



SAFETY DATA SHEET (SDS) ID: EPA Reg. No. 74530-61, VERDURE-X HERBICIDE

SECTION 1: Product and Company IDs

Product name: VERDURE-X HERBICIDE
Product use / type: Herbicide
Restrictions on use: See product label.
SDS ID: EPA Reg. No.: 74530-61
Chemical name / active ingredients:

- Diquat dibromide; 6,7-dihydrodipyrido(1,2- a:2',1'-c)pyrazinediium dibromide, CAS# 85-00-7

Manufacturer / Registrant Info:
 HELM Agro US, Inc. 401 E. Jackson St.
 Suite 1600, Tampa, FL 33602
 (813)-621-8846, info@helmagro.com
Chemical Emergency Number: 1-800-424-9300 (Chemtrec)

SECTION 2: Hazard Communication

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

Signal Word: Danger. **Pictograms:**



Serious Eye Damage / Irritation: Category 2A
Acute Oral Toxicity: Category 4
Skin Corrosion / Irritation: Category 2
Acute Inhalation: Category 3
Skin Sensitization: Category 1
Specific Target Organ Toxicity – Single Exposure: Category 3
Specific Target Organ Toxicity – Repeated Exp. Category 1

Hazard Statements:

- Toxic if inhaled.
- Harmful if swallowed.
- Causes serious eye irritation.
- Causes skin irritation.
- May cause an allergic skin reaction.
- May cause respiratory irritation.
- Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements:

- Wash face, hands and any exposed skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Avoid breathing fumes, mists, vapors or spray.
- Use only outdoors or in well-ventilated areas.
- Wear protective gloves, clothing, eye and face protection.
- Contaminated work clothing should not be allowed out of the workplace.
- IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs get medical advice. Take off contaminated clothing and wash before reuse.
- IF INHALED: Remove person to fresh air and keep at rest in a position comfortable for breathing. Call a poison control center, doctor or 911. Specific treatment see label.
- IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Refer to specific treatment on label and in notes to physician in section 4 of safety data sheet.
- IF IN EYES: Rinse cautiously for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. If eye irritation persists get medical attention.
- Call a POISON CENTER or get medical attention if you feel unwell.
- Store locked up in a cool well-ventilated place. Keep container tightly closed.
- Dispose of contents and container in accordance with local and national regulations at an approved waste disposal plant.

Other Information / Potential Hazards:

- Don't mix/store in aluminum or those with aluminum fittings.
- Very toxic to aquatic organisms with lasting effects.

SECTION 3: Ingredient Composition

Chemical Name	CAS #	% Composition (exact values may be withheld as trade secrecy)
Diquat dibromide; 6,7-dihydrodipyrido(1,2- a:2',1'-c)pyrazinediium dibromide	85-00-7	37.3
Other:	N/R as trade** secrecy	62.7

** Values are not product specifications.

SECTION 4: First Aid Measures

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 on skin or clothes:** Wash and remove contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15 or 20 minutes. Call a poison control center/doctor for treatment advice. Sensitized persons should avoid reuse. **If in eyes:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **If inhaled:** Move person to fresh air. If person is not breathing, call 911 or get medical help, then give artificial respiration, preferably with the aid of a pocket mask equipped with a one-way valve. Call a poison control center or doctor for further treatment advice. **First Aid Note:** Have this safety data sheet, the product container or label with you when calling a poison control center or doctor or going for treatment. **Physician:** Protect self from material. **To be effective, treatment for diquat poisoning must begin IMMEDIATELY.** Treatment consists of binding diquat in the gut with suspension 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

Flammable properties: Not flammable. **Extinguishing media:** Water spray or water fog, dry chemical, alcohol resistant foam or CO2. **Unsuitable extinguishing media:** High pressure water streams. **Firefighting measures:** Evacuate area. Use extinguishing media appropriate for surrounding fire. Prevent contaminated firefighting waters and spillage from entering sewers, drains and waterways. Contain run-off water with temporary dike. Prevent use of contaminated buildings, area and equipment until decontamination. **Protective equipment and precautions for firefighters:** Wear full protective firefighting gear including self-contained breathing apparatus pressure demand (MSHA/NIOSH approved or equivalent). Decontaminate equipment after use. **Hazardous decomposition products:** Oxides of carbon, bromine and nitrogen. May release irritating and toxic vapors due to thermal decomposition.

SECTION 6: Accidental Release Measures

Personal precaution: Isolate and post, and clean spill area. Keep unnecessary personnel, pets and livestock from spill area. Wear protective gloves / clothing and eye protection. Avoid contact with eyes, skin and clothing. Ensure adequate ventilation. See section 8 for personal protective equipment. **Environmental precautions:** Prevent further spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Under certain conditions this chemical can leach through soil and contaminate ground water. **Methods for containment:** Contain spill with inert material (e.g. sand, silica gel, binder). Clean immediately. **Methods for cleanup:** Control spill at its source. Soak up entire area with inert absorbent material and sweep or shovel into properly labeled container for disposal. Wash area thoroughly with hard water and detergent. Soak up wash water with additional absorbent and place in disposal container. Seal container and arrange for waste disposal.

SECTION 7: Handling and Storage

Precautions for safe handling: Wear protective attire. Use only with adequate ventilation. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid contamination of work clothing. **Precautions for safe storage:** Store and handle in accordance with good industrial hygiene practices. Keep container tightly closed and do not reuse. Store in a cool, dry and well-ventilated place away from children and animals. Keep away from incompatible materials. Store in plastic- lined steel, stainless steel, fiberglass or corrosion-resistant containers. **Incompatible storage situations:** Separate pesticides during storage to prevent cross-contamination of other pesticides, fertilizers, food, water, feed. Do not mix or store in aluminum containers or systems having aluminum fittings. Store at above above freezing.



SECTION 8: Exposure Control / Protection

The following recommendations for exposure controls and personal protection are intended for the manufacture, formulation, and packaging of this material. All forms of application should refer to the product label for personal protection equipment.

Exposure Guidelines:	NIOSH	ACGIH	OSHA
Diquat dibromide (85-00-7)	0.5 mg/ m3	0.5 mg/m3 TLV-TWA inhalable fraction	Not established.

Engineering controls: Have a clean water supply near the work and mixing area in case of eye or skin exposure. Ensure adequate ventilation, especially in confined areas. Provide eye wash or drench shower availability. **Personal protective equipment: Eye / face protection:** Wear chemical-tight goggles. If splashing is likely to occur, wear a full-face shield. **Body / skin protection:** Long sleeved shirt, long pants, shoes plus socks. A chemical resistant apron is recommended. Wash work clothing before reuse separately from regular household laundry. **Hand protection:** Wear gloves / hand protection. **Respiratory protection:** If handling without sufficient ventilation, wear a mist filtering NIOSH approved respirator with N, R, P or HE organic filters. **Additional hygiene:** Wash hands thoroughly before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and clean PPE immediately after handling this product. Keep and wash PPE separately from other laundry. Follow manufacturer's recommendations for cleaning and maintaining PPE.

SECTION 9: Physical & Chemical Properties

Physical state: Liquid. **Appearance:** Reddish-brown. **Odor:** Faint, bromide-like. **pH:** 4.19 (1% solution in water). **Melting pt. & boiling pt.:** N/A. **Flash point:** Not flammable. **Relative density:** 1.2 g/ml at 20° C. **Water solubility:** Miscible. **Viscosity:** 1.6 centistokes @ 20°C. **Vapor pressure:** Negligible, < 1 x 10-8 kPa at 25°C (77°F). **n-Octanol / water partition coefficient:** -4.6 at 20°C (68°F) Diquat dibromide. **Explosion:** Not listed. **Oxidizing properties:** N/A. **Other as commonly listed:** N/A.

SECTION 10: Stability & Reactivity

Reactivity / chemical stability: Stable under normal temperature and conditions. **Conditions / Materials to avoid:** Extreme heat, sparks and creation of dust. Avoid contact with oxidizing agents and metals. **Hazardous decomposition products:** Oxides of carbon, oxides of nitrogen, bromine, ammonia and other noxious fumes. Flammable hydrogen gas may be formed on contact with aluminum. **Hazardous reactions:** Not expected under normal use.

SECTION 11: Toxicological Information

See Section 4 for information on likely routes of exposure and effects. **Product toxicology: Acute oral LD50:** Rat LD50: 1030 mg/kg. **Acute dermal LD50:** Rat LD50: >5000 mg/kg. **Acute inhalation LC50:** Rat LC50: 0.97 mg/L. **Eye irritation:** Moderately irritating. **Skin irritation:** Moderate. **Sensitization:** Moderate. **Component toxicology, Carcinogenicity:** No component of this product present at levels greater than or equal to 0.1% is listed with NTP, IARC, NIOSH, or OSHA. **Target organs:** Lungs, liver, kidneys.

SECTION 12: Ecological Information

Environmental Hazards: Very toxic to aquatic organisms with lasting effects. Keep out of any body of water. **Component Ecotoxicity, Diquat dibromide (85-00-7): Fish:** LC50 Lepomis macrochirus: 13.9 ppm LC50 Oncorhynchus mykiss: 14.8 ppm. **Invertebrate:** EC50 Daphnia magna: 0.77 – 1.19 ppm. **Avian:** LC50 Bobwhite quail: 106 ppm LC50 Mallard duck: 980 ppm.

SECTION 13: Disposal Information

Product disposal: Wastes resulting from the use of this product that cannot be used must be disposed in accordance with applicable Federal, State or local regulations at an approved waste disposal facility. Keep out of drains, sewers, ditches and water ways. **Container disposal:** Refer to product label for container disposal. Emptied container retains product vapor and residue. Observe all labeled safeguards until container is reconditioned or destroyed. Clean container by triple rinsing promptly after emptying.

SECTION 14: Transport Information

U.S. DOT: UN1760, Corrosive liquids, n.o.s. (Diquat dibromide), 8, PG III. For reportable quantity (RQ), 1,000 lbs. See Section 15.

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: **Signal word:** Warning. **EPA Registration No.:** 74530-61. **Hazards to Humans and Domestic Animals:** Harmful if swallowed or inhaled. Causes skin irritation. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Do not get on skin or on clothing. Avoid breathing (dust, vapor, or spray mist). Avoid contact with eyes. Wear coveralls over short-sleeved shirt and short pants, socks, chemical-resistant footwear and chemical gloves. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse. **ENVIRONMENTAL HAZARDS:** 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 or rinsate. For **Aquatic Uses**, do not apply directly to water except as specified on this label. Treatment of dense weed areas may result in oxygen loss from decomposition of dead weeds. This loss of oxygen may cause fish suffocation. Therefore, treat only 1/3 to 1/2 of the water body area at one time, especially if dense areas of weeds and/or algae exist and wait 14 days between treatments. Necessary approval and/or Permits should be obtained prior to application if required. Consult the responsible State Agencies (i.e., Fish and Game Agencies or Department of Natural Resources) before making applications to public waters. Refer Section 10. **Read EPA registered product label and all advisories, EPA Registration No.:** 74530-61.

SARA 311/312 Hazard Categories: Acute health: chronic health: Yes. **SARA 313:** N/A. **CERCLA:** Diquat dibromide; RQ=1000 pounds. **TSCA:** Components listed or exempt. **Clean Water Act:** Diquat dibromide; RQ = 1000 lbs. **California Proposition 65:** None listed. **State Right-to-Know Regulations:**

Component	CAS No.	NY	LA	MA	MN	NJ	PA
Diquat dibromide	85-00-7	X	X	X	X	X	X

SECTION 16: Other Information

NFPA Ratings:	Health = 3	Fire = 0	Instability = 0
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Acronyms which may or may not be referenced: ACGIH - American Conference of Governmental Industrial Hygienists; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CFR - Controlled Products Regulations; CST - Centistokes; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; FIFRA - Federal Insecticide, Fungicide and Rodenticide Act; GHS - Global Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MP - Marine Pollutant; NFPA - National Fire Protection Association; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States.

Revision Date: November 29th, 2023. **Revision no. 5 Reason for Revision:** SDS review and truncate. Confirm/Update Section 14. Review, truncate, and/or update Sections 2, 15 (PRN 2012-1), 16. Address change. Added pictograms.

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