

MATERIAL SAFETY DATA SHEET

Bayfidan® Turf Fungicide

Date of Issue: May 1st, 2007

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product name Bayfidan® Turf Fungicide
Other names None
Product code 4544993
Chemical group Triazole
Recommended use For the control of various fungal diseases in turf
Formulation Emulsifiable concentrate
Supplier Bayer Environmental Science – A Business Group of 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 Technical Manager (03) 9248 6888
Emergency telephone number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

HAZARDOUS SUBSTANCE - NON-DANGEROUS GOOD

Irritating to eyes and skin.

Hazard designation Hazardous (National Occupational Health and Safety Commission - NOHSC)
Risk phrases R36/38 – Irritating to eyes and skin.
Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13
ADG classification Not classified as a "Dangerous good" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail:
SUSDP classification Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Triadimenol	[55219-65-3]	250
N-methyl-2-pyrrolidone	[872-50-4]	602
Other ingredients	Non-hazardous	238

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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 warm and at rest. Seek medical advice as above immediately.
Skin contact	Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical advice if at all worried.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes, holding eyes open. Consult an eye specialist.
Ingestion	Obtain immediate medical advice as above. If swallowed, do NOT induce vomiting. Rinse mouth and give a glass of water.
First aid facilities	Provide eye wash and safety shower in the workplace.
Medical attention	<u>Information for the physician:</u> Triadimenol is a triazole compound. There are no published human cases of poisoning. In animal experiments with very high doses, initial CNS excitation followed by sedation have been seen. Therapeutic measures: Basic aid, decontamination, symptomatic treatment. Ingestion of N-methyl-2-pyrrolidone causes gastric disturbances such as nausea and vomiting. Treat symptoms.

5. FIRE FIGHTING MEASURES

Extinguishing media	Sprayed water jet, foam, extinguishing powder, carbon dioxide, sand.
Hazards from combustion products	Explosion hazard is low. Can react with oxidising materials. In a fire, formation of hydrogen chloride, hydrogen cyanide, carbon monoxide and nitrogen oxides can be expected.
Precautions for fire fighters	Firefighters 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. Otherwise, use water spray to cool them. 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. Do not release contaminated water into the environment.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Extinguish or remove any ignition sources. When dealing with spills do not eat, drink or smoke and wear protective clothing and equipment as described in Section 8 - PERSONAL PROTECTION. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Clean floor and all contaminated objects with damp cloth. Place used cleaning materials into the drum for disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

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7. HANDLING AND STORAGE

Handling	Keep out of reach of children. Keep away from ignition sources.
Storage	Store in the closed, original container in a cool, well-ventilated area. Keep dry. Do not store for prolonged periods in direct sunlight.
Flammability	Combustible liquid Class C1 – flash point between 61 and 150° C

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	No exposure standards have been assigned. The manufacturer of N-methyl-2-pyrrolidone recommends a TWA of 20 ppm (80 mg/m ³). <u>Definition:</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. <i>Skin notation</i> – Absorption through the skin may be a significant source of exposure.
Engineering controls	Control process conditions to avoid contact. Use in a well-ventilated area only.
Personal protective equipment	<ul style="list-style-type: none">Wear safety goggles.Wear cotton overalls buttoned to the neck and wrist and a washable hat.Wear elbow-length butyl rubber or neoprene gloves.Wear an approved respirator suitable for organic vapour/mist if exposure to vapours or mists is likely or ventilation is inadequate.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brown clear liquid
Odour:	Aromatic
pH:	6.0 to 8.0 (1% in water)
Vapour pressure:	1 hPa at 20° C
Vapour density:	3.4 (N-methyl-2-pyrrolidone)
Boiling point:	Not available
Freezing/melting point:	Not available
Solubility:	Emulsifies in water
Specific gravity:	1.09 at 20° C
Flash point:	93° C
Flammability (explosive) limits:	Lower: 1.3 vol. %; upper 9.5 vol. % (N-methyl-2-pyrrolidone)
Auto-ignition temperature:	245° C (N-methyl-2-pyrrolidone)
Partition coefficient (octanol/water):	<i>Triadimenol</i> : Log P _{ow} = 3.08 – 3.28 (25° C) <i>N-methyl-2-pyrrolidone</i> : Log P _{ow} = - 0.46

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10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Hazardous polymerisation	Will not polymerise.
Conditions to avoid	Extreme heat.
Incompatible materials	Oxidising agents. Exothermic reaction with strong acids or strong alkalis.
Hazardous decomposition products	Hydrogen chloride, hydrogen cyanide, carbon monoxide and oxides of nitrogen may be evolved upon heating.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May be harmful if inhaled. May produce respiratory irritation.
Skin contact	Will irritate skin. Redness and dermatitis from prolonged contact. Can be absorbed through the skin.
Eye contact	Will irritate eyes. May cause temporary corneal clouding.
Ingestion	Harmful if swallowed.

ANIMAL TOXICITY DATA – *PRODUCT*

Acute:

Oral toxicity	LD ₅₀ rat (male): 3700 mg/kg LD ₅₀ rat (female): 1720 mg/kg
Dermal toxicity	LD ₅₀ rat: > 5000 mg/kg
Inhalation toxicity	> 0.412 mg/L, aerosol (4 h) (highest attainable concentration)
Skin irritation	Not irritating (rabbit)
Mucous membrane irritation	Slightly irritating (rabbit)
Sensitisation	N-methyl-2-pyrrolidone was not sensitising in animal studies.

Chronic:

Animal studies with triadimenol showed no evidence of oncogenic effects, no evidence of carcinogenic effects and no teratogenic potential. Triadimenol was not mutagenic.
No known chronic toxicity effects are associated with N-methyl-2-pyrrolidone if exposure limit is observed.

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12. ECOLOGICAL INFORMATION

Harmful to aquatic organisms and may cause long term adverse effects in the aquatic environment. It is non toxic to honey bees. DO NOT contaminate streams, rivers or waterways with the product or used containers.

Ecotoxicity

Formulated product:

Fish toxicity:

LC₅₀: 42 mg/L (96 h); trout (*Oncorhynchus mykiss*)

LC₅₀: 79 mg/L (96 h); golden orfe (*Leuciscus melanotis*)

Aquatic invertebrate toxicity:

EC₅₀: 253 mg/L (48 h) *Daphnia magna*

Algae toxicity:

Growth rate

IC₅₀: 41.13 mg/L (72 h); green alga (*Selenastrum capricornutum*)

Triadimenol:

Bacteria toxicity:

EC₅₀ : > 10000 mg/L; activated sludge microorganism (ISO 8192 = OECD 209)

Bird toxicity:

Acute oral LD₅₀: > 2000 mg/kg; bobwhite quail

Environmental fate, persistence and degradability

Triadimenol: DT₅₀ in sandy loam 110-375 days; in loam 240-270 days.

13. DISPOSAL CONSIDERATIONS

Rinse container before disposal (1 L). Triple or preferably pressure rinse container before disposal (5 L). 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 container 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.

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

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988.
Australian Pesticides and Veterinary Medicines Authority Approval Number: 30676

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16. OTHER INFORMATION

Trademark information Bayfidan® is a Registered Trademark of Bayer.

Preparation information Replaces September 10th, 2003 edition.
Reasons for update: Risk phrases, Marine pollutant status.

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