MATERIAL SAFETY DATA SHEET

Date of Issue: December 5, 2007

1. IDENTIFICATION OF MATERIAL AND SUPPLIER

Product name	**Ronstar® Granules Selective Herbicide**
Other names	None
Product codes and pack sizes	4207237 (15 kg)
Chemical group	Oxadiazole
Recommended use	Agricultural herbicide
Formulation	Granule
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 (see Risk phrases below) – NON DANGEROUS GOOD (road/rail)
Toxic to aquatic organisms.

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

Risk phrases

R38 – Irritating to skin.
R48/20 – Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R49 – May cause cancer by inhalation.

Safety phrases See Sections 4, 5, 6, 7, 8, 9, 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. For transport by sea this product is a Class 9, Marine Pollutant – See Section 14.

SUSDP classification (Poisons schedule) Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/kg)
Oxadiazon	[19666-30-9]	20
Quartz (silica crystalline)	[14808-60-7]	9 to 92
Other ingredients, including carriers and surfactants	(non hazardous)	To 100%

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. Seek medical advice if at all worried.
Skin contact	Carefully remove contaminated clothing. Wash affected area 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. Give water to drink. Do not give anything by mouth to an unconscious person. Keep patient at rest and seek medical advice.
First Aid Facilities	Provide eyewash and safety shower facilities in the workplace.
Medical attention	The following symptoms may occur: *Local* – potential to cause skin and eye irritation. *Systemic* – none reported. *Treatment* For local contamination treatment should be symptomatic after decontamination. For systemic poisoning initial treatment should be symptomatic and supportive.

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, carbon dioxide, dry powder, foam. Use media suitable to cause of fire.
Hazards from combustion products	In a fire, hydrogen chloride, oxides of nitrogen and oxides of carbon may be formed.
Precautions for fire fighters	Dust may form explosive mixture with air. 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 fire control water or other extinguishing agent and spillage safely later.
Hazchem code	None

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Do not smoke, eat or drink during the cleanup process. Personnel involved in cleanup should wear protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. Prevent spilled material from entering drains or watercourses. Contain spill and sweep up carefully. Avoid creating dust. Collect and store in recovery drums. Seal and label drums 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 eyes and skin. Do not inhale dust. 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 or face shield, respirator facepiece and contaminated clothing.

Storage Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight.

Flammability Some of the components in this product are combustible, but most of them are not. If fine dust is formed, dust / air mixtures can build up static electrical charges which may be explosive.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards NOHSC Exposure standard for silica, quartz: TWA: 0.1 mg/m³.
ACGIH TLV TWA for silica, crystalline, quartz – respirable fraction: TWA: 0.025 mg/m³.

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.
TLV = Threshold Limit Value
ACGIH = American Conference of Governmental Industrial Hygienists

Biological limit values Production workers and agricultural workers handling this product regularly should be monitored for the effects of crystalline silica. A baseline level should be established prior to any potential exposure. See Guidelines for Health Surveillance [NOHSC:7039(1995)].

Engineering controls Control process conditions to avoid contact. Use local exhaust ventilation during manufacture. Use this product in a well-ventilated area only.

Personal Protective Equipment

Eyes:	Wear goggles or face shield.
Clothing:	Wear cotton overalls buttoned to the neck and wrist and a washable hat.
Gloves:	Wear elbow-length PVC gloves.
Respiratory:	Wear a mask or respirator if inhalation of dust is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brown granules
Odour:	Aromatic
pH:	Not available
Vapour pressure:	0.1 mPa at 25° C (oxadiazon)
Vapour density:	Not available
Boiling point:	Not applicable
Freezing/melting point:	Not available
Solubility:	Practically insoluble in water

9. PHYSICAL AND CHEMICAL PROPERTIES - continued

Bulk Density:	Not available
Flash Point:	Not applicable
Flammability (explosive) limits:	Not available
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	*Oxadiazon*: Log P_{ow} = 5.33

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use. Stable in acidic and neutral medium; unstable in alkali.
Conditions to avoid	Extreme of temperature, moisture
Incompatible materials	Avoid contact with strong acids, strong bases and strong oxidising agents.
Hazardous decomposition products	In a fire, hydrogen chloride, oxides of nitrogen and oxides of carbon may be formed.
Hazardous reactions	None

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May irritate respiratory tract.
Skin contact	May irritate the skin
Eye contact	May irritate the eyes.
Ingestion	Low toxicity if swallowed, but may irritate mucous membranes of mouth and throat.

ANIMAL TOXICITY DATA - Similar product

Acute:

Oral toxicity	LD_{50} rat: > 5000 mg/kg
Dermal toxicity	LD_{50} rabbit: > 2000 mg/kg
Inhalation toxicity	LC_{50} (4 h) rat: > 2.77 mg/L - *oxadiazon*
Skin irritation	Moderately irritating (rabbit)

11. TOXICOLOGICAL INFORMATION - continued

Irritation to mucous membranes Slightly irritating (rabbit)

Sensitisation Not sensitising (guinea pig) - *oxadiazon*

Chronic:
Oxadiazon is not mutagenic, is not a reproductive toxin, and is not expected to cause cancer in humans.
The carrier in this product contains a small amount of naturally occurring crystalline silica, which is classified as a human carcinogen. Prolonged and/or massive exposure to respirable quartz-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by the deposition in the lungs of fine respirable particles of crystalline silica.

12. ECOLOGICAL INFORMATION

Dangerous to fish and aquatic organisms. Low toxicity to birds, bees and worms.
DO NOT contaminate streams, rivers or waterways with Ronstar or the used containers.

Ecotoxicity

Oxadiazon:

Fish toxicity:	LC_{50}:	1.2 mg/L (96 h); bluegill sunfish
	LC_{50}:	1.2 mg/L (96 h); rainbow trout
Daphnia toxicity:	EC_{50}:	> 2.4 mg/L (48 h); *Daphnia magna*
Algae toxicity:	EC_{50}:	0.00318 mg/L (120 h)
	EC_{50}:	0.0056 mg/L (120 h) *Skeletonema costatum*
Bird toxicity	LD_{50}:	> 2150 mg/kg; bobwhite quail
	LD_{50}:	> 1000 mg/kg; mallard duck

Environmental fate, persistence, degradability, mobility Oxadiazon is strongly adsorbed by soil colloids and humus, with very little migration or leaching. Negligible loss due to volatilisation. DT_{50} in soil is about 3-6 months. K_{oc} 1400 (silt loam) to 3200 (sand) at 25° C.

13. DISPOSAL CONSIDERATIONS

Shake empty bag into granule applicator. DO NOT dispose of undiluted chemicals on site. Puncture, shred and bury empty containers in a local authority landfill. If no landfill is available bury the empty 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 via a reputable disposal contractor.

14. TRANSPORT INFORMATION

UN number	Not applicable (road/rail)
Proper shipping name	Not applicable (road/rail)
Class and Subsidiary Risk	Not applicable (road/rail)
Packing Group	Not applicable (road/rail)
EPG	Not applicable (road/rail)
Hazchem code	Not applicable (road/rail)

14. TRANSPORT INFORMATION - continued

Marine Pollutant Yes. If Ronstar Granules Selective Herbicide is shipped by sea, it is classified as a Class 9, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains oxadiazon), Packing Group III, UN 3077, Hazchem 2Z, Marine Pollutant.

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988. See also Section 2.

Australian Pesticides and Veterinary Medicines Authority approval number: 56599

16. OTHER INFORMATION

Trademark information Ronstar® is a Registered Trademark of Bayer.

Preparation information Replaces November 10, 2004 MSDS.
Reasons for revision: Risk phrase to include R49 for quartz/silica, precautions for fire fighters, exposure standards NOHSC changed from 0.2 to 0.1 mg/m³ and ACGIH TLV change from 0.05 to 0.025 mg/m³, biological limit values, marine pollutant.

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