inhalation LC50 value:

diquat dibromide LC50 6 h = 0.97 MG/L rat

Product Animal Toxicity

Oral LD50 value: LD50 = 886 mg/kg rat

Dermal LD50 value: LD50 > 5,050 mg/kg rabbit

Inhalation LC50 value: LC50 4 h = 0.62 mg/l rat LC50 1 h Believed to be approximately 2.48 mg/l rat

Skin Irritation: This material is expected to be slightly irritating.

Eye Irritation: Mild eye irritation

Skin Sensitization: This material tested negative for skin sensitization in animals., Negative skin sensitizer, guinea pig - Buehler Method

Acute Toxicity: May cause mild skin and eye irritation. Ingestion may cause mild gastrointestinal discomfort. Inhalation of mist or vapor may cause irritation to the mucous membranes of the respiratory tract.

Subchronic / Chronic Toxicity: Animal studies suggest that chronic (repeated) overexposure may result in damage to the liver and kidney., May cause cataract formation with prolonged or repeated exposure.

Reproductive and Developmental Toxicity:	This chemical has been tested in laboratory animals and there was no evidence of reproductive toxicity or teratogenicity., This product has been tested in laboratory animals and was found to cause developmental toxicity only at maternally toxic doses.
Mutagenicity:	This product has been tested for mutagenicity. Tests revealed both positive and negative results.
Carcinogenicity:	The carcinogenicity has been evaluated through animal study and it was found not to be carcinogenic.

12. ECOLOGICAL INFORMATION

Overview: Slightly toxic to fish and other aquatic organisms.

Ecological Toxicity Values for: **diquat dibromide**

Oncorhynchus mykiss (rainbow trout)	- static test 96 h LC50 = 14.83 mg/l
Lepomis macrochirus (Bluegill sunfish)	- static test 96 h LC50 = 13.9 mg/l
Cyprinodon variegatus (sheepshead minnow)	- static test 96 h LC50 = 228 mg/l
Brown trout (Salmo trutta),	- static test 96 h LC50 = 17.77 mg/l
Gambusia affinis (Mosquito fish)	- static test 96 h LC50 = 289 mg/l
Pimephales promelas (fathead minnow)	- static test 96 h LC50 = 14 mg/l
Daphnia magna (Water flea)	- static test 48 h EC50= 0.77 mg/l
Opossum Shrimp	- static test 96 h LC50= 2.0 mg/l
Crangon crangon (shrimp)	- static test 48 h LC50> 10 mg/l
Crassostrea virginica (Eastern oyster)	- flow-through test 96 h EC50> 260 mg/l
Colinus virginianus (Bobwhite quail)	- 8 day dietary LC50 = 2,932 ppm
Anas platyrhynchos (Mallard duck)	- 8 day dietary LC50 > 5,000 ppm
Anas platyrhynchos (Mallard duck)	- Oral LD50 = 564 mg/kg

13. DISPOSAL CONSIDERATIONS

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THE MATERIAL. THE USER OF THE MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

Waste Disposal Summary : If this product becomes a waste, it DOES NOT meet the criteria of a hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.

Disposal Methods : As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations.

14. TRANSPORT INFORMATION

Land (US DOT): UN1760 CORROSIVE LIQUID, N.O.S. (DIQUAT DIBROMIDE) 8 III
Water (IMDG): UN1760 CORROSIVE LIQUID, N.O.S., (DIQUAT DIBROMIDE) 8 III
MARINE POLLUTANT

Air (IATA): UN1760 CORROSIVE LIQUID, N.O.S., (DIQUAT DIBROMIDE) 8 III
Emergency Response Guide Number: ERG # 154

Transportation Notes:

Material is not regulated as a marine pollutant for ground, rail car, or aircraft transportation within the USA if shipped in non bulk packages per marine pollutant exception 49 CFR 171.4(c). Product not regulated for ground transport in the USA per exception permitted in 49 CFR 173.154(d). Material is not regulated for ground transportation within the US if shipped in non-bulk packages. Inhalation is not a normal route of absorption relative to transportation.

EMS:

F-A, S-B

15. REGULATORY INFORMATION

UNITED STATES:

Toxic Substances Control Act (TSCA):

This product is regulated under the Federal Insecticide, Fungicide and Rodenticide Act. It must be used for purposes consistent with its labeling.

EPA Pesticide Registration Number:

None established

FIFRA Listing of Pesticide Chemicals (40 CFR 180):

This product is regulated under the Federal Insecticide, Fungicide and Rodenticide Act. It must be used for purposes consistent with its labeling.

Superfund Amendments and Reauthorization Act (SARA) Title III:

Hazard Categories Sections 311 / 312 (40 CFR 370.2):

Health
Physical

Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard
None

Emergency Planning & Community Right to Know (40 CFR 355, App. A):

Extremely Hazardous Substance Section 302 - Threshold Planning Quantity:

ZUS_SAR302	TPQ (threshold planning quantity)	None established
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Reportable Quantity (49 CFR 172.101, Appendix):

ZUS_CERCLA	Reportable quantity	None established
ZUS_SAR302	Reportable quantity	None established

Supplier Notification Requirements (40 CFR 372.45), 313 Reportable Components



ZUS_SAR313 De minimis concentration None established

Clean Air Act Toxic ARP Section 112r:

CAA 112R None established

Clean Air Act Socmi:

HON SOC None established

Clean Air Act VOC Section 111:

CAA 111 None established

Clean Air Act Haz. Air Pollutants Section 112:

ZUS_CAAHAP None established

ZUS_CAAHRP None established

CAA AP None established

State Right-to-Know Regulations Status of Ingredients

Pennsylvania:

CAS #	COMPONENT NAME
ZUSPA_RTK	None established

New Jersey:

CAS #	COMPONENT NAME
ZUSNJ_RTK	None established

Massachusetts:

CAS #	COMPONENT NAME
ZUSMA_RTK	None established

California Proposition 65:

CAS #	COMPONENT NAME
ZUSCA_P65	None established

WHMIS Hazard Classification:

None established

16. OTHER INFORMATION

MSDS REVISION STATUS :

SECTIONS REVISED:

Major References :

First formulated version in SAP.

Available upon request.

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. ARCH CHEMICALS BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION BUT, MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MSDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ARCH CHEMICALS MSDS CONTROL AT THE PHONE NUMBER ON THE FRONT PAGE TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT. .