REWARD LS AND AQ

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
1.0	03/10/2023	S00041670334	

SECTION 1. IDENTIFICATION

Product name : REWARD LS AND AQ
Design code. : A12872A

Product Registration number : 100-1091

Manufacturer or supplier's details

Company name of supplier : Syngenta Crop Protection, LLC
Address : Post Office Box 18300
Greensboro NC 27419
United States of America (USA)

Telephone : 1 800 334 9481
Telefax : 1 336 632 2192

E-mail address : sds.requests@syngenta.com
Emergency telephone : 1 800 888 8372

Recommended use of the chemical and restrictions on use

Recommended use : Herbicide

Restrictions on use : General Use Pesticide

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Corrosive to Metals : Category 1

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 3

Eye irritation : Category 2A

Specific target organ toxicity - single exposure : Category 3 (Respiratory system)

Specific target organ toxicity - repeated exposure : Category 1 (Eyes)

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H290 May be corrosive to metals.

H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs (Eyes) through prolonged or repeated exposure.

Precautionary Statements :

Prevention:

P234 Keep only in original container.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear eye protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P390 Absorb spillage to prevent material damage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
diquat dibromide	85-00-7	37.3001

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	:	Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.
If inhaled	:	Take the victim into fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control center immediately.
In case of skin contact	:	Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.
In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.
If swallowed	:	If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	:	Inflammation of the mouth, throat and esophagus. Gastrointestinal discomfort Diarrhea
Notes to physician	:	Administer either activated charcoal (100g for adults or 2g/kg body weight in children) or Fuller's Earth (15% solution; 1 liter for adults or 15ml/kg body weight in children). NOTE: The use of gastric lavage without administration of an adsorbent has not shown any clinical benefit. Eye contact: Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Extinguishing media - small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Extinguishing media - large fires Alcohol-resistant foam or Water spray
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during fire fighting	:	As the product contains combustible organic ingredients, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.
Further information	:	Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
Special protective equipment for fire-fighters	:	Wear full protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid contact with skin and eyes. When using do not eat, drink or smoke. For personal protection see section 8. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
Conditions for safe storage	:	No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
diquat dibromide	85-00-7	TWA	0.5 mg/m3	NIOSH REL
		TWA	0.5 mg/m3	OSHA P0
		TWA (Inhalable particulate matter)	0.5 mg/m3 (the cation)	ACGIH
		TWA (Respirable particulate matter)	0.1 mg/m3 (the cation)	ACGIH

Engineering measures : THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS

CONSULT THE PRODUCT LABEL.

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.
The extent of these protection measures depends on the actual risks in use.
Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection : Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things from the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Tightly fitting safety goggles
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Remove and wash contaminated clothing before re-use.
Wear as appropriate:
Impervious clothing

Protective measures : The use of technical measures should always have priority over the use of personal protective equipment.
When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color	:	dark brown
Odor	:	odorless
Odor Threshold	:	No data available
pH	:	4 - 6
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	Method: Pensky-Martens closed cup does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Density	:	1.202 g/cm3 (77 °F / 25 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	soluble
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	> 1202 °F / > 650 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	See section "Possibility of hazardous reactions".
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Corrosive in contact with metals
Conditions to avoid	:	No decomposition if used as directed.
Incompatible materials	:	Aluminum Mild steel Iron
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, female): 886 mg/kg
Acute inhalation toxicity	:	Assessment: The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations. Acute toxicity estimate: 0.6059 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5,050 mg/kg

Components:

diquat dibromide:

Acute oral toxicity	:	LD50 (Rat, female): 399.75 mg/kg Remarks: Lethal dose for man is approximately 4-6g of diquat (equivalent to approximately 60mg/kg). May cause nausea, vomiting, abdominal pain and diarrhea within a few hours of swallowing. Ulceration of lips, mouth, throat and intestine may follow within 24-48 hours. Kidney failure and liver damage may occur; in severe cases circulatory collapse; coma or death/cardiac arrest.
Acute inhalation toxicity	:	LC50 (Rat, male): 0.226 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rat, male and female): > 792 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

diquat dibromide:

Species : Rabbit
Result : Irritating to skin.
Remarks : Expert judgment
May also cause discoloration, cracking and loss of nails. Normal growth follows without delay.

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : Eye irritation

Components:

diquat dibromide:

Species : Rabbit
Result : Eye irritation
Remarks : Expert judgment
This material has a delayed eye irritation effect. May lead to ulceration of cornea and conjunctival epithelium giving rise to secondary infection. Although healing may be slow, the injury is superficial and with proper medical care recovery will be complete, even in severe cases.

Respiratory or skin sensitization

Product:

Species : Guinea pig
Result : Did not cause sensitization on laboratory animals.

Components:

diquat dibromide:

Species : Guinea pig
Result : May cause sensitization by skin contact.

Germ cell mutagenicity

Components:

diquat dibromide:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

diquat dibromide:

Carcinogenicity - Assessment	:	No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

diquat dibromide:

Reproductive toxicity - Assessment	:	No toxicity to reproduction

STOT-single exposure

Components:

diquat dibromide:

Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT-repeated exposure

Components:

diquat dibromide:

Target Organs	:	Eyes
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.
Remarks	:	Ocular effects (cataracts) have been reported following long term oral exposure of laboratory animals.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 65.43 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia similis (Water flea)): 0.59 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Raphidocelis subcapitata (freshwater green alga)): 0.13 mg/l Exposure time: 72 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.025 mg/l Exposure time: 72 h

Components:

diquat dibromide:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): Calculated 10.46 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): Calculated 2.49 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Navicula pelliculosa (Freshwater diatom)): Calculated 0.001148 mg/l Exposure time: 96 h NOEC (Navicula pelliculosa (Freshwater diatom)): Calculated 0.0005945 mg/l Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): Calculated 0.04726 mg/l Exposure time: 34 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): Calculated 0.0504 mg/l Exposure time: 21 d

Persistence and degradability

Components:

diquat dibromide:

Stability in water	:	Degradation half life: > 30 d Remarks: Persistent in water.

Bioaccumulative potential

Components:

diquat dibromide:

Bioaccumulation	:	Remarks: Low bioaccumulation potential.

Mobility in soil

Components:

diquat dibromide:

Distribution among environmental compartments	:	Remarks: immobile
Stability in soil	:	Dissipation time: 11 - 41 y Percentage dissipation: 50 % (DT50) Remarks: Persistent in soil.

Other adverse effects

Components:

diquat dibromide:

Results of PBT and vPvB assessment	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.
Contaminated packaging	:	Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 1760
Proper shipping name	:	CORROSIVE LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Class	:	8
Packing group	:	III
Labels	:	8

IATA-DGR

UN/ID No.	:	UN 1760
Proper shipping name	:	Corrosive liquid, n.o.s. (DIQUAT DIBROMIDE)
Class	:	8
Packing group	:	III
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	856
Packing instruction (passenger aircraft)	:	852

IMDG-Code

UN number	:	UN 1760
Proper shipping name	:	CORROSIVE LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Class	:	8
Packing group	:	III

Labels	:	8
EmS Code	:	F-A, S-B
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number	:	UN 1760
Proper shipping name	:	Corrosive liquids, n.o.s. (DIQUAT DIBROMIDE)
Class	:	8
Packing group	:	III
Labels	:	CORROSIVE
ERG Code	:	154
Marine pollutant	:	no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

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:
Caution
Harmful if inhaled.
Harmful if swallowed.
Causes moderate eye irritation.
Avoid breathing spray mist.
Avoid contact with skin, eyes or clothing.

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
diquat dibromide	85-00-7	1000	2680

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

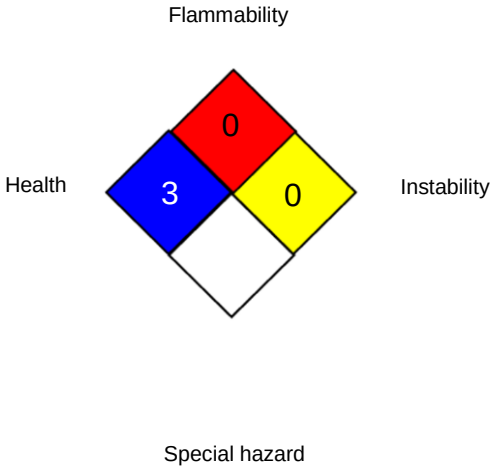
SARA 311/312 Hazards : Corrosive to Metals
Acute toxicity (any route of exposure)
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

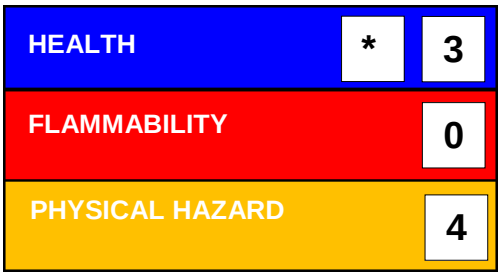
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



HMIS® IV:



HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemi-

cals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 03/10/2023

The information provided in this 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.

US / Z8