

MATERIAL SAFETY DATA SHEET



Date of Issue: June 1st, 2009

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name **Dropp[®] UltraMax[™] Cotton Defoliant**

Other names None

Product codes and pack sizes 5991268 (2.5 L), 5957868 (5 L)

Chemical group Phenylurea / Urea

Recommended use Plant growth regulator and herbicide for agricultural use

Formulation Suspension concentrate (SC)

Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022

Address 391 - 393 Tooronga Road, East Hawthorn
Victoria 3123, Australia

Telephone (03) 9248 6888

Facsimile (03) 9248 6800

Website www.bayercropscience.com.au

Contact Development Manager (03) 9248 6888

Emergency Telephone Number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW HAZARDOUS SUBSTANCE – DANGEROUS GOOD

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R40 – Limited evidence of a carcinogenic effect.
R48/22 – Harmful: danger of serious damage to health by prolonged exposure if swallowed.

Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13

ADG classification See Section 14.

SUSDP classification Exempt (Standard for the Uniform Scheduling of Drugs and Poisons)
(Poison Schedule)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Thidiazuron	[51707-55-2]	240
Diuron	[330-54-1]	120
Propylene glycol	[57-55-6]	56
Other ingredients (non hazardous)	---	709

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

Inhalation	If inhaled remove to fresh air and keep at rest. Obtain medical advice.
Skin contact	Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical aid if skin problems persist.
Eye contact	Rinse eyes immediately with clean water and obtain medical aid.
Ingestion	Wash out mouth with water. Do not induce vomiting. Keep patient at rest and seek immediate medical advice as above.
First Aid Facilities	Ensure eyewash and shower facilities are available.
Medical attention	<i>Symptoms of poisoning:</i> Apathy, increased urination, cyanosis (blueness of the skin due to lack of oxygen).

Notes for physicians

Absorption of diuron into the body may lead to the formation of methaemoglobin, which in sufficient concentration causes cyanosis. Due to discolouration of the skin, oxygen saturation cannot be measured with fingertip sensors.

Local Treatment: Treat symptoms. Treat skin and mucous membranes with antihistamines and corticosteroids.

Systemic Treatment: If more than a mouthful has been ingested, gastric lavage, followed by administration of activated charcoal, should be considered:

Methaemoglobin should be measured before and during therapy.

If methaemoglobin level is less than 20%, administer 100% oxygen. 1 g ascorbic acid may be given orally or IV.

If methaemoglobin level is greater than 20%, treat with 100% oxygen and administer Methylene Blue or Toluidine Blue solution intravenously.

Note Methylene Blue and Toluidine Blue can cause methaemoglobinemia in case of overdose.

Methylene Blue: 1 % solution IV at 0.1-0.2 mL/kg bw. This dose may be repeated after 30 mins. Max daily dose is 7 mg/kg bw.

Toluidine Blue: 3% solution IV at 0.07-0.13 mL/kg bw. This dose may be repeated after 30 mins.

Contraindications: Alcohol consumption is forbidden for 48 hrs.

Recovery: Spontaneous

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5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, alcohol-resistant foam, dry chemical, carbon dioxide
Hazards from combustion products	In a fire, formation of hydrogen chloride, sulphur dioxide, hydrogen cyanide, carbon monoxide and nitrogen oxides can be expected.
Precautions for fire fighters	Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, spray with water to keep cool. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of extinguishing agent and spillage safely later.
Hazchem code	Not applicable

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled material or contaminated surfaces. Do not smoke, eat or drink during the clean up process. Wear personal protective clothing and equipment as detailed in Section 8 PERSONAL PROTECTION. Keep people and animals away. Prevent spilled material from entering drains or watercourses. Absorb spill with absorbent material, sweep up and collect and store in properly labelled drums for disposal. Seal drums and label ready for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Avoid contact with the eyes and skin. When opening the container, preparing the spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), a washable hat and elbow length PVC gloves. Wash hands after use. After each days use, wash gloves and contaminated clothing.
Storage	Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. Protect from heat and from frost.
Flammability	Not flammable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	The following National Occupational Health and Safety Commission (NOHSC) exposure standard are applicable: Diuron TWA: 10 mg/m ³ Propylene glycol TWA: 150 ppm, 474 mg/m ³ (vapour and particulates); TWA: 10 mg/m ³ (particulates only)
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Definitions:

Exposure standard – Time Weighted Average (TWA) means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION continued

Biological limit values	None allocated
Engineering controls	Control process conditions to avoid contact. Use in a well-ventilated area only.
Personal Protective Equipment	Eyes: Wear chemical resistant goggles if exposure is likely. Clothing: Cotton overalls buttoned to the neck and wrist (or equivalent clothing) and a washable hat Gloves: Elbow-length PVC or nitrile gloves Respiratory: Wear an AS/NZS 1715/1716 approved respirator suitable for organic vapour/mist if exposure to vapours or mists is likely.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Viscous light brown suspension
Odour:	Negligible
pH:	5.5 to 7.5
Vapour pressure:	4×10^{-6} mPa at 25° C (thidiazuron); 1.1×10^{-3} mPa at 25° C (<i>diuron</i>)
Vapour density:	Not available
Boiling point:	Not available
Freezing/melting point:	Not available
Solubility:	Miscible with water.
Density:	Approximately 1.125 g/mL
Flash Point:	Not flammable
Flammability (explosive) limits:	Not available.
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	<i>Thidiazuron</i> : Log P_{ow} = 1.5; <i>Diuron</i> : Log P_{ow} = 2.85 at 25° C

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Diuron is hydrolysed by acids or alkalis. Avoid oxidising agents.
Hazardous decomposition products	In a fire, formation of hydrogen chloride, sulphur dioxide, hydrogen cyanide, carbon monoxide and nitrogen oxides can be expected.
Hazardous reactions	None known

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11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May be harmful if inhaled. Inhalation of spray may irritate mucous membranes.
Skin contact	May irritate the skin.
Eye contact	May irritate the eyes.
Ingestion	Harmful if swallowed.

ANIMAL TOXICITY DATA

Acute:

Oral toxicity	LD ₅₀ rat: > 4000 mg/kg (<i>thidiazuron</i>) LD ₅₀ rat: > 2000 mg/kg (<i>diuron</i>)
Dermal toxicity	LD ₅₀ rat: > 1000 mg/kg (<i>thidiazuron</i>) LD ₅₀ rat: > 2000 mg/kg (<i>diuron</i>)
Inhalation toxicity	LC ₅₀ rat (4 hour): > 2.3 mg/L (highest attainable concentration) (<i>thidiazuron</i>) LC ₅₀ rat (4 hour): > 7 mg/L (highest attainable concentration) (<i>diuron</i>)
Skin irritation	Non irritating (rabbit) (<i>thidiazuron</i>) Non irritating (rabbit) (<i>diuron</i>)
Eye irritation	Slightly irritating (rabbit) (<i>thidiazuron</i>) Non irritating (rabbit) (<i>diuron</i>)
Sensitisation	Not sensitising (guinea pig) (<i>thidiazuron</i>) Not sensitising (guinea pig) (<i>diuron</i>)

Chronic:

Thidiazuron was not carcinogenic, was not mutagenic and did not cause reproductive effects or teratogenicity in animal studies.

Diuron was not mutagenic in the Ames test. Long term animal studies with diuron at high doses gave evidence of blood disorders and a possible carcinogenic effect. Diuron is listed by NOHSC as a Category 3 carcinogen – substances in which there is limited evidence of a carcinogenic effect in animal studies.

12. ECOLOGICAL INFORMATION

Thidiazuron is toxic to aquatic organisms. Diuron is moderately toxic to fish and highly toxic to aquatic invertebrates and algae. Thidiazuron and diuron have low toxicity to birds and bees.

DO NOT contaminate streams, rivers, or waterways with the chemical or used containers.

Ecotoxicity

Thidiazuron:

<i>Fish toxicity:</i>	LC ₅₀ (96 h) rainbow trout (<i>Onchorhynchus mykiss</i>) > 19 mg/L LC ₅₀ (96 h) bluegill sunfish (<i>Lepomis macrochirus</i>) 32 mg/L
<i>Daphnia toxicity:</i>	LC ₅₀ (48 h) > 10 mg/L
<i>Bird toxicity:</i>	LD ₅₀ Japanese quail > 3160 mg/kg

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12. ECOLOGICAL INFORMATION continued

Diuron:

Fish toxicity: LC₅₀ (96 h) rainbow trout (*Onchorhynchus mykiss*) 14.7 mg/L
Daphnia toxicity: EC₅₀ (48 h) water flea (*Daphnia magna*) 1.4 mg/L
Algal toxicity: EC₅₀ (120 h) green algae (*Selenastrum capricornutum*) 0.022 mg/L
Bird toxicity: Dietary LC₅₀ (8 day) bobwhite quail 1730 mg/kg diet

Environmental fate, persistence and degradability, mobility

Thidiazuron is not readily biodegradable < 17%. It is strongly adsorbed by soil. DT₅₀ in soil is about 26-144 days (aerobic); 28 days (anaerobic).
The duration of activity of diuron in soil is about 4 to 8 months. DT₅₀ is 90 to 180 days.

13. DISPOSAL CONSIDERATIONS

Triple or preferably pressure rinse container before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Dispose of waste product through a reputable waste contractor.

14. TRANSPORT INFORMATION

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (contains diuron)
Class and Subsidiary Risk	Class 9
Packing Group	Packing Group III
Hazchem code	•3Z
Note for Road and Rail Transport	According to AU01, Environmentally Hazardous Substances in packagings, IBCs or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994
Australian Pesticides and Veterinary Medicines Authority approval number: 59777 See also Section 2.

16. OTHER INFORMATION

Trademark information	Dropp® is a Registered Trademark of Bayer. UltraMax™ is a Trademark of Bayer.
Preparation information	Replaces October 9, 2007 MSDS. Reasons for revision: Risk phrases, DG classification, Formulation composition, Medical attention, Handling, Exposure standards, Toxicological information, Ecological information.

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16. OTHER INFORMATION continued
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This MSDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

Our responsibility for products sold is subject to our standard terms and conditions, a copy of which is sent to our customers and is also available on request.

END OF MSDS