

MATERIAL SAFETY DATA SHEET



Date of Issue: November 18, 2004

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name Bayer Diuron 500 SC Liquid Herbicide
Other names None
Product codes and pack sizes 4952994 (20 L), 6349773 (20 L)
Chemical group Urea
Recommended use 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 – NON-DANGEROUS GOOD
Dangerous to fish and aquatic organisms

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 Not a “Dangerous good” for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (Class 9 in Europe)
SUSDP classification Exempt (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Diuron	[330-54-1]	500
Other ingredients, including water (non hazardous)	---	690

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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 at all worried.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes 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	<p><i>Symptoms of poisoning:</i> Absorption of this product into the body may lead to the formation of methaemoglobin, which in sufficient concentration causes cyanosis (blueness of the skin from lack of oxygen in the blood). If a large amount of this product has been ingested other symptoms include dizziness and headache.</p> <p><i>Local Treatment:</i> Treat symptoms. <i>Systemic Treatment:</i> If more than a mouthful has been ingested, the following measures should be considered: Monitoring of: cardiac and kidney function and red blood cell count Observe specific parameters: methaemoglobinaemia and serum potassium If ingested, irrigate the stomach, followed by administration of activated charcoal. If methaemoglobin level is less than 20%, administer 100% oxygen. If methaemoglobin level is greater than 20%, treat with 100% oxygen and slowly give 1% Methylene Blue/Toluidine Blue solution intravenously, 1-2 mg/kg body weight. <i>Contraindications:</i> Alcohol <i>Recovery:</i> Spontaneous Oxygen, if needed</p>

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, 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. 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

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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. Will irritate the eyes. Avoid contact with eyes and skin. After use and before eating drinking or smoking wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, goggles and contaminated clothing.
Storage	Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store apart from fertilisers, insecticides and fungicides.
Flammability	Not flammable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	NOHSC Exposure standard for diuron: TWA: 10 mg/m ³ . ACGIH TLV TWA for diuron: 10 mg/m ³ . <u>Definitions:</u> <i>Exposure standard – Time Weighted Average (TWA)</i> means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week. TLV = Threshold Limit Value ACGIH = American Conference of Governmental Industrial Hygienists
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. Clothing: Cotton overalls buttoned to the neck and wrist and a washable hat Gloves: Elbow-length PVC or nitrile gloves Respiratory: Wear a respirator if inhalation is possible.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White liquid suspension
Odour:	Slight characteristic
pH:	About 7.0
Vapour pressure:	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.
Specific Gravity:	Approximately 1.19
Flash Point:	No flash point up to 100° C
Flammability (explosive) limits:	Not available.
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	<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, hydrogen cyanide, carbon monoxide and nitrogen oxides can be expected.
Hazardous reactions	None known

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Harmful if inhaled.
Skin contact	Harmful if absorbed by the skin. May irritate the skin.
Eye contact	Will irritate the eyes.
Ingestion	Harmful if swallowed.

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11. TOXICOLOGICAL INFORMATION - continued

ANIMAL TOXICITY DATA - SIMILAR PRODUCT

Acute:

Oral toxicity	LD ₅₀ rat: > 2000 mg/kg
Dermal toxicity	LD ₅₀ rat: > 2000 mg/kg
Inhalation toxicity	LC ₅₀ rat (4 hour): > 4.07 mg/L (highest attainable concentration)
Skin irritation	Non irritating (rabbit)
Eye irritation	Non irritating (rabbit)
Sensitisation	Not sensitising (guinea pig)

Chronic:

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 not listed by The National Toxicology Program or the International Agency for Research on Cancer as a carcinogen.

12. ECOLOGICAL INFORMATION

Diuron is moderately toxic to fish and highly toxic to aquatic invertebrates. Low toxicity to birds and bees. DO NOT contaminate streams, rivers, or waterways with the chemical or used containers.

Ecotoxicity

Diuron:

<i>Fish toxicity:</i>	LC ₅₀ (96 h) rainbow trout (<i>Onchorhynchus mykiss</i>) 14.7 mg/L
<i>Daphnia toxicity:</i>	EC ₅₀ (48 h) water flea (<i>Daphnia magna</i>) 1.4 mg/L
<i>Algal toxicity:</i>	
<i>Growth rate:</i>	IC ₅₀ (96 h) green algae (<i>Desmodesmus subspicatus</i>) 0.022 mg/L
<i>Toxicity to bacteria:</i>	EC ₅₀ : 3080 mg/L
<i>Bird toxicity:</i>	Dietary LC ₅₀ (8 day) bobwhite quail 1730 mg/kg diet

Environmental fate, persistence and degradability, mobility

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.

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14. TRANSPORT INFORMATION

UN number	Not applicable
Proper shipping name	Not applicable
Class and Subsidiary Risk	Not applicable
Packing Group	Not applicable
EPG	Not applicable
Hazchem code	Not applicable
Marine Pollutant	No – not listed in the IMDG Code as a Marine Pollutant. In Europe this product is a Class 9 ENVIRONMENTALLY HAZARDOUS SUBSTANCE.

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

Australian Pesticides and Veterinary Medicines Authority approval number: 31685 See also Section 2.

16. OTHER INFORMATION

Trademark information None

Preparation information Replaces August 1, 2002 MSDS.
Reasons for revision: 16 heading format, Hazard classification, Medical attention, Toxicity data, Ecological information

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