

**SAFETY DATA SHEET
BONEDRY™**

Sinon Corporation MSDS Data Bank No. AHF01-44SL05

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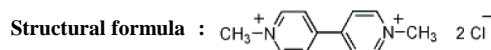
Revised Date: -

According to European Commission Directive 2001/58/EC, 2001/60/EC, 1999/45/EC, 67/548/EEC, 1907/2006/EC, 1272/2008/EC, 790/2009/EC

1. IDENTIFICATION OF PRODUCT AND MANUFACTURER

1.1. Identification:

Product name : BONEDRY™
Active ingredient : Paraquat dichloride (43.8% w/w SL)
CAS No. : 1910-42-5
Chemical name : 1,1'-Dimethyl-4,4'-bipyridinium dichloride
Empirical formula : C₁₂H₁₄Cl₂N₂



Molecular weight : 257.2
EPA signal word : Danger-Poison
EPA registration No. : 82557-1

1.2. Uses:

Herbicide

1.3. Company:

SINON USA, Inc
 1080 Carol Lane, Suite 264, Lafayette, CA94549
 Tel:1-925-2991418

Location of plant

SINON Corporation
 101, Nanrong Road, Ta-Tu District, Taichung, Taiwan, R.O.C.
 Tel: 886-4-26933841 Fax: 886-4-26933713

1.4. Emergency Telephone:

Call CHEMTREC Day or Night: 1-800-424-9300;
 International: 1-703-527-3887

2. HAZARDS IDENTIFICATION

2.1. Classification:

Acute Oral: Category 2, Acute Dermal: Category 5, Acute Inhalation: Category 1, Acute Aquatic: Category 2, Eye irritation: category 2

2.2. Labelling:



2.3. Signal words:

Danger

2.4. Hazard statement:

H300 Fatal if swallowed
 H313 May be harmful in contact with skin
 H320 Causes eye irritation
 H330 Fatal if inhaled
 H401 Toxic to aquatic life

2.5. Precautionary Statement Prevention:

P233 Keep container tightly closed.
 P260 Do not breathe mist/vapours/spray.
 P264 Wash mouth thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.

P273 Hazardous to the aquatic environment, acute hazard
 P280 Wear protective gloves/protective clothing.
 P284 Wear respiratory protection.
2.6. Precautionary Statement Response:
 P301+P312 IF SWALLOWED: Immediately call a POISON CENTER/doctor/... ··· Manufacturer/supplier or the competent authority to specify the appropriate source of emergency medical advice.
 P330 Rinse mouth.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P321 Specific measures (please reference to supplemental first aid instruction)
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 P310 Immediately call a poison center or doctor/physician.
 P320 Specific treatment is urgent (please refer to Section 4)
 P330 Rinse mouth.
 P337 + P313 If eye irritation persists: Get medical advice/attention. Manufacturer/supplier or the competent authority to select medical advice or attention as appropriate
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
2.7. Precautionary Statement Storage:
 P405 Store locked up.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
2.8. Precautionary Statement Disposal:
 P501 Dispose of contents/container in accordance with local / regional/ national/ international regulations.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/O SHA Carcinogen
Paraquat Emetic	Not established	Not established	0.02 mg/m ³ TWA	No
Paraquat Dichloride (43.8% w/w)	(respirable; skin; as Paraquat)	Not established	0.08 mg/m ³ TWA (total)	No

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

4.1. First Aid:

Ingestion: SPEED IS ESSENTIAL. Immediate medical attention is required. If available, give an adsorbent such as activated charcoal, bentonite or Fuller's Earth. Call a poison control center or doctor immediately for treatment advice. Do not give anything by mouth to an unconscious person.

Inhalation: Move person to fresh air. The odor of this product is from the stenching agent, which has been added, not from the paraquat. If person is not breathing, call an ambulance. Call a poison control center or doctor for further treatment advice.

Eyes 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 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 a poison control center or doctor for treatment advice.

4.2. Advices to Medical Treatment:

Administer either activated charcoal (100 g for adults or 2 g/kg body weight in children) or Fuller's Earth (15% solution; 1 liter for adults or 15 ml/kg body weight in children). NOTE: The use of gastric lavage without administration of an adsorbent has not shown any clinical benefit. Do not use supplemental oxygen. Eye splashes from concentrated material should be treated by an eye specialist after initial treatment. With the possibility of late onset corneal ulceration, it is advised that patients with paraquat eye injuries are reviewed by an eye specialist the day after first presentation. Use treatment that is appropriate for chemical burns. Intact skin is an effective barrier to paraquat, however, contact with irritated or cut skin or repeated contact with intact skin may result in poisoning.

4.3. Most important symptoms/effects:

Fatal if inhaled.

4.4. Antidote:

There is no special antidote.

5. FIRE FIGHTING MEASURES

5.1. Fire and Explosion:

Flash point (close cup): >107.2°C (225°F)

Flammable limits (% in air):

Upper: Not applicable Lower: Not applicable

Autoignition temperature: Not available

Flammability: Not flammable.

5.2. Extinguishing Media:

For small fires, use foam, carbon dioxide or dry powder extinguishant.

For large fires, use foam or water-fog; avoid use of water jet.

5.3. Fire Fighting Instructions:

Confine the use of water spray to cooling of unaffected stock, thus avoiding the accumulation of polluted run-off from the site. Contain run-off water with, for example, temporary earth barriers. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

5.4. Special Protective Equipment for Fire-fighters:

Refer to section 8.2 *Occupational Exposure Controls*

5.5. Hazardous Heating Decomposed Products:

Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride, possible trace amount of phosgene, nitrogen oxides, ammonia, and other toxic and noxious fumes.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions:

Before dealing with any accident ensure that the advice given in Personal Protection.

Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6.2. Environmental Precautions:

Keep out of water supplies and sewers.

Do not contamination of other goods or cargo, or nearby vegetation and waterways.

6.3. Methods for Cleaning Up:

Keep spectators well away and up wind of leak aging or spilled product and prevent smoking or the use of naked flames in the vicinity.

Prevent contamination of other goods or cargo, or nearby vegetation and waterways with a barrier of the most readily available material, e.g. earth or sand.

Absorb spilled liquid and cover contaminated areas with damp sawdust, lime, sand or earth. Sweep up and place in a closeable container for later transfer to a safe place for disposal.

As soon as possible after the accident and before re-use IT IS IMPORTANT to ensure that all contaminated surfaces are treated as above.

It is also important to check that other goods or cargos are not contaminated.

7. HANDLING AND STORAGE

7.1. Handling:

Avoid all contact with the skin, eyes, nose and mouth. When opening containers, transferring product, filling spray tanks, etc., wear full protective clothing including long sleeve cotton overalls, PVC or neoprene gloves and apron, rubber boots and face- shield.

7.2. Storage:

Store above 0°C (32°F).

The product should be stored in secure buildings away from insecticides, seeds, fertilizers and foodstuffs. Keep away from heat, sparks, and open flame. Keep out of reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure Limits: (Paraquat)

0.1 mg/m³ NIOSH recommended TWA 10 hour(s) (respirable fraction) (skin)

0.1 mg/m³ DFG MAK (peak limitation category - I, with excursion factor of 1) (inhalable dust fraction) (skin)

0.08 mg/m³ UK OES TWA (respirable dust)

8.2. Occupational Exposure Controls:

Respiratory protection : Use MSHA-NIOSH approved respirator for pesticides. Where potential exposure under the use conditions necessitates higher level of protection, use a full-face positive pressure air supplied respirator.

Hand protection : Wear appropriate chemical resistant gloves.

Eye protection : Chemical tight goggles; full face shield in addition if splashing is possible.

Provide an emergency eye wash fountain and



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Skin protection : quick drench shower in the work area. Protective clothing as needed, impervious gloves, apron and arm covers. Use should verify impermeability under normal conditions of use prior to general use.

8.3. Environmental Exposure Controls:

Ventilation: Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Dark green liquid
Odor	: Strong; pungent, obnoxious
Boiling Point	: 105°C
Melting Point	: Not applicable
Flash point (close cup)	: >107.2°C (225°F)
Vapor Pressure	: 2.3×10^{-13} Pa (25 °C) (tech)
Density	: 1.126 g/mL (20°C)
Solubility	: Miscible in water
pH	: 5 (1% aqueous dilution)
Vapor Density	: Not Available
Volatility	: $< 4 \times 10^{-9}$ Pa·m ³ /mol (Calc.) (tech)
Log P_{ow}	: log P _{ow} = -4.5 (20°C) (tech)
Flammability	: Non-flammable
Explosive Properties	: Non-explosive
Decomposition Temperature	: Not Available
Autoignition Temperature	: Not Available

10. STABILITY AND REACTIVITY

10.1. Stability:

Stable at normal temperatures and pressure.

10.2. Conditions to Avoid:

Decomposed by alkali and in the presence of UV light.

10.3. Materials to Avoid:

Corrosive to metals, and will react with strong oxidizers.

10.4. Hazardous Polymerization:

Will not polymerize.

10.5. Hazardous Decomposition Products:

Combustion products of dry material: Carbon dioxide, carbon monoxide, chlorine, hydrogen chloride; possible trace amounts of phosgene, nitrogen oxides, ammonia and other toxic and noxious fumes.

11. TOXICOLOGICAL INFORMATION

11.1. Acute Toxicity:

Acute oral LD₅₀ : For female rats 283 mg/kg body weight.

Acute dermal LD₅₀ : For rats > 2000 mg/kg body weight.

Acute inhalation LC₅₀ : For rats 0.0006 mg/L air (4 hr/rats).

Eye irritation : Moderately irritating to eye (rabbits)

Skin irritation : Slight irritating to skin (rabbits)

Skin sensitization : Not a skin sensitiser (guinea pigs)

11.2. Mutagenic Toxicity : (Paraquat dichloride)

Rodent studies showed signs of irritation in 21-day dermal studies. In a 2.5 year chronic study, rats showed evidence of cataracts, body

weight reduction and lung effects (alveolar macrophage infiltration) at 75 ppm and above. A 90-day dog diet study showed evidence of lung effects leading to alveolar collapse and death at 3 mg/kg/day. Chronic pneumonitis was seen in a 1-year dog study at 0.93 mg/kg/day and above.

11.3. Reproduction: (Paraquat dichloride)

A 3-generation reproduction study showed no evidence of fertility or reproductive effects at doses below that causing maternal toxicity.

Reproductive NOEL was above 7.5 mg/kg/day, the highest dose level.

11.4. Carcinogenicity: (Paraquat dichloride)

No evidence in the rat or mouse.

11.5. Other Toxicity Information:

Occupational exposure to paraquat does not pose any health issues as long as normal hygiene precautions are followed. Paraquat has a history of use in suicides; although difficult to quantify, it is estimated that 15 ml of paraquat (approx. 37% paraquat dichloride) by oral ingestion is sufficient to cause death. Two types of deaths can be identified: acute fulminate poisoning leading to multi-organ failure in a few days, and a more protracted form resulting in kidney failure and pulmonary fibrosis. Treatment is available and successful, providing the quantity of product ingested is low and the time to treatment is short.

11.6. Toxicity of Other Components:

Paraquat Emetic: Toxic if swallowed. Slightly irritating to skin and eyes. Inhalation of dust may cause nausea and vomiting.

11.7. Target Organs:

Active Ingredient (Paraquat Dichloride): Lung, kidney

Other Ingredient (Paraquat Emetic): Skin, eye, and respiratory system.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity :

Bird toxicity : LC₅₀/EC₅₀ (8-d dietary) *bobwhite quail* 981 ppm and mallard duck 4048 ppm. Slightly toxic to birds.

Fish toxicity : LC₅₀/EC₅₀ *bluegill* 13 ppm and *trout* 55 ppm. Slightly toxic to fishes.

Daphnia toxicity : LC₅₀/EC₅₀ *Daphnia* 4.0 mg/L. Moderately toxic to invertebrates.

Bee toxicity : LC₅₀/EC₅₀ 48 µg/bee. Practically non-toxic to bees.

12.2. Mobility:

Paraquat is strongly bound and inactivated by soil and aquatic sediments, and does not leach into groundwater.

12.3. Persistence and Degradability:

Paraquat is rapidly degraded by soil micro-organisms (DT₅₀ of unabsorbed paraquat <1 week). Strong binding in soil increases persistence.

12.4. Bioaccumulative Potential:

The estimated bioconcentration factor (BCF) of 0.05~1.21 indicates that bioconcentration of paraquat in aquatic organisms will not be important.

12.5. Other Adverse Effects:

No information is available.

13. DISPOSAL CONSIDERATIONS

Disposal:

SINON CORPORATION

Plant Address :

101, Nanrong Road, Ta-Tu District,
Taichung, Taiwan, R.O.C.

Home Page URL: <http://www.sinon.com>

TEL : 886-4-2693-3841

FAX : 886-4-2693-3713

Email Address : service@sinon.com



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: Corrosive D002

Listed Waste: Not listed

14. TRANSPORT INFORMATION

DOT Classification:

Ground Transport - NAFTA

Proper shipping name : Corrosive Liquid, Toxic, N.O.S.
(Paraquat)

UN number : 2922

Class : 8 (6.1)

Packing group : III

B/L Freight Classification:

Herbicides, NOI (NMC Class 60)

Maritime Transport IMDG:

Proper shipping name : Corrosive Liquid, Toxic, N.O.S.
(Paraquat)

UN number : 2922

Class : 8 (6.1)

Packing group : III

Marine pollutant : Yes

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Chronic Health Hazard Paraquat Dichloride (43.8%) (CAS No.1910-42-5)

California Proposition 65:

Not regulated.

CERCLA/SARA 302 Reportable Quantity (RQ):

Report product spills \geq 2.4 gal. (based on paraquat dichloride [RQ = 10 lbs.] content in the formulation).

RCRA Hazardous Waste Classification (40 CFR 261):

Corrosive D002.

TSCA Status:

Exempt from TSCA, subject to FIFRA.

16. OTHER INFORMATION

Hazardous Rating Systems:

NFPA: Health= 4; Flammability= 1; Instability= 1

HMIS: Health= 3; Flammability= 1; Instability= 1

(0: Minimal; 1: Slight; 2: Moderate; 3: Serious; 4: Extreme)

Although the information in this MSDS was obtained from sources which we believe to be reliable, it can not be guaranteed. In addition this information may be used in a manner beyond our knowledge or control. The information is therefore provided for advice purposes only, without any representation or warranty express or implied.

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