

Safety Data Sheet



PUMA® 250 EC Fungicide

Revision Date: 14.10.2022

Print Date: 14.10.2022

SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Trade name PUMA® 250 EC Fungicide

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

Use Fungicide

1.3 Details of the supplier of the safety data sheet

Supplier Sundew Solutions Pty Ltd
ABN 37 135 400 261
Unit 11, 4 Dunlop Court
Bayswater 3153
Victoria
Australia

Telephone (03) 9729 6227

Telefax (03) 9729 7223

Responsible Department 1800 786 339 Technical Information Service

Website www.sundewsolutions.com.au

1.4 Emergency telephone no.

Emergency telephone no. 1800 786 336

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance with Australian GHS Regulation

Reproductive toxicity: Category 1B
H360 May damage fertility or the unborn child.

Effects on or via lactation
H362 May cause harm to breast-fed children.

Specific target organ toxicity - single exposure: Category 3
H335 May cause respiratory irritation.

Chronic aquatic toxicity: Category 2
H411 Toxic to aquatic life with long lasting effects.

2.2 Label elements

Hazard label for supply/use required.

Hazardous components which must be listed on the label:

Triadimenol
N-Methyl-2-pyrrolidone

Signal word: Danger

Hazard statements

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H360 May damage fertility or the unborn child.
H362 May cause harm to breast-fed children.
H335 May cause respiratory irritation.

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist.
P263 Avoid contact during pregnancy/ while nursing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P281 Use personal protective equipment as required.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/doctor/physician if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

No other hazards known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Triadimenol 250 g/l
Emulsifiable concentrate (EC)

Chemical name	CAS-No.	Concentration [%]
Triadimenol	55219-65-3	23.00
N-Methyl-2-pyrrolidone	872-50-4	>= 50.00 - <= 60.00
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 Move out of dangerous area. Place and transport victim in stable position (lying sideways). Remove contaminated clothing immediately and dispose of safely.

Inhalation Move to fresh air. Keep patient warm and 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. If symptoms persist, call a physician.

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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. Get medical attention if irritation develops and persists.

Ingestion 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 Symptoms and hazards refer to the solvent. Headache, blurred vision. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Aspiration may cause pulmonary oedema and pneumonitis.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment Treat symptomatically. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. There is no specific antidote.

SECTION 5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable Water spray, Carbon dioxide (CO₂), Foam, Sand

5.2 Special hazards arising from the substance or mixture In the event of fire the following may be released: Hydrogen chloride (HCl), Hydrogen cyanide (hydrocyanic acid), Carbon monoxide (CO), Nitrogen oxides (NO_x)

5.3 Advice for firefighters

Special protective equipment for firefighters In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus.

Further information Contain the spread of the fire-fighting media. Do not allow run-off from fire fighting to enter drains or water courses.

Hazchem Code •3Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Precautions Avoid contact with spilled product or contaminated surfaces. Use personal protective equipment.

6.2 Environmental precautions Contain contaminated water and fire fighting water. Do not allow to get into surface water, drains and ground water. If the product contaminates rivers and lakes or drains inform respective authorities.

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6.3 Methods and materials for containment and cleaning up

Methods for cleaning up Clean contaminated floors and objects thoroughly, observing environmental regulations. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Collect and transfer the product into a properly labelled and tightly closed container. Decontaminate tools and equipment following cleanup.

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 Keep away from heat and sources of ignition. Vapours are heavier than air and may spread along floors.

Hygiene measures Avoid contact with skin, eyes and clothing. Keep working clothes separately. Wash hands immediately after work, if necessary take a shower. Remove soiled clothing immediately and clean thoroughly before using again. Garments that cannot be cleaned must be destroyed (burnt).

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Keep out of the reach of children. Store in a place accessible by authorized persons only. Store in original container. 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
Triadimenol	55219-65-3	1.6 mg/m ³ (TWA)		OES SUN*
N-Methyl-2-pyrrolidone	872-50-4	309 mg/m ³ /75 ppm (STEL)	12 2011	AU NOEL
N-Methyl-2-pyrrolidone	872-50-4	103 mg/m ³ /25 ppm (TWA)	12 2011	AU NOEL
N-Methyl-2-pyrrolidone	872-50-4	19 ppm (TWA)		OES SUN*

*OES SUN: Internal Sundew Solutions "Occupational Exposure Standard" **8.2 Exposure controls**

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Respiratory protection	If product is handled while not enclosed, and if contact may occur: Wear a compressed air respirator (continuous flow) conforming to European norm EN14594 or EN14563-1 or equivalent or an organic gas and vapour filter mask (protection factor 20) conforming to EN136 Type A filter or equivalent. Respiratory protection should only be used to control residual risk of short duration activities, when all reasonably practicable steps have been taken to reduce exposure at source e.g. containment and/or local extract ventilation. Always follow respirator manufacturer's instructions regarding wearing and maintenance. Filter A or self-contained breathing apparatus
Eye protection	Wear goggles (conforming to EN166, Field of Use = 5 or equivalent).
Skin and body protection	Wear standard coveralls and Category 3 Type 3 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. If chemical protection suit is splashed, sprayed or significantly contaminated, decontaminate as far as possible, then carefully remove and dispose of as advised by manufacturer.
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	Liquid, clear
Colour	light brown
Odour	aromatic
pH	6.0 - 8.0 (1 %) (23 °C) (deionized water)
Flash point	93 °C
Upper explosion limit	9.5 %(V) The data refer to the solvent.
Lower explosion limit	1.3 %(V) The data refer to the solvent.
Vapour pressure	0.32 mbar (20 °C) The data refer to the solvent.
Relative vapour density	3.4 The data refer to the solvent.
Density	ca. 1.09 g/cm ³ (20 °C)
Water solubility	emulsifiable
Partition coefficient: n-	Triadimenol: log Pow: 3.08 - 3.28

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octanol/water

N-methyl-2-pyrrolidone: log Pow: -0.46 (25 °C)

9.2 Other information

Further safety related physical-chemical data are not known.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

Thermal decomposition Stable under normal conditions.

10.2 Chemical stability Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions No hazardous reactions when stored and handled according to prescribed instructions.

10.4 Conditions to avoid Extremes of temperature and direct sunlight.

10.5 Incompatible materials Acids, Bases, Oxidizing agents, Reducing agents

10.6 Hazardous decomposition products No decomposition products expected under normal conditions of use.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute oral toxicity LD50 (Rat) > 2,000 mg/kg
Test conducted with a similar formulation.

Acute inhalation toxicity LC50 (Rat) > 0.412 mg/l
Determined in the form of a respirable aerosol.
Highest attainable concentration.
Test conducted with a similar formulation.

Acute dermal toxicity LD50 (Rat) > 5,000 mg/kg
Test conducted with a similar formulation.

Skin corrosion/irritation No skin irritation (Rabbit)
Test conducted with a similar formulation.

Serious eye damage/eye irritation Slight irritant effect - does not require labelling. (Rabbit)
Test conducted with a similar formulation.

Respiratory or skin sensitisation Non-sensitizing.
The value mentioned relates to the active ingredient triadimenol.

Assessment mutagenicity

Triadimenol was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.
N-methyl-2-pyrrolidone was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Triadimenol caused at high dose levels an increased incidence of tumours in mice in the following organ(s): Liver. The increased tumour incidence is not considered to be treatment related.
N-methyl-2-pyrrolidone was not carcinogenic in lifetime feeding studies in rats and mice.

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Assessment toxicity to reproduction

Triadimenol caused reduced fertility, reduced lactation rate. The reproduction toxicity seen with Triadimenol is related to parental toxicity.

N-methyl-2-pyrrolidone caused reproduction toxicity in a two-generation study in rats only at dose levels also toxic to the parent animals. N-methyl-2-pyrrolidone caused a reduced pup survival, a reduced litter size and a reduced pup weight.

Assessment developmental toxicity

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

N-methyl-2-pyrrolidone caused developmental toxicity only at dose levels toxic to the dams. N-methyl-2-pyrrolidone caused a reduced pup survival.

Assessment STOT Specific target organ toxicity – single exposure

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

N-methyl-2-pyrrolidone: May cause respiratory irritation.

Assessment STOT Specific target organ toxicity – repeated exposure

Triadimenol did not cause specific target organ toxicity in experimental animal studies.

N-methyl-2-pyrrolidone caused specific target organ toxicity in experimental animal studies in the following organ(s): Testes.

Aspiration hazard

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

Information on likely routes of exposure

Harmful if inhaled. May cause upper respiratory tract irritation.

Irritating to skin. The product may be absorbed through the skin. Prolonged skin contact may cause skin irritation and/or dermatitis.

Causes eye irritation. Liquid or vapor may cause irritation, burns, corneal opacity.

Harmful if swallowed.

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

Further information

No further toxicological information is available.

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SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 42 mg/l Exposure time: 96 h
Chronic toxicity to fish	Pimephales promelas (fathead minnow) NOEC: 0.17 mg/l The value mentioned relates to the active ingredient triadimenol.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 253 mg/l Exposure time: 48 h
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) 41.13 mg/l Growth rate; Exposure time: 72 h
Toxicity to other organisms	LD50 (Colinus virginianus (Bobwhite quail)) > 2,000 mg/kg The value mentioned relates to the active ingredient triadimenol.

12.2 Persistence and degradability

Biodegradability	Triadimenol: Not rapidly biodegradable N-methyl-2-pyrrolidone: Rapidly biodegradable
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Koc	Triadimenol: Koc: 273
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12.3 Bioaccumulative potential

Bioaccumulation	Triadimenol: Bioconcentration factor (BCF) 21 Does not bioaccumulate. N-methyl-2-pyrrolidone: Bioconcentration factor (BCF) 3.16 Does not bioaccumulate.
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12.4 Mobility in soil

Mobility in soil	Triadimenol: Moderately mobile in soils N-methyl-2-pyrrolidone: Highly mobile in soils
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12.5 Other adverse effects

Additional ecological information	No other effects to be mentioned.
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SECTION 13. DISPOSAL CONSIDERATIONS

Small containers (1 L/1 kg or less):

Rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of at 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.

5, 10, 20 litre packs

Triple-rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals

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on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Do not burn empty containers or product. Do not reuse container for any other purpose.

SECTION 14. TRANSPORT INFORMATION

ADG

UN number	3082
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIADIMENOL SOLUTION)
Hazchem Code	•3Z

According to AU01, Environmentally Hazardous Substances in packagings, IBC or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code.

IMDG

UN number	3082
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Marine pollutant	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIADIMENOL SOLUTION)

IATA

UN number	3082
Transport hazard class(es)	9
Subsidiary Risk	None
Packaging group	III
Environm. Hazardous Mark	YES
Description of the goods	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRIADIMENOL SOLUTION)

SECTION 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 92078

SUSMP classification (Poison Schedule)

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

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SECTION 16. OTHER INFORMATION

Trademark information PUMA® is a Registered Trademark of Sundew Solutions Pty Ltd.

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 SUN	OES SUN: Internal Sundew Solutions "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

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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: New Safety Data Sheet. The following sections have been revised:
Section 2: Hazards Identification.

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