1. PRODUCT IDENTIFICATION

Product Name: GRAMOXONE SL
EPA Signal Word: Danger-Poison
Active Ingredient(%): Paraquat Dichloride (30.1%)
Chemical Name: (1,1'-dimethyl-4,4'-bipyridinium dichloride)
Chemical Class: Herbicide
EPA Registration Number(s): 100-1217

Syngenta Hazard Category: D, S
Section(s) Revised: 3

2. HAZARDS IDENTIFICATION

Health and Environmental
Fatal if inhaled. Harmful if swallowed. May be harmful in contact with skin. Irritating to eyes and skin.

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: Bluish green liquid
Odor: Characteristic, strong

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.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>Other</th>
<th>NTP/IARC/OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paraquat Dichloride (30.1%)</td>
<td>0.5 mg/m³ TWA (respirable; skin; as paraquat)</td>
<td>Not Established</td>
<td>0.01 mg/m³ TWA (inhalable)</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.03 mg/m³ STEL (inhalable)</td>
<td>***</td>
</tr>
</tbody>
</table>

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: D, S

4. FIRST AID MEASURES
5. FIRE FIGHTING MEASURES

In Case of Fire

Technical aqueous solutions present no ignition hazards. The pure material may support combustion. Keep fire-exposed containers cool by spraying with water. For small fires, use foam, carbon dioxide or dry powder extinguishant. For large fires, use foam or water-fog; avoid use of water jet. Contain run-off water with, for example, temporary earth barriers. A self-contained breathing apparatus and suitable protective clothing must be worn in fire conditions.

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.}

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Product Name: GRAMOXONE SL

Page: 2
7. HANDLING AND STORAGE

Store above 32°F (0°C).

Avoid contact with skin and eyes. Avoid inhalation of high concentrations of dusts. Avoid inhalation of liquid aerosols. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. Do not reuse container.

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 AND PACKAGING OF THIS PRODUCT.

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

Ingestion: Store the material in a well-ventilated area out of the reach of children and domestic animals. Do not store food, beverages, or tobacco products in the storage area. Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

Eye Contact: To avoid eye contact, wear safety glasses with side shields or chemical goggles.

Skin Contact: This product is FIFRA regulated. Refer to product labeling for end-user Personal Protection requirements. When handling or when exposure to concentrate is possible, wear: long-sleeved shirt and long pants, waterproof gloves, shoes and socks, face shield and chemical-resistant apron. Remove any contaminated clothing promptly. Syngenta conducted ASTM permeation tests using PVC gloves (0.2mm thickness) and showed no breakthrough of the product after eight hours of testing.

Inhalation: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. The potential for overexposure in manufacturing operations is low. However, 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 (for example, where spray mists may be generated). 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Bluish green liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Characteristic, strong</td>
</tr>
<tr>
<td>Melting Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Specific Gravity/Density</td>
<td>1.07 - 1.13 g/ml @ 68°F ; 9.12 lbs/gal</td>
</tr>
<tr>
<td>pH</td>
<td>6.5 - 7.5 (100% @ 68 - 77°F)</td>
</tr>
<tr>
<td>Solubility in H2O</td>
<td>Paraquat Dichloride: 620 g/l @ 68°F (20°C)</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>Paraquat Dichloride: 7.5 x 10(-8) mmHg @ 77°F (25°C)</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

Product Name: GRAMOXONE SL
11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:
- Oral (LD50 Female Rat) : 1098 mg/kg body weight

Dermal:
- Dermal (LD50 Rat) : > 2000 mg/kg body weight

Inhalation:
- Inhalation (LC50 Rat) : 0.0006 mg/l air - 4 hours (data based on similar formulation[s])

Eye Contact: Mildly Irritating (Rabbit)
Skin Contact: Moderately Irritating (Rabbit)
Skin Sensitization: Not a Sensitizer (Guinea Pig)

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

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 parquat (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.

Toxicity of Other Components

Not Applicable

Target Organs

Active Ingredients
- Paraquat Dichloride: Lung, kidney

Inert Ingredients
- Not Applicable
12. ECOLOGICAL INFORMATION

Ecotoxicity Effects
Paraquat Dichloride:
Fish (Bluegill Sunfish) 96-hour LC50 13 ppm
Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 1.2 ppm
Bird (Bobwhite Quail) 8-day LD50 176 mg/kg
Green Algae 4-day EC50 0.32 ppm

Environmental Fate
Paraquat Dichloride:
The information presented here is for the active ingredient, paraquat dichloride.

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: Not Applicable
Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification
Ground Transport - NAFTA
Proper Shipping Name: Corrosive Liquid, N.O.S. (Paraquat)
Hazard Class: Class 8
Identification Number: UN 1760
Packing Group: III

Comments
Water Transport - International
Proper Shipping Name: Corrosive Liquid, N.O.S. (Paraquat), Marine Pollutant
Hazard Class: Class 8
Identification Number: UN 1760
Packing Group: III

Air Transport
Proper Shipping Name: Corrosive Liquid, N.O.S. (Paraquat)
Hazard Class: Class 8
Identification Number: UN 1760
Packing Group: III

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification
Section 311/312 Hazard Classes: Acute Health Hazard

Product Name: GRAMOXONE SL
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th></th>
<th>NFPA Hazard Ratings</th>
<th>HMIS Hazard Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health:</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Flammability:</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Instability:</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 8/30/2011
Revision Date: 12/18/2012
Replaces: 2/6/2012

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