SECTION 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier
Trade name Bayfidan® 250 EC Fungicide
Product code (UVP) 04902750

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 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.crop.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
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-pyrrolidine

Signal word: Danger
Hazard statements
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Triadimenol 250 g/l
Emulsifiable concentrate (EC)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triadimenol</td>
<td>55219-65-3</td>
<td>23.00</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>&gt;= 50.00 - &lt;= 60.00</td>
</tr>
<tr>
<td>Other ingredients (non-hazardous) to 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.
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 (NOx)

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.
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

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triadimenol</td>
<td>55219-65-3</td>
<td>1.6 mg/m3 (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>309 mg/m3/75 ppm (STEL)</td>
<td>12 2011</td>
<td>AU NOEL</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>103 mg/m3/25 ppm (TWA)</td>
<td>12 2011</td>
<td>AU NOEL</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>19 ppm (TWA)</td>
<td></td>
<td>OES BCS*</td>
</tr>
</tbody>
</table>

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

8.2 Exposure controls
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
cia. 1.09 g/cm³ (20 °C)
Water solubility
emulsifiable
Partition coefficient: n-
Triadimenol: log Pow: 3.08 - 3.28
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.

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.
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.
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

**Koc**
- Triadimenol: Koc: 273

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.

12.4 Mobility in soil

**Mobility in soil**
- Triadimenol: Moderately mobile in soils
- N-methyl-2-pyrrolidone: Highly mobile in soils

12.5 Other adverse effects

**Additional ecological information**
- No other effects to be mentioned.

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
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: 30515

SUSMP classification (Poison Schedule)

Schedule 6 (Standard for the Uniform Scheduling of Medicines and Poisons)
## SECTION 16. OTHER INFORMATION

**Trademark information**
Bayfidan® is a Registered Trademark of the Bayer Group.

**Abbreviations and acronyms**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</td>
</tr>
<tr>
<td>ADR</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Road</td>
</tr>
<tr>
<td>ATE</td>
<td>Acute toxicity estimate</td>
</tr>
<tr>
<td>AU OEL</td>
<td>Australia. OELs. (Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment)</td>
</tr>
<tr>
<td>CAS-Nr.</td>
<td>Chemical Abstracts Service number</td>
</tr>
<tr>
<td>CEILING</td>
<td>Ceiling Limit Value</td>
</tr>
<tr>
<td>Conc.</td>
<td>Concentration</td>
</tr>
<tr>
<td>EC-No.</td>
<td>European community number</td>
</tr>
<tr>
<td>ECx</td>
<td>Effective concentration to x %</td>
</tr>
<tr>
<td>EINECS</td>
<td>European inventory of existing commercial substances</td>
</tr>
<tr>
<td>ELINCS</td>
<td>European list of notified chemical substances</td>
</tr>
<tr>
<td>EN</td>
<td>European Standard</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IBC</td>
<td>International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code)</td>
</tr>
<tr>
<td>ICx</td>
<td>Inhibition concentration to x %</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>LCx</td>
<td>Lethal concentration to x %</td>
</tr>
<tr>
<td>LDx</td>
<td>Lethal dose to x %</td>
</tr>
<tr>
<td>LOEC/LOEL</td>
<td>Lowest observed effect concentration/level</td>
</tr>
<tr>
<td>MARPOL</td>
<td>MARPOL: International Convention for the prevention of marine pollution from ships</td>
</tr>
<tr>
<td>N.O.S.</td>
<td>Not otherwise specified</td>
</tr>
<tr>
<td>NOEC/NOEL</td>
<td>No observed effect concentration/level</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OES BCS</td>
<td>OES BCS: Internal Bayer AG, Crop Science Division &quot;Occupational Exposure Standard&quot;</td>
</tr>
<tr>
<td>PEAK</td>
<td>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.</td>
</tr>
<tr>
<td>RID</td>
<td>Regulations concerning the International Carriage of Dangerous Goods by Rail</td>
</tr>
<tr>
<td>SK-SEN</td>
<td>Skin sensitiser</td>
</tr>
<tr>
<td>SKIN_DES</td>
<td>SKIN_DES: Skin notation: Absorption through the skin may be a significant source of exposure.</td>
</tr>
<tr>
<td>STEL</td>
<td>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.</td>
</tr>
<tr>
<td>TWA</td>
<td>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.</td>
</tr>
<tr>
<td>TWA</td>
<td>Time weighted average</td>
</tr>
</tbody>
</table>
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.