

MATERIAL SAFETY DATA SHEET



Date of Issue: December 5, 2007

1. IDENTIFICATION OF MATERIAL AND SUPPLIER

Product name **Morestan® Fungicide - Miticide Spray**
Other names Oxythioquinox is also known as chinomethionat and quinomethionate
Product code and pack sizes 4953613 (400 g)
Chemical group Quinoxaline
Recommended use Agricultural fungicide and acaricide
Formulation Wettable powder
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) – NON-DANGEROUS GOOD (road/rail)** **TOXIC TO FISH AND AQUATIC ORGANISMS**

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R20/21/22 – Harmful by inhalation, in contact with skin and if swallowed.
R36 – Irritating to eyes.
R43 – May cause sensitisation by skin contact.
R48/22 – Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R49 – May cause cancer by inhalation.
R62 – Possible risk of impaired fertility.

Safety phrases See Sections 4, 5, 6, 7, 8, 9, 13

ADG classification Not a "Dangerous good" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. For transport by sea this product is a Class 9, Marine Pollutant – See Section 14.

SUSDP classification (Poisons Schedule) Schedule 5 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/kg)
Oxythioquinox	[2439-01-2]	250
Kaolin	[1332-58-7]	≈ 650
Silica, quartz (in kaolin)	[14808-60-7]	(65 - 97.5)
Other ingredients, non hazardous	----	≈ 100

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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 at rest. Obtain medical advice. If breathing stops or shows signs of failing, start artificial respiration
Skin contact	Immediately remove contaminated clothing. Wash skin with soap and water. Seek medical attention if irritation develops or persists. If signs of poisoning occur get medical attention immediately.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes and obtain medical aid, preferably from an eye specialist.
Ingestion	Wash out mouth with water. Keep patient at rest and seek medical advice as above. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.
First Aid Facilities	Provide eyewash and safety shower facilities in the workplace.
Medical attention	The active ingredient belongs to the quinoxaline chemical group, also known as "chinoxalin". In bright sunlight, especially in the wind, some persons spraying Morestan experienced a skin reaction similar to sunburn. Treat as for allergic dermatitis. The product can irritate the eyes, and may cause an allergic skin reaction in some susceptible persons. Therapeutic measures: Basic aid, decontamination, symptomatic treatment. There is no specific antidote.

5. FIRE FIGHTING MEASURES

Extinguishing media	Waterspray, foam, dry chemical, carbon dioxide, sand.
Hazards from combustion products	In a fire, hydrogen cyanide, carbon monoxide, sulphur dioxide and nitrogen oxides may be formed.
Precautions for fire fighters	Dust may form explosive mixture with air. 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 avoided.
Hazchem code	None

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Extinguish possible sources of ignition. Do not smoke, eat or drink during the cleanup process. Personnel involved in cleanup should wear protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. Keep people and animals away. Prevent spilled material from entering drains or watercourses. Avoid creating dust, dampen down if necessary. Contain spill and sweep up carefully. Collect and store in recovery drums. Seal and label drums for safe 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. Will irritate eyes and may irritate skin. Repeated exposure may cause allergic skin reactions. Avoid contact with eyes and skin. DO NOT inhale dust or spray mist. If product on skin immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, protective clothing and equipment.
Storage	Store in the closed, original container in a dry, cool, well-ventilated, area out of direct sunlight.
Flammability	Not readily combustible. 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	There is no National Occupational Health and Safety Commission (NOHSC) exposure standard for oxythioquinox. The NOHSC exposure standard (TWA) for kaolin is 10 mg/m ³ (as inspirable dust) The NOHSC exposure standard (TWA) for silica, quartz is 0.1 mg/m ³ .
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Definitions

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. During manufacture, preferably handle in a closed system. Use this product in a well-ventilated area only.
Personal Protective Equipment	Product has a low acute toxicity, but because of potential chronic toxicity, prevent exposure to this product. Protect skin while using this product, especially in sunny, windy conditions. <ul style="list-style-type: none">• Wear safety goggles if eye exposure is possible.• Wear cotton overalls buttoned to the neck and wrist and a washable hat.• Wear elbow-length PVC gloves.• Wear full-face respirator with combined dust and gas cartridge - AS/NZS 1715/1716 approved if handling this product indoors. Otherwise, wear a disposable dust mask.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Yellow powder
Odour:	Weak characteristic
pH:	7.0 to 8.0 (10% in water)
Vapour pressure:	0.026 mPa at 20° C (oxythioquinox)
Vapour density:	Not available
Boiling point:	Not applicable
Freezing/melting point:	Melting point 170° C (oxythioquinox)
Solubility:	Disperses in water (oxythioquinox is practically insoluble in water)
Bulk Density:	310 (loose) / 250 (packed) mL/100 g
Flash Point:	Not applicable
Flammability (explosive) limits:	Not available
Auto-ignition temperature:	Not available
Partition coefficient (octanol/water):	Oxythioquinox: Log P_{ow} = 3.78 at 20° C

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use. Hydrolyses in alkaline media.
Conditions to avoid	Extreme heat, moisture
Incompatible materials	Mineral oils, formulations based on thiram,
Hazardous decomposition products	In a fire, hydrogen cyanide, carbon monoxide, sulphur dioxide and nitrogen oxides may be formed.
Hazardous reactions	None known

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	Harmful if inhaled. Prolonged exposure to high dust concentrations may cause irritation to the respiratory tract.
Skin contact	Harmful if absorbed by skin contact. May irritate the skin. If product on skin under sunny, windy conditions a reaction similar to sunburn may occur.
Eye contact	Will irritate the eyes.
Ingestion	Harmful if swallowed.

11. TOXICOLOGICAL INFORMATION - continued

ANIMAL TOXICITY DATA

Acute:

Oral toxicity	LD ₅₀ rat (female): 1095 mg/kg (<i>oxythioquinox</i>) LD ₅₀ rat (male): 2541 mg/kg (<i>oxythioquinox</i>)
Dermal toxicity	LD ₅₀ rat: > 5000 mg/kg (<i>oxythioquinox</i>)
Inhalation toxicity	LC ₅₀ (4 h) rat (female): 2.2 mg/L (<i>oxythioquinox</i>) LC ₅₀ (4 h) rat (male): > 4.7 mg/L (<i>oxythioquinox</i>) - highest attainable concentration
Skin irritation	Slightly irritating (rabbit) (<i>oxythioquinox</i>)
Irritation to mucous membranes	Slightly to moderately irritating (rabbit) (<i>oxythioquinox</i>)
Sensitisation	Oxythioquinox is a skin sensitiser.

Chronic:

In animal studies oxythioquinox was not teratogenic, but produced reduced fertility in male rats. It was not mutagenic. The target organs in long term animal studies were the liver, adrenals, kidneys and testes. This product contains a small amount of crystalline silica, which is a naturally occurring mineral component of many sands and clays. Excessive long-term exposure to respirable crystalline silica may cause lung damage. Crystalline silica is classified as a carcinogen.

12. ECOLOGICAL INFORMATION

Toxic to fish and other aquatic organisms and may cause long-term adverse effects in the aquatic environment. Moderately toxic to birds. Low toxicity to bees and earthworms. DO NOT contaminate streams, rivers or waterways with Morestan or the used containers.

Ecotoxicity	<u>Oxythioquinox:</u>
	<i>Fish toxicity:</i> LC ₅₀ : 0.0334 mg/L (96 h); bluegill sunfish (<i>Lepomis macrochirus</i>) LC ₅₀ : 0.131 mg/L (96 h); trout (<i>Oncorhynchus mykiss</i>)
	<i>Daphnia:</i> EC ₅₀ : 0.12 mg/L (48 h); water flea (<i>Daphnia magna</i>)
	<i>Algae toxicity:</i> Growth rate: IC ₅₀ : 0.14 mg/L (72 h); green algae (<i>Desmodesmus subspicatus</i>)
	<i>Bird toxicity:</i> LD ₅₀ : 196 mg/kg; bobwhite quail
Environmental fate, persistence, degradability, mobility	Abiotic degradation increases with pH. Inherently degradable: < 70% in 28 days. Bioconcentration factor (BCF): 775

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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 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 via a reputable disposal contractor.

14. TRANSPORT INFORMATION

UN number	Not applicable (road/rail)
Proper shipping name	Not applicable (road/rail)
Class and Subsidiary Risk	Not applicable (road/rail)
Packing Group	Not applicable (road/rail)
EPG	Not applicable (road/rail)
Hazchem code	Not applicable (road/rail)
Marine Pollutant	Yes. If Morestan Fungicide – Miticide Spray is shipped by sea, it is classified as a Class 9, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (contains oxythioquinox), Packing Group III, UN 3077, Hazchem 2Z, Marine Pollutant.

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988
Australian Pesticides and Veterinary Medicines Authority approval number: 33992

See also Section 2.

16. OTHER INFORMATION

Trademark information Morestan® is a Registered Trademark of Bayer.

Preparation information Replaces May 28, 2004 MSDS.
Reasons for revision: Product code, risk phrases to include R49 for quartz, silica and R20/21/22 for oxythioquinox. Composition of quartz, silica fraction and other non-hazardous ingredients, quartz exposure standard change, addition of biological limit value information, addition of chronic toxicity information for R49 risk phrase, marine pollutant.

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