SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Trade name Ronstar® Turf and Ornamental Herbicide

Product code (UVP) 05924065

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use Herbicide

1.3 Details of the supplier of the safety data sheet

Supplier Bayer Cropscience Pty Ltd
ABN 87 000 226 022
Level 1, 8 Redfern Road
3123 Hawthorn East
Victoria
Australia

Telephone (03) 9248 6888

Telefax (03) 9248 6800

Responsible Department 1800 804 479 Technical Information Service

Website www.es.bayer.com.au

1.4 Emergency telephone no.

Emergency telephone no. 1800 033 111 IXOM Operations Pty Ltd

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Australian GHS Regulation

Carcinogenicity: Category 2
H351 Suspected of causing cancer.

Specific target organ toxicity - repeated exposure: Category 2
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Acute aquatic toxicity: Category 1
H400 Very toxic to aquatic life.

Chronic aquatic toxicity: Category 1
H410 Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling according to specific Australian legislation

Hazard label for supply/use required.

Signal word: Warning

Hazard statements

H351	Suspected of causing cancer.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statements

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P314	Get medical advice/ attention if you feel unwell.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

No additional hazards known beside those mentioned.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Oxadiazon 20g/kg
Granule (GR)

Chemical name	CAS-No.	Concentration [%]
oxadiazon	19666-30-9	2.00
Solvent Naphtha (petroleum), heavy aromatic	64742-94-5	>= 1.00 - < 10.00
Polyoxyethylene-(octylphenyl)-ether	9036-19-5	>= 1.00 - < 3.00
Attapulgite	12174-11-7	>= 50.00
Other ingredients (non-hazardous) to 100%		

SECTION 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 Safety Data Sheet to the doctor.

4.1 Description of first aid measures

General advice	Remove contaminated clothing immediately and dispose of safely.
Inhalation	Move the victim to fresh air and keep at rest. Call a physician or poison control center immediately.
Skin contact	Wash off thoroughly with plenty of soap and water, if available with polyethyleneglycol 400, subsequently rinse with water. Call a physician or poison control center immediately.

Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Keep at rest. Rinse mouth. Do NOT induce vomiting. Call a physician or poison control center immediately.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	Local treatment: Initial treatment: symptomatic. Systemic treatment: Initial treatment: symptomatic. Gastric lavage is not normally required. However, if a significant amount (more than a mouthful) has been ingested, administer activated charcoal and sodium sulphate. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture	In the event of fire the following may be released:, Hydrogen chloride (HCl), Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2)

5.3 Advice for firefighters

Special protective equipment for firefighters	In the event of fire and/or explosion do not breathe fumes. Wear self-contained breathing apparatus and protective suit.
Further information	Evacuate personnel to safe areas. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Hazchem Code	2Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions	Avoid dust formation. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke. Use personal protective equipment. Keep unauthorized people away.
6.2 Environmental precautions	Do not allow to get into surface water, drains and ground water.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	Avoid dust formation. Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Check also for any local site procedures.
6.4 Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	Use only in area provided with appropriate exhaust ventilation.
Advice on protection against fire and explosion	Dust may form explosive mixture in air. Avoid dust formation by friction. Take measures to prevent the build up of electrostatic charge.
Hygiene measures	Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in original container. Store in a place accessible by authorized persons only. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Components	CAS-No.	Control parameters	Update	Basis
oxadiazon	19666-30-9	0.3 mg/m3 (TWA)		OES BCS*
Crystalline quartz (respirable) (Respirable dust.)	14808-60-7	0.05 mg/m3 (TWA)	12 2019	AU NOEL

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

8.2 Exposure controls

Respiratory protection	Wear respirator with a particle filter mask (protection factor 20) conforming to European Norm EN149FFP3 or EN140P3 or equivalent.

Hand protection	Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Wash gloves when contaminated. Dispose of when contaminated inside, when perforated or when contamination on the outside cannot be removed. Wash hands frequently and always before eating, drinking, smoking or using the toilet. Material: Nitrile rubber Break through time: > 480 min Glove thickness: > 0.4 mm Protective index: Class 6 Directive: Protective gloves complying with EN 374.
Eye protection	Safety glasses with side-shields
Skin and body protection	Wear standard coveralls and Category 3 Type 4 suit. If there is a risk of significant exposure, consider a higher protective type suit. Wear two layers of clothing wherever possible. Polyester/cotton or cotton overalls should be worn under chemical protection suit and should be professionally laundered frequently.
General protective measures	In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the above mentioned recommendations would apply.

Engineering Controls

Advice on safe handling Use only in area provided with appropriate exhaust ventilation.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Form	granular
Colour	light brown
Odour	weak, characteristic
Odour Threshold	No data available
pH	No data available
Melting point/range	No data available
Boiling Point	No data available
Flash point	No data available
Flammability	No data available
Auto-ignition temperature	No data available
Thermal decomposition	Stable under normal conditions.
Minimum ignition energy	No data available
Self-accelarating	No data available

decomposition temperature (SADT)	
Upper explosion limit	No data available
Lower explosion limit	No data available
Vapour pressure	No data available
Evaporation rate	No data available
Relative vapour density	No data available
Relative density	No data available
Density	No data available
Bulk density	ca. 0.67 g/ml (loose)
Water solubility	miscible
Partition coefficient: n-octanol/water	No data available
Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	No data available
9.2 Other information	Further safety related physical-chemical data are not known.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity	Stable under normal conditions.
10.2 Chemical stability	Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions	No hazardous reactions known.
10.4 Conditions to avoid	Exposure to moisture. Elevated temperatures
10.5 Incompatible materials	Strong acids, Strong bases, Strong oxidizing agents
10.6 Hazardous decomposition products	Thermal decomposition can lead to release of: Hydrogen chloride (HCl) Nitrogen oxides (NOx) Oxides of carbon

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity	ATE (Mix) > 2,000 mg/kg Calculation method
Acute inhalation toxicity	ATE (Mix) > 5.0 mg/l Exposure time: 4 h Calculation method
Acute dermal toxicity	ATE (Mix) > 2,000 mg/kg Calculation method
Skin corrosion/irritation	No skin irritation (Rabbit) Calculation method
Serious eye damage/eye irritation	Minimally irritating. (Rabbit) Calculation method
Respiratory or skin sensitisation	Skin: Non-sensitizing. The information is derived from the properties of the individual components.

Assessment mutagenicity

Oxadiazon was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Oxadiazon caused at high dose levels an increased incidence of tumours in in the following organ(s): Liver. The mechanism that triggers tumours in rodents and the type of tumours observed are not relevant to humans.

Assessment toxicity to reproduction

Oxadiazon caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. The reproduction toxicity seen with Oxadiazon is related to parental toxicity.

Assessment developmental toxicity

Oxadiazon caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Oxadiazon are related to maternal toxicity.

Assessment STOT Specific target organ toxicity – single exposure

Oxadiazon: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Oxadiazon caused specific target organ toxicity in experimental animal studies in the following organ(s): Liver, Blood. The observed effects do not appear to be relevant for humans.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

May cause upper respiratory tract irritation.
Low acute oral toxicity.
This product or its components may have target organ effects., This product or its components may have long term (chronic) health effects.
May cause irritation.

Early onset symptoms related to exposure
Refer to Section 4

Delayed health effects from exposure
Refer to Section 11

Exposure levels and health effects
Refer to Section 4

Interactive effects
Not known

When specific chemical data is not available
Not applicable

Mixture of chemicals
Refer to Section 2.1

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 1.2 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient oxadiazon.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 2.4 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient oxadiazon.
Toxicity to aquatic plants	EC50 (Desmodesmus subspicatus (green algae)) 0.00423 mg/l Growth rate; Exposure time: 120 h The value mentioned relates to the active ingredient oxadiazon.

12.2 Persistence and degradability

Biodegradability	Oxadiazon: Not rapidly biodegradable
Koc	Oxadiazon: Koc: 1294

12.3 Bioaccumulative potential

Bioaccumulation	Oxadiazon: Bioconcentration factor (BCF) 243 Does not bioaccumulate.

12.4 Mobility in soil

Mobility in soil	Oxadiazon: Slightly mobile in soils

12.5 Other adverse effects

Additional ecological information	No other effects to be mentioned.

SECTION 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".

SECTION 14. TRANSPORT INFORMATION

ADG

UN number	**3077**
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (OXADIAZON MIXTURE)
Hazchem Code	2Z

AU01: Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to this Code when transported by road or rail in;
a) packagings that do not incorporate a receptacle exceeding 500 kg(L); or
b) IBCs

IMDG

UN number	**3077**
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Marine pollutant	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (OXADIAZON MIXTURE)

IATA

UN number	**3077**
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Environm. Hazardous Mark	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (OXADIAZON MIXTURE)

SECTION 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 62461

SUSMP classification (Poison Schedule)

Schedule 6 (Standard for the Uniform Scheduling of Medicines and Poisons)

SECTION 16. OTHER INFORMATION

Trademark information Ronstar® is a Registered Trademark of the Bayer Group.

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute toxicity estimate
AU OEL	Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)
CAS-Nr.	Chemical Abstracts Service number
CEILING	Ceiling Limit Value
Conc.	Concentration
EC-No.	European community number
ECx	Effective concentration to x %
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
EN	European Standard
EU	European Union
IATA	International Air Transport Association
IBC	International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)
ICx	Inhibition concentration to x %
IMDG	International Maritime Dangerous Goods
LCx	Lethal concentration to x %
LDx	Lethal dose to x %
LOEC/LOEL	Lowest observed effect concentration/level
MARPOL	MARPOL: International Convention for the prevention of marine pollution from ships
N.O.S.	Not otherwise specified
NOEC/NOEL	No observed effect concentration/level
OECD	Organization for Economic Co-operation and Development
OES BCS	OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"
PEAK	PEAK: Exposure Standard - Peak means a maximum or peak airborne concentration of a particular substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes.
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SK-SEN	Skin sensitiser
SKIN_DES	SKIN_DES: Skin notation: Absorption through the skin may be a significant source of exposure.
STEL	STEL: Exposure standard - short term exposure limit (STEL): A 15 minute TWA exposure which should not be exceeded at any time during a working day even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.
TWA	TWA: Exposure standard - time-weighted average (TWA): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.
TWA	Time weighted average

UN	United Nations
WHO	World health organisation

This SDS 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 SDS 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.

Reason for Revision:	Safety Data Sheet according to Regulation (EU) No. 2015/830. The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 4: First Aid Measures. Section 5: Fire Fighting Measures. Section 6. Accidental Release Measures. Section 7: Handling and Storage. Section 8: Exposure Controls / Personal Protection. Section 11: Toxicological Information.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.