



MATERIAL SAFETY DATA SHEET

Karmex DF Herbicide

Date Prepared: September 18, 1998

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFICATION

Product Name: Karmex DF Herbicide

HAZARD CLASSIFICATION (0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

NFPA: HEALTH-1 FIRE-1 REACTIVITY-0

HMIS: HEALTH-2 FIRE-1 REACTIVITY-0

MANUFACTURER NAME AND ADDRESS

Griffin L.L.C.	Griffin (Europe) S.A.	Griffin FE (Malaysia) S/B
2509 Rocky Ford Road	c/o Minervastraat 8	P.O. Box 6506
P.O. Box 1847	B-1930 Zaventem	47300 KG Tunku
Valdosta, GA 31603-1847	Belgium	Petaling Jaya
		Malaysia

EMERGENCY TELEPHONE NUMBERS

Griffin L.L.C. (USA): (+1) (800) 237 1854

Griffin (Europe) S.A.: (+32)-2-720 6644

Griffin FE (Malaysia) S/B: (+60)-3-757 4773

Chemtrec: (+1) (800) 424 9300

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Component Name	% by Wt.	CAS#	ACGIH (TLV)	OSHA (PEL)
Diuron	80.0	330-54-1	10 mg/m ³	not established
Components not precisely identified are proprietary or not hazardous.				

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Brown granule that may cause irritation to the eyes and nose. Slightly toxic orally and dermally. See below for route-specific details.

POTENTIAL HEALTH EFFECTS

Inhalation: May cause irritation to the nose. Overexposure by inhalation may cause liver enlargement, spleen and thyroid effects, red blood cell destruction, reduction of the blood's oxygen carrying capacity with cyanosis (bluish discoloration), weakness, or shortness of breath by formation of methemoglobin. No reports of human sensitization.

Eye Irritation: May cause irritation. Produced mild to moderate corneal opacity, mild conjunctival redness and slight to mild chemosis in unwashed rabbit eyes. Eyes normal within 14 days after exposure. Considered a moderate eye irritant. May cause eye irritation with discomfort, tearing, or blurring of vision.

**Hazards Identification continued:**

Skin Absorption:	Slightly toxic on absorption through skin. Temporary skin swelling, redness, or discomfort may occur on contact. Significant skin permeation after contact appears unlikely.
Ingestion:	Overexposure by inhalation may cause liver enlargement, spleen and thyroid effects, red blood cell destruction, reduction of the blood's oxygen carrying capacity with cyanosis (bluish discoloration), weakness, or shortness of breath by formation of methemoglobin.
Chronic:	Toxic effects described in animals from short exposures include: blood effects, spleen effects, thyroid effects, methemoglobinemia, and nonspecific effects such as weight loss and irritation. Tests in some animals demonstrate carcinogenic activity. Tests in animals demonstrate no embryotoxic activity at concentrations equal to or less than the TLV or 10 mg/m ³ . Animal testing indicates that this compound does not have mutagenic, or reproductive effects.

4. FIRST AID MEASURES

Inhalation:	Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-mouth. Get professional medical attention immediately.
Eye Contact:	Hold eyelids open and flush with water at least 15-20 minutes until no evidence of chemical remains. Do not attempt to neutralize with chemical agents. Get professional medical attention immediately.
Skin Contact:	Remove contaminated clothing and shoes. Wash with plenty of soap and water for 15-20 minutes until no evidence of chemical remains. Get professional medical attention immediately.
Ingestion:	Immediately drink 1 to 2 glasses of water and induce vomiting. Do not induce vomiting or give anything by mouth to an unconscious person. Get professional medical attention immediately.

Note To Physicians:

Absorption of diuron into the body may lead to the formation of methemoglobin that, in sufficient concentration, causes cyanosis. Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need be treated only by supportive measures such as a bed rest and oxygen inhalation.



First Aid Measures continued:

Notes to Physician (continued):

Thorough cleansing of the entire contaminated area of the body, including scalp and nails, is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, one milligram per kilogram of body weight, may be of value. Cyanocobalamin (Vitamin B₃), one milligram intramuscularly, may speed recovery. Intravenous fluids and blood transfusions may be indicated in very severe exposure.

5. FIRE FIGHTING MEASURES

Flash Point & Method: Not determined
Flammable Limits: 0.070 g/L
Autoignition Temperature: 455° C (851° F)

FIRE FIGHTING HAZARDS & PROCEDURES

General Hazard: Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air. Prevent human exposure to fire, smoke, fumes or products of combustion.

Extinguishing Media: Use dry chemical, carbon dioxide, water spray or foam.

Fire Fighting Instructions: If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the contamination hazard.

Fire Fighting Equipment: Wear protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Dike spill. Prevent material from entering sewers, waterways, or low areas. Shovel or sweep up.

7. HANDLING AND STORAGE

General Information: Avoid breathing vapors of mist. Avoid breathing dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Do not store or consume food, drink, or tobacco in areas where they may become contaminated with this material. Store in a well ventilated place. Keep container tightly closed. Do not store near feed, food, or within the reach of children.



8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

PESTICIDE APPLICATORS & WORKERS

These workers must refer to the Product Label and Directions For Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170.

MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation: Control enclosed spaces with adequate ventilation to prevent exceedance of ACGIH TLV.

Respiratory Protection: In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/MSHA approved dust or mist respirator.

Eye Protection: Wear protective eyewear to prevent contact with this substance.

Protective Clothing: Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves, shoes plus socks.

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Pressure: Not determined

Density: 40 lbs/ft³

Solubility in Water: Dispersible. Diuron's solubility in water is 42 ppm.

pH: Not determined

Boiling Point: Not determined

Melting Point: Not determined

Odor: Odorless

Color: Brown

Physical State: Granule

10. STABILITY AND REACTIVITY

General: This material is stable under normal conditions.

Incompatible Materials: Not determined

Hazardous Decomposition: Not determined

Hazardous Polymerization: Material is not known to polymerize.

11. TOXICOLOGICAL INFORMATION

ACUTE

Inhalation: > 5.6 mg/L (rat - 4 hour)

Eye Irritation: Considered a moderate eye irritant. Produced mild to moderate corneal opacity, mild conjunctural redness, and slight to mild chemosis in unwashed rabbit eyes. Eyes were normal within 14 days after exposure.

Skin Irritation: Considered to be slightly to moderately irritating to the skin of a rabbit.



Toxicological Information continued:

Skin Absorption: Slightly to moderately toxic by contact. Acute dermal LD₅₀ > 2,000 mg/kg (rabbits).
Ingestion: Slightly toxic by ingestion. Acute oral LD₅₀ = 2,900 mg/kg (rats).

12. ECOLOGICAL INFORMATION

For detailed ecological information, write to the address listed in Section 1 of this Material Safety Data Sheet or call 912/242-8635 and ask for Regulatory Affairs.

13. DISPOSAL CONSIDERATIONS

Comply with appropriate disposal regulations. Landfill solids at permitted sites. Use registered transporters.

14. TRANSPORT INFORMATION

Department of Transportation (DOT): < 125 lbs/package: Not Regulated
International Air Transport Association (IATA): < 125 lbs/package: Not Regulated
International Maritime Organization (IMO): < 125 lbs/package: Not Regulated

Note: For DOT, IATA, and IMO, the RQ for diuron = 100 lbs. This product is regulated as a hazardous substance in packages containing > 100 lbs diuron.

15. REGULATORY INFORMATION

OSHA: This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).
TSCA: All product components are on the TSCA Chemical Inventory.
CERCLA: Releases of this material (RQ = 100 pounds) to air, land, or water are reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.
RCRA: When a decision is made to discard this material as supplied, it does not meet RCRA's characteristic definition of ignitability, corrosivity, or reactivity, and is not listed in 40 CFR §261.33.

**Regulatory Information continued:**

SARA TITLE III

302: Not listed

311/312 Hazard Categories: This product has been reviewed according to the EPA "Hazard Categories" relating to SARA Title III, and is categorized as an acute and chronic health hazard (40 CFR §370.41).

313 Reportable Ingredients: This product contains diuron which is listed in Section 313 above de minimis concentrations (40 CFR §372).

16. OTHER INFORMATION

REVISION SUMMARY

This Material Safety Data Sheet replaces the one dated 07/20/98 and has been updated using the standard Griffin L.L.C. ANSI Z400.1 compliant format. Changes were made in format.

Karmex® is a registered trademark of E.I. DuPont de Nemours & Company.

The information in this Material Safety Data Sheet relates to this specific material. It may not be valid for this material if used in combination with any other materials or in any process. It is the users' responsibility to satisfy themselves as to the suitability and completeness of this information for their own particular use.