MATERIAL SAFETY DATA SHEET

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name: **GRAMOXONE MAX** Product No.: A12837B

EPA Signal Word: Danger-Poison

Active Ingredient(%): Paraquat Dichloride (43.8%) CAS No.: 1910-42-5

Chemical Name: (1,1'-dimethyl-4,4'-bipyridinium dichloride)

Chemical Class: Herbicide

EPA Registration Number(s): 100-1074 **Section(s) Revised: 3, 4, 5, 12**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Paraquat Emetic	Not Established	Not Established	0.02 mg/m³ TWA***	No
Paraquat Dichloride (43.8%)	0.5 mg/m³ TWA (respirable; skin; as paraquat)	0.08 mg/m³ TWA (respirable); 0.5 mg/m³ TWA (total)	0.08 mg/m³ TWA (respirable); 0.5 mg/m³ TWA (total)***	No

*** Syngenta Occupational Exposure Limit (OEL)

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

3. HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Irritant (skin with prolonged contact), irritant (eye, respiratory passages), inhalation (TLV), toxic (oral). May be fatal if swallowed. Harmful if absorbed through skin. Causes substantial but temporary eye injury.

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.

Physical Properties

Appearance: Dark green liquid

Odor: Strong; pungent; obnoxious

Unusual Fire, Explosion and Reactivity Hazards

Hydrolyzes in alkaline media. This product reacts with aluminum to produce hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison contol center or doctor, or going for treatment.

Ingestion: SPEED IS ESSENTIAL. Immediate medical attention is required. 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.

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 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), 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 Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

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 911 or an ambulance.
Call a poison control center or doctor for further treatment advice.

Notes to Physician

Refer to the booklet 'Paraquat Poisoning. A Practical guide to Diagnosis, First Aid and Hospital Treatment'. (http://www.syngenta.com/pqmedguide/) Administer either activated charcoal (100 g for adults or 2 g/kgbody 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.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	> 194°F	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	> 1157 °F	
Flammability:	Combustible liquid	

Unusual Fire, Explosion and Reactivity Hazards

Hydrolyzes in alkaline media. This product reacts with aluminum to produce hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings
Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Untreated spilled material can dry to a highly irritating dust.

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store above 32°F (0°C).
Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion:	Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
Eye Contact:	Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Skin Contact:	Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
Inhalation:	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark green liquid
Odor:	Strong; pungent; obnoxious
Melting Point:	Not Available
Boiling Point:	Approx 212°F (aqueous solution)
Specific Gravity/Density:	1.13 g/ml
pH:	5 (5% solution)

Solubility in H2O

Paraquat Dichloride:	620 g/l @ 68°F (20°C)

Vapor Pressure

Paraquat Dichloride:	7.5 x 10(-8) mmHg @ 77°F (25°C)

10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	Store above 32°F (0°C). Stable in acidic and neutral solution. Decomposed by alkali and in the presence of U.V. light. Compound inactivated by adsorption onto inert clay.
Materials to Avoid:	Hydrolyzes in alkaline media. This product reacts with aluminum to produce hydrogen gas. Do not mix or store in containers or systems made of aluminum or having aluminum fittings.
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

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	Highly Toxic

	Oral (LD50 Rat) :	= 283 mg/kg body weight
Dermal:	Practically Non-Toxic	
	Dermal (LD50 Rat) :	> 2,000 mg/kg body weight
Inhalation:	Highly Toxic	
	Inhalation (LC50 Rat) :	0.0006 mg/l air - 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a skin sensitizer in animal tests.	

Reproductive/Developmental Effects

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.

Chronic/Subchronic Toxicity Studies

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.

Carcinogenicity

Paraquat Dichloride: No evidence in the rat or mouse.

Other Toxicity Information

The health hazard assessment is based on the results of animal toxicity testing and reports of accidental human exposures.

Toxicity of Other Components

Paraquat Emetic

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

Target Organs

Active Ingredients

Paraquat Dichloride: Lung, kidney

Inert Ingredients

Paraquat Emetic: Skin, eye, respiratory system

12. ECOLOGICAL INFORMATION

Summary of Effects

Paraquat Dichloride:

Practically non-toxic to bees. Slightly toxic to fish and birds. Moderately toxic to invertebrates.

Eco-Acute Toxicity

Paraquat Dichloride: Bees LC50/EC50 48 ug/bee
Invertebrates (Water Flea) LC50/EC50 4.0 ppm
Fish (Trout) LC50/EC50 55 ppm
Fish (Bluegill) LC50/EC50 13 ppm
Birds (8-day dietary - Bobwhite Quail) LC50/EC50 981 ppm
Birds (8-day dietary - Mallard Duck) LC50/EC50 4,048 ppm

Eco-Chronic Toxicity

Paraquat Dichloride: Not Available

Environmental Fate

Paraquat Dichloride:

No data available for the formulation. The information presented here is for the active ingredient, paraquat dichloride.

Low bioaccumulation potential. Persistent in soil. Not persistent in water. Immobile in soil. Sinks in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

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

Corrosive Liquid, Toxic, N.O.S. (Paraquat), 8 (6.1), UN2922, PGIII

B/L Freight Classification

Herbicides, NOIBN

Comments

International Transportation:
Corrosive Liquid, Toxic, N.O.S. (Paraquat), Class 8 (6.1), UN2922, PGIII

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Chronic Health Hazard

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

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

Report product spills >= 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

NFPA Hazard Ratings		HMIS Hazard Ratings	
Health:	3	Health:	3
Flammability:	1	Flammability:	1
Instability:	1	Reactivity:	1

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 01/22/1999
Revision Date: 10/20/2003 Replaces: 02/13/2002

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP# : SCP-955-00275E

End of MSDS