

MATERIAL SAFETY DATA SHEET

Phoenix Environmental Care, LLC
P.O. Box 370
Valdosta, GA 31603-0370

General Information No. 229-245-8845
In Case of Emergency, Call
PROSAR: 888-875-1724
CHEMTREC: 800-424-9300

I. PRODUCT IDENTIFICATION

Product name: Cardinal
Active Ingredient: Ethephon (21.7%)
Chemical Name: (2-Chloroethyl) phosphonic acid

II. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS number	% by Wt.	OSHA PEL	ACGIH TLV
Ethephon	16672-87-0	21.7	Not listed	Not listed

III. HAZARDS IDENTIFICATION

As defined by OSHA Hazard Communication Standard (29 CFR 1910.1200).

EMERGENCY OVERVIEW

Keep out of the reach of children!

Danger. Corrosive. Causes irreversible eye damage and skin burns. Harmful if swallowed or absorbed through the skin. Avoid breathing spray mist. Do not get in eyes, on skin or on clothing. Avoid contamination of food.

POTENTIAL HEALTH HAZARDS

Eye: Corrosive. Will cause eye burns and permanent tissue damage. Symptoms include tearing, redness, burning and swelling.
Skin: Substance is harmful if absorbed through the skin. Large exposures may be fatal. Can cause chemical burn. Symptoms include redness and swelling.
Inhalation: Spray mist concentrations may be harmful. High concentrations may be fatal. Symptoms of overexposure may include choking, coughing and burning of the throat.
Ingestion: Harmful if swallowed. Corrosive, may cause severe and permanent damage to mouth, throat, and stomach. Symptoms of overexposure may include severe irritation of the mouth, throat, esophagus, and stomach with severe abdominal and chest pain.

PHYSICAL OR CHEMICAL HAZARDS

Corrosive!

IV. FIRST AID MEASURES

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 eyes.
If swallowed: Call a poison control center or doctor immediately for treatment advice. Have a 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 or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.

If inhaled: Move person to fresh air. If person is not breathing call 911 or an ambulance and then give artificial respiration, preferably mouth-to-mouth. Call a poison control center or doctor for further treatment advice.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Treat symptomatically, as there is no specific antidote. Additionally, patient may have been exposed to materials other than this product. This product is an acid; therefore, it is contraindicated to attempt to neutralize it with alkaline materials. Gastric lavage should be undertaken with care to victims of overexposure by ingestion, given the potential for esophageal or stomach perforation. Due to a potential for pulmonary edema, any patients that have had severe exposure to this product should be kept under medical observation for up to 72 hours.

V. FIRE FIGHTING MEASURES

Flash point (method): Not flammable

Flammable limits (LFL-UFL): LFL: Not applicable
UFL: Not applicable

Fire and Explosion Hazards: Product does not burn. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Product does not burn. Use appropriate extinguishing media (such as water, dry chemical, foam or carbon dioxide) suitable for surroundings.

Fire Fighting Instructions: Remain upwind to avoid breathing smoke/vapors/fumes. Dike and collect water used to prevent environmental damage due to run off.

Fire Fighting Equipment: Wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective clothing.

Hazardous Combustion Products: Hydrogen chloride.

VI. ACCIDENTAL RELEASE MEASURES

Contain spills immediately, observing precautions as described in Section VIII. Isolate the area. Keep unnecessary personnel from entering.

Small Spill: Absorb on absorbent material such as sand, vermiculite or fuller's earth. Place contaminated material in appropriate container for disposal.

Large Spill: Dike large spills using absorbent or impervious material such as clay or sand. Recover and contain as much free liquid as possible. Do not allow any material to run off into soil, drainage systems, or bodies of water. Notify and consult with proper regulatory authorities.

VII. HANDLING AND STORAGE

KEEP OUT OF REACH OF CHILDREN!

Handling:	Avoid contact with eyes, skin, and clothing.
Storage:	Store in original containers only in a secured, dry location. Do not contaminate food, feed and water. Avoid extreme temperatures. Store above 34 °F (1 °C).

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Refer to Section III of this MSDS.

Engineering Controls: When handlers use closed systems, enclosed cabs, or aircraft in a manner that meet the requirements listed in the Worker Protection Standards (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

Personal Protective Equipment (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category A on an EPA chemical-resistance chart.

Applicators and other handlers must wear:

- long-sleeved shirt and long pants,
- chemical resistant gloves made of any waterproof material such as polyvinyl chloride, nitrile rubber, or butyl rubber gloves,
- shoes plus socks and chemical resistant footwear,
- protective eyewear.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Requirements:

Users should:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove clothing immediately if pesticide gets inside. Then wash body thoroughly and put on clean clothing.

As soon as possible, wash thoroughly and change into clean clothing. Wash the outside of gloves before removing.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear liquid
Odor:	No appreciable odor
pH:	1.7
Specific Gravity:	1.1 g/mL
Vapor Pressure:	0.00006 mmHg @ 20 ° C
Water Solubility:	Soluble
% Volatile:	< 5%
Freezing Point:	< -20° C

X. STABILITY AND REACTIVITY

Chemical Stability:	Stable under recommended storage conditions.
Conditions to Avoid:	Avoid temperatures above 335 °F and pH > 3.
Incompatibility:	Oxidizing agents and alkaline materials. Corrosive to iron, mild steel, aluminum and copper.
Hazardous Decomposition Products:	Hydrogen chloride during thermal decomposition. Reaction with alkaline materials causes evolution of ethylene gas.
Hazardous Polymerization:	Product will not undergo polymerization.

XI. TOXICOLOGICAL INFORMATION

Acute Toxicity:	
Oral LD ₅₀ (rat):	> 3200 mg/Kg
Dermal LD ₅₀ (rat):	> 1700 mg/Kg
Inhalation LC ₅₀ (rat):	> 4.9 mg/L
Eye Irritation (rabbit):	Corrosive, causes irreversible eye damage.
Skin Irritation (rabbit):	Severe irritant.
Sensitization (guinea pig):	Slight sensitizer.

Medical Conditions Aggravated by Exposure: Acute asthma and/or other chronic pulmonary diseases due to inhalation of spray mists. Existing skin sensitivities.

Carcinogen Status:	
OSHA	Not listed.
NTP	Not listed.
IARC	Not listed.

Mutagenic Data: No evidence of effects during in vivo or in vitro studies.

Reproductive Data: Not known to exhibit reproductive or birth defects.

XII. ECOLOGICAL INFORMATION

Environmental Summary

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 washwaters.

Fish Toxicity: 96 hour LC₅₀, Rainbow trout: 350 mg/L
96 hour LC₅₀, Bluegill: 300 mg/L

Avian Toxicity: Oral LD₅₀, Bobwhite quail: 1000 mg/Kg

Bee Toxicity: Not toxic.

XIII. DISPOSAL CONSIDERATIONS

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

Disposal: 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: Nonrefillable container. Do not reuse or refill this container. Triple rinse (or equivalent) 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 ¼ 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. Offer for recycling, if available or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

XIV. TRANSPORT INFORMATION

DOT Shipping Description: Corrosive liquid, acidic, organic, NOS (ethephon), 8 UN 3265, PG III; ERG# 153.
DOT Hazard Class: Class 8
UN Number: 3265
DOT Packing Group: III
DOT Primary/Secondary label: Corrosive
DOT Primary/Secondary Placard: Corrosive
DOT Emergency Response Guide No.: 153

XV. REGULATORY INFORMATION

FIFRA: All pesticides are governed under the Federal Insecticide, Fungicide, and Rodenticide Act. The regulatory information presented below is pertinent only when this product is handled outside of the normal use and application as a pesticide.

CERCLA Reportable Quantity: Not applicable.

SARA TITLE III STATUS:

302 Extremely Hazardous Substance	No
311/312 Hazard Categories	An immediate health hazard.
313 Toxic Chemicals	No

CALIFORNIA PROP 65 STATUS: Not listed.

XVI. OTHER INFORMATION

DISCLAIMER

Phoenix Environmental Care, LLC believes the information and recommendations provided above to be accurate. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided above relates only to the specific product designated and may not be applicable where such product is used in combination with any other materials or in any process. Use of this product is regulated by the U.S. Environmental Protection Agency (EPA). It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Additionally, as the conditions and methods of use are beyond the control of Phoenix Environmental Care, LLC, Phoenix Environmental Care, LLC expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.