MATERIAL SAFETY DATA SHEET

Date of Issue: August 25th 2010

Bayer CropScience

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name	**Euparen® Multi 500 WG Fungicide**
Other names	None
Product codes and pack sizes	4953052 (500 g), 4953060 (25 kg)
Chemical group	Sulfamide
Recommended use	Fungicide for agricultural use
Formulation	Water dispersible granule (WG)
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) – DANGEROUS GOOD
Very toxic to aquatic organisms

Hazard classification	Hazardous (National Occupational Health and Safety Commission - NOHSC)
Risk phrases	R23 – Toxic by inhalation – only as fine particles. R36/37 – Irritating to eyes and respiratory system. R43 – May cause sensitisation by skin contact.
Safety phrases	See Sections 4, 5, 6, 7, 8, 10, 12, 13
ADG classification	See Section 14.
SUSDP classification (Poisons Schedule)	6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/kg)
Tolylfluanid	[731-27-1]	500
Quartz (silica crystalline)	[14808-60-7]	Approx. 300
Other ingredients	(non hazardous)	Approx. 200

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. Obtain medical advice immediately.
Skin contact	Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical advice.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes and consult an eye specialist.
Ingestion	Wash out mouth with water. Do NOT induce vomiting. Keep patient at rest and seek medical advice as above.
First Aid Facilities	Ensure eyewash and washing facilities are available in the workplace.
Medical attention	*Local contamination:* Treatment should be symptomatic after decontamination. In case if skin or eye contamination, treat as above under First Aid Measures. *Systemic poisoning:* There is no specific antidote. Treat symptoms.

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, foam, dry chemical, carbon dioxide, sand
Hazards from combustion products	In a fire, formation of hydrogen chloride, hydrogen cyanide, hydrogen fluoride, carbon monoxide, sulphur dioxide and nitrogen oxides can be expected.
Precautions for fire fighters	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 extinguishing agent and spillage safely later. Contamination of water bodies should be strictly avoided.
Hazchem code	2Z

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled material or contaminated surfaces. Extinguish all possible sources of ignition. Do not smoke, eat or drink during the clean up process. Wear personal protective clothing and equipment as detailed in Section 8 PERSONAL PROTECTION. Keep people and animals away. Contain spillage. Avoid creating dust by damping down. Prevent spilled material from entering drains or watercourses. Use non-sparking equipment. Shovel or sweep up, and transfer into plastic drums. Clean floor with a damp cloth and place it in the drum. Seal drums and label ready 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. Poisonous if inhaled. Will irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. Do not inhale dust. If product on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, protective equipment and contaminated clothing. Avoid creating dust while handling. Keep away from sources of ignition and do not smoke.
Storage	Store in the closed, original container in a dry, well-ventilated area, as cool as possible. Do not store for prolonged periods in direct sunlight.
Flammability	Low flammability. However, dust / air mixtures can build up static electrical charges and fine dust may form explosive mixtures in air.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	The NOHSC exposure standard (TWA) for Quartz (silica crystalline) TWA: 0.1 mg/m³ *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.
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 in a well-ventilated area only.
Personal Protective Equipment	Eyes: Safety goggles if exposure is possible Clothing: Cotton overalls buttoned to the neck and wrist and a washable hat Gloves: Elbow-length PVC gloves Respiratory: If airborne concentrations are likely to exceed the exposure standard above, an AS/NZS 1715/1716 approved respirator with filter should be worn.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White to beige granules
Odour:	Aromatic, chemical
pH:	10.7 to 11.3 (10% in water)
Vapour pressure:	$4x10^{-6}$ hPa at 25° C (tolylfluanid)
Vapour density:	Not available
Boiling point:	Not applicable
Freezing/melting point:	Melting point of tolylfluanid is 93° C.
Solubility:	Disperses in water
Bulk density:	162 (loose) / 146 (packed) mL/100 g
Flash Point:	Not applicable
Flammability (explosive) limits:	Not applicable.
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	*Tolylfluanid:* Log P_{ow} = 3.9 at 20° C

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Conditions to avoid	Sources of ignition, formation of dust, alkaline conditions
Incompatible materials	Avoid strong oxidising agents and strong alkalis. Tolylfluanid hydrolyses at alkaline pH.
Hazardous decomposition products	In a fire, formation of hydrogen chloride, hydrogen cyanide, hydrogen fluoride, carbon monoxide, sulphur dioxide and nitrogen oxides can be expected.
Hazardous reactions	Dangerous reactions are possible with amines.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Poisonous if inhaled.
Skin contact	Will irritate the skin.
Eye contact	Will irritate the eyes.
Ingestion	Product toxicity is low but may be harmful if a large amount is swallowed.

ANIMAL TOXICITY DATA

Acute:

Oral toxicity	LD_{50} rat: > 2500 mg/kg *(product)*
Dermal toxicity	LD_{50} rat: > 2000 mg/kg *(product)*
Inhalation toxicity	LC_{50} rat (4 hour): 0.383 mg/L, dust *(micronized tolylfluanid active ingredient)* LC_{50} rat (4 hour): > 1.038 mg/L, dust - highest technically producible concentration *(tolylfluanid technical active ingredient)*
Skin irritation	Slight irritant effect (rabbit) *(product)* Severely irritating (rabbit) – *(tolylfluanid)*
Irritation of mucous membranes	Irritating (rabbit) *(product)* Moderately irritating (rabbit) – *(tolylfluanid)*
Sensitisation	Sensitising (guinea pig) *(product)*

11. TOXICOLOGICAL INFORMATION - continued

Chronic:

Animal studies with tolylfluanid have shown no evidence of carcinogenicity, and no evidence of reproduction or developmental effects. Tolylfluanid gave no indication of genotoxic activity in any of the *in vivo* mutagenicity studies. The target organ observed in animal toxicity studies is the thyroid gland.
Euparen Multi contains crystalline silica. 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. Crystalline Silica is classified as a carcinogen.
This product in its granular form would contain only a very small proportion of respirable size particles.

12. ECOLOGICAL INFORMATION

This product is very toxic to fish and aquatic invertebrates. Tolylfluanid is practically non-toxic to birds, earthworms and bees. It is moderately toxic to algae. It is relatively non-toxic to some beneficial insects, but it is hazardous to others.
DO NOT contaminate streams, rivers or waterways with Euparen Multi or the used containers.

Ecotoxicity

Tolylfluanid:
Fish toxicity: LC_{50} (96 h) rainbow trout (*Oncorhynchus mykiss*) 0.045 mg/L
Daphnia toxicity: EC_{50} (48 h) water flea (*Daphnia magna)* 0.19 mg/L
Algal toxicity: EC_{50} (72 h) green algae (*Desmodesmus subspicatus)* > 1 mg/L
Toxicity to bacteria: EC_{50} activated sludge micro-organism 230 mg/L
Bird toxicity: Acute oral LD_{50} bobwhite quail > 2000 mg/kg

Euparen Multi:
Fish toxicity: LC_{50} (96 h) trout (*Oncorhynchus mykiss*) 0.03 mg/L
Algal toxicity: EC_{50} (48 h) green alga (*Selenastrum capricornutum)* > 10 mg/L

Environmental fate, persistence and degradability, mobility

Tolylfluanid breaks down rapidly and is immobile in soil. Due to its rapid hydrolysis tolylfluanid is very unlikely to leach into deeper soil layers.

13. DISPOSAL CONSIDERATIONS

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. If unwanted product cannot be used, dispose of it through a reputable disposal contractor.

14. TRANSPORT INFORMATION

UN number	3077
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains tolylfluanid)
Class and Subsidiary Risk	Class 9
Packing Group	Packing Group III
Hazchem code	2Z
Marine Pollutant	Yes.
Note for Road and Rail Transport	According to AU01, Environmentally Hazardous Substances in packagings, IBCs or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 50627 See also Section 2.

16. OTHER INFORMATION

Trademark information	Euparen® is a Registered Trademark of Bayer.
Preparation information	Replaces September 10th 2007 edition. Reasons for Revision: Hazard identification, Fire fighting measures, Transport information.

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