MATERIAL SAFETY DATA SHEET

Emergency Phone: CHEMTREC 800-424-9300 Effective Date: September 10, 2011

New

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Willowood Diuron 80DF
CHEMICAL NAME: Diuron (3-{3,4-dichlorophenyl}-1,1-dimethylurea)
CHEMICAL FAMILY: Substituted Urea Herbicide
PRODUCT CODE: EPA Reg. No. 87290-28

COMPANY IDENTIFICATION
Willowood, LLC
1600 NW Garden Valley Blvd., Suite 120
Roseburg, Oregon 97471
Tel: 877-679-9963

24/7 Health Emergencies: Call 800-858-7378 (National Pesticide Information Center)

2. COMPOSITION, INFORMATION OF INGREDIENTS:

Components

Name	CAS - No.	EINECS #	Average % by Weight
Diuron	330-54-1	206-354-4	80.0
Other Ingredients			20.0

3. HAZARDS IDENTIFICATION SUMMARY:

NOTE: Please refer to Section 11 for detailed toxicological information.

EMERGENCY OVERVIEW: WARNING! Diuron 80DF is an irritant and an environmentally hazardous substance. Diuron is harmful if swallowed or inhaled. There is limited evidence that Diuron may be a human carcinogen. Diuron can cause moderate eye irritation. Diuron is moderately toxic to fish and very toxic to marine invertibrates. Avoid breathing dust or aerosol. Avoid contact with eyes, skin, or clothing.

PHYSICAL STATE: Powder.

APPEARANCE: White/colorless to light brown powder.

ROUTE OF EXPOSURE: Inhalation, Skin Contact, Skin Absorption, or Eye Contact.

IMMEDIATE EFFECTS:
Eye: Can cause moderate eye irritation. Do not get in eyes.
Skin: Avoid contact with skin and clothing.
Skin Irritation: Unlikely to cause significant irritation or sensitization by skin contact.
Ingestion: Harmful if swallowed. Do not take internally.
Inhalation: Harmful if inhaled. Avoid breathing dust or aerosol.

CHRONIC OR DELAYED LONG-TERM: The EPA has classified Diuron as a known or likely human carcinogen since 1997, based on increased incidence of bladder and kidney cancer in male and female rat studies. But none of the components of Diuron 80DF are listed by IARC, NTP, or OSHA as a carcinogen. There is no evidence of human carcinogenicity. Diuron has not been found to be a human teratogen, but there is some evidence that it may be a mutagen.

Medical Conditions Aggravated by Exposure: May cause upper respiratory irritation, or temporary irritation to the eyes.

4. FIRST AID MEASURES:

GENERAL: Have the product container or label with you when calling a poison control center or doctor or going for treatment.

INHALATION: Move the exposed person to fresh air, free from risk of further exposure. If the person is not breathing call 9-1-1, then give artificial respiration. Seek medical attention as soon as possible.

EYE CONTACT: Flush with clean, lukewarm water raising upper and lower eyelids at low pressure for 15 minutes. Remove contact lenses, if present, after the first five minutes and continue to rinse the eyes. Seek medical attention if no relief.

SKIN CONTACT: Remove any contaminated clothing. Rinse area with clean water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have the affected person drink a glass of water if they are able to swallow. DO NOT INDUCE VOMITING. Lower the head if the exposed person is vomiting to minimize entry into throat and lungs.

NOTE to Physician: There is no specific antidote. Use appropriate supportive and symptomatic treatment as indicated by the patient's condition.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not highly combustible.

AUTOIGNITION TEMPERATURE: 850 ^{o}F. (454 ^{o}C.)

FIRE AND EXPLOSION HAZARDS: During a fire, thermal decomposition of Diuron can produce irritating and toxic gases, including hydrogen cyanide, hydrogen chloride, nitrogen oxides and carbon oxides. Under extreme dusting conditions Diuron may form an explosive mixture in air.

SUITABLE EXTINGUISHING MEDIA: Use water spray, dry chemicals, carbon dioxide, or foam.

FIRE FIGHTING INSTRUCTIONS: Wear encapsulated suit and NIOSH-approved self-contained breathing apparatus while fighting a fire where this product is burning. Keep out of smoke. Fight fire from an upwind position. Cool closed containers exposed to fire with water spray. Dike the area to prevent runoff and contamination of water sources. Equipment or materials involved in pesticide fires may become contaminated.

6. ACCIDENTAL RELEASE MEASURES:

PERSONAL PRECAUTIONS: Wear PPE per Section 8**.** Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

METHODS FOR CLEANING UP: Avoid creating a dust cloud. Sweep up spilled material. Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly with water and detergents, observing environmental regulations.

HANDLING AND STORAGE PRECAUTIONS: Use normal safety procedures and good personal hygiene. Wash thoroughly after use and before eating, drinking, chewing gum, or using tobacco.

ADDITIONAL ADVICE: Do not allow material to enter streams, sewers, or other waterways.

7. HANDLING AND STORAGE:

STORAGE TEMPERATURE: Keep containers tightly closed. Avoid temperatures above 38 °C. (100 °F.) or below 0°C (32 °F.) Store in a cool, dry, well-ventilated area.

SPECIAL SENSITIVITY: Avoid contact with skin and eyes. Wear PPE per Section 8.

HANDLING AND STORAGE PRECAUTIONS: Avoid breathing the dust. Use normal safety procedures and good personal hygiene. Remove and wash PPE as soon as possible after handling product. Wash thoroughly after use, and before eating, drinking, chewing gum, or using tobacco.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION:

EYE PROTECTION: Use approved safety glasses, goggles, or face shield when there is potential for dust exposure to cause irritation to the eyes.

SKIN PROTECTION: Wear chemically resistant gloves (e.g. nitrile, butyl, or neoprene.) Wear a long-sleeved shirt, long pants, shoes, and socks.

RESPIRATORY PROTECTION: Wear a NIOSH-approved respirator if the airborne conditions result in a dust or aerosol forming. A respirator is not normally required for routine handling of Diuron 80DF.

OCCUPATIONAL EXPOSURE LIMITS: None.

ENGINEERING CONTROLS: Provide adequate ventilation when product is used. Eyewash and shower should be provided in mixing and loading areas.

9. PHYSICAL AND CHEMICAL PROPERTIES:

PHYSICAL FORM: Granules.
ODOR: Odorless.
DENSITY OF POWDER (water=1): 0.7 g/cm^3 .
pH IN WATER: 6.0-7.0 (dilute suspension)
COLOR: White/colorless to light brown.
SOLUBILITY IN WATER: 40 mg/L @ 22 ^oC.
FLASH POINT: Not Highly Combustible.

10. STABILITY AND REACTIVITY:

STABILITY: This product is a stable material under normal conditions of storage and handling. Avoid temperatures above 38 ^oC. (100 °F.) Diuron will begin to thermally decompose with emission of toxic gases at about 180 ^oC. (356 ^oF.)

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBLES: Avoid contact with strong acids or strong oxidizing agents.

DECOMPOSITION PRODUCTS: Products of thermal decomposition and/or combustion can include hydrogen chloride, oxides of nitrogen, and oxides of carbon.

11. TOXICOLOGICAL INFORMATION:

Oral $LD_{50\ (rat)}$ > 5,000 mg/kg
Dermal $LD_{50\ (rabbit)}$ > 5,000 mg/kg
Inhalation $LC_{50\ (rat)}$ > 2.0 mg/L

There is no evidence that Diuron 80DF causes cancer in humans. There is some evidence Diuron is a carcinogen based on male and female rat studies, where a higher incidence of bladder and kidney cancer was observed. Based on these studies, the EPA has listed Diuron as a likely human carcinogen. But none of the components of Diuron 80DF are listed by IARC, NTP, or OSHA as a carcinogen.

Diuron has not been found to be a human teratogen, but there is some evidence that it may be a mutagen.

There was no evidence that Diuron 80DF causes skin sensitization based on guinea pig studies

The significant routes of exposure are eyes, ingestion, skin contact, and inhalation.

12. ECOLOGICAL INFORMATION:

Oral $LD_{50\ (bobwhite\ quail)}$ > 1,700 mg/L (This indicates that Diuron is practically nontoxic to these species.)
Oral $LD_{50\ (mallard,\ ring\text{-}necked\ pheasant)}$ > 5,000 mg/L.
(This indicates that Diuron 80DF is only slightly toxic to most bird species.)

Effects on aquatic organisms: Diuron 80DF is slightly toxic to practically nontoxic to fish.
96-hour $LC_{50\ (rainbow\ trout)}$ > 190 mg/L.
96-hour $LC_{50\ (bluegill)}$ > 300 mg/L.
48-hour $LC_{50\ (marine\ invertibrates)}$ > 1.0-2.5 mg/L.
(This indicates that Diuron 80DF is moderately toxic to fish and highly toxic to marine invertibrates.)

Diuron 80DF is not toxic to honeybees.

Prevent Diuron 80DF from getting into any waterways.

13. DISPOSAL CONSIDERATIONS:

WASTE DISPOSAL METHOD: Diuron 80DF is a powder. Wear a dust respirator or NIOSH-approved self-contained breathing apparatus and other required PPE while disposing of Diuron 80DF. Dispose of in accordance with label instructions and in accordance with all local, state, and federal regulations.

14. TRANSPORT INFORMATION:

US DOT (ground) SHIPPING NAME: Diuron 80DF is not regulated by DOT in single packages containing less than 100 pounds.

IATA (air) SHIPPING NAME: Diuron 80DF is an Environmentally Hazardous Substance, solid, N.O.S. - UN-Number 3077; DG Class 9; Packing Group III.

IMO (water) SHIPPING NAME: Diuron 80DF is an Environmentally Hazardous Substance, solid, N.O.S. - UN-Number 3077; DG Class 9; Packing Group III.

15. REGULATORY INFORMATION:

OSHA STATUS: None.

TSCA STATUS: None

CERCLA REPORTABLE QUANTITY: Reportable Quantity ï 125 pounds. (100 pounds of Diuron.)

CALIFORNIA PROPOSITION 65: This product contains a substance known to the State of California to cause cancer. (Diuron, Silica)

RCRA STATUS: None.

SARA 302/311/312 HAZARD NOTIFICATION/REPORTING

IMMEDIATE Y **FIRE** N **SUDDEN RELEASE OF PRESSURE** N

DELAYED Y **REACTIVE** N

SARA TITLE III: Acute health hazard: Yes; Chronic Health Hazard: Yes.

SECTION 302 EXTREMELY HAZARDOUS: None.

SECTION 311/312 HAZARD CATEGORIES: None

SECTION 313 TOXIC CHEMICALS: Yes.

RIGHT TO KNOW: NJ, PA ï Diuron; PA ï Kaolin clay

16. OTHER INFORMATION:

National Fire Protection Association (NFPA)

Hazardous Materials Identification System (HMIS)

NFPA		HMIS
	0 Least	
1 Health	1 Slight	2 Health
1 Flammability	2 Moderate	1 Flammability
0 Instability	3 High	0 Reactivity
	4 Severe	H PPE

RISK PHRASES: R21, Harmful in contact with skin; R22, Harmful if swallowed; R36, Irritating to eyes; R40, Limited evidence of a carcinogenic effect; and R51, Toxic to aquatic organisms.

SAFETY PHRASES: S2, Keep out of reach of children; S9, Keep container in a well-ventilated place; S22, Do not breathe dust; S25, Avoid contact with eye; S36, Wear suitable protective clothing; S37, Wear suitable gloves; S38, In case of insufficient ventilation, wear suitable respiratory equipment; S39, Wear eye/face protection; S60, This material and its container must be disposed of as a hazardous waste; S61, Avoid release to the environment; and S62, If swallowed, do not induce vomiting but seek medical advice immediately and show the product container or label to the medical professional.

REASON FOR ISSUE: New.

APPROVAL DATE: 09/10/2011

PREPARED BY: Jack Firkins **REVIEWED BY:** Joe Middione

ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS#	Chemical Abstract Service Number
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
^{0}C	Celsius temperature scale
CI	China
DSL	Canada Domestic Substances List
ECL	Korean Existing Chemicals List
EEC	European Economic Commission
ENCS	Japanese existing Chemical List
EINECS #	European Inventory of Existing Chemical Substance Number
EU	European Union
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
(Israel)	2001 proposed list of chemical substances to be regulated under Israel Hazardous Substances Law and Regulations List of 1993
IARC	International Agency for Research on Cancer
MAC	Netherlands
MAK	Germany
MITI	Ministry of International Trade and Industry
NA	Not Applicable
ND	Not Determined
NE	Not Established
NIOSH	National Institute of Occupational Safety and Health
NPIC	National Pesticide Information Center
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Act
PICCS	Philippines
PPE	Personal Protective Equipment
Prop	Proprietary
SARA	Superfund Amendments and Reauthorization Act
SWISS	Giftliste 1 and Inventory of Notified New Substances
TSCA	Toxic Substances Control Act
(Taiwan)	List of Toxic Chemical Substances regulated under Taiwan Toxic Chemical Substances Control Act of November 26, 1986
UK	United Kingdom

USA United States of America

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