



BAYLETON 50 Turf and Ornamental Fungicide in Water Soluble Packets Systemic Fungicide

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name BAYLETON 50 Turf and Ornamental Fungicide in Water Soluble Packets Systemic Fungicide

Chemical Name

Common Name

MSDS Number 2075

Chemical Family Triazole Fungicide

Chemical Formulation

EPA Registration No. 432-1360

Bayer CropScience
 2 T.W. Alexander Drive
 Research Triangle PK, NC 27709
 USA

For MEDICAL, TRANSPORTATION or Other EMERGENCY call 1-800-334-7577 24 hours/day
 For Product Information call 1-866-99BAYER (1-866-992-2937)

Product Use Description Fungicide for the control of certain diseases on flowers, foliage plants, shrubs, turf and shade trees.

SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Hazardous Component Name</u>	<u>CAS No.</u>	<u>Concentration % by Weight</u>	
		<u>Minimum</u>	<u>Maximum</u>
Triadimefon Technical	43121-43-3	48.5000	51.5000
Crystalline Silica (Quartz)	14808-60-7		1.5000

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SECTION 3. HAZARDS IDENTIFICATION

NOTE: Please refer to Section 11 for detailed toxicological information.

Emergency Overview

Caution! Harmful if swallowed, inhaled or absorbed through the skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes and clothing. Avoid breathing dust or spray mist.

Physical State

Solid granules

Odor

Sharp Musty

Appearance

Brown

Routes of Exposure

Eye contact, Skin contact, Inhalation, Skin Absorption

Immediate Effects

General

CARCINOGENICITY: This product is not listed as a carcinogen by NTP or IARC, or regulated as a carcinogen by OSHA. However, it may contain crystalline silica (quartz), a substance which is classified by NTP as a Group 2 carcinogen and by IARC as a Group I carcinogen. Crystalline silica is a naturally-occurring mineral component of many sands and clays. Although controversial, the carcinogenic potential of crystalline silica must be considered if it is inhaled under excessive exposure conditions. However, the respirable portion of the silica which may be contained in this product is small, such that excessive inhalation exposure during normal conditions of use is unlikely.

NTP: Crystalline silica is classified as an NTP Anticipated Human Carcinogen - "Substances or groups of substances that may reasonably be anticipated to be carcinogens."

IARC: IARC has classified crystalline silica as a Group I carcinogen. "There is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica (quartz) from occupational sources."

OSHA: Not regulated.

Eye

Moderate eye irritation may occur from contact with the granular material or spray mixture. Remarkable irritation resolving with 1 day.

Skin

Slightly irritating. Mildly toxic.

Ingestion

Mildly toxic.

Inhalation

Avoid breathing dust or spray mist.

Chronic or Delayed Long-Term

Based on the results of animal studies, no deleterious effects or symptoms would be expected from chronic exposure to BAYLETON (triadimefon) during

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normal use. This product may contain up to approximately 1.5% total crystalline silica. However, the amount of respirable crystalline silica is expected to be significantly lower based on data provided by the raw material manufacturer. Excessive long-term exposure to respirable crystalline silica may cause silicosis, a form of progressive pulmonary fibrosis. Severe and permanent lung damage may result.

Medical Conditions Aggravated by Exposure

No specific medical conditions are known which may be aggravated by exposure to this product. Pulmonary and respiratory diseases may be aggravated by exposure to respirable crystalline silica.

SECTION 4. FIRST AID MEASURES

Eye	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Skin	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Ingestion	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.

Notes to physician

Signs and Symptoms

The compound does not cause any definite symptoms that would be diagnostic. Poisoning is accompanied by hyperactivity followed by sedation.

Treatment

There is no specific antidote. Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	Not applicable
Suitable Extinguishing Media	Water
Fire Fighting Instructions	Stay upwind. Use self-contained breathing equipment. Avoid water runoff.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

General and Disposal	Keep unnecessary people away, isolate hazard area and deny entry. Do not walk through spilled material.
Land Spill or Leaks	Avoid generating dust (a fine water spray mist, plastic film cover, or floor sweeping compound may be used if necessary). Use recommended protective equipment while carefully sweeping up spilled material. Do not breathe dust. Avoid contact with skin. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse with water. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal. Contaminated soil may have to be removed and disposed. Do not allow material to enter streams, sewers, or other waterways.

SECTION 7. HANDLING AND STORAGE

Handling Procedures	Avoid contact with skin, eyes and clothing. Avoid breathing dust or spray mist. Handle and open container in a manner as to prevent spillage.
Storing Procedures	<p>Do not contaminate water, food, or feed by storage or disposal. Store in a cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.</p> <p>Avoid moisture. Keep from freezing. Protect containers from physical damage.</p>
Work/Hygienic Procedures	<p>Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.</p> <p>Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before re-use.</p>
Min/Max Storage Temperatures	Do not transport or store below 0 °C / 32 °F

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls	Maintain exposure levels below the applicable exposure limit through the use of general and local exhaust ventilation.
Eye/Face Protection	Protective eyewear
Hand Protection	Chemical-resistant gloves made of waterproof material such as neoprene, butyl rubber, barrier laminate or nitrile rubber.
Body Protection	Long-sleeved shirt and long pants. Shoes plus socks.
Respiratory Protection	When respiratory protection is necessary under the conditions of use, wear a respirator approved for pesticides by the National Institute for Occupational Safety and Health (NIOSH).
General Protection	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Follow all label instructions. Educate and train employees in safe use of the product.

Exposure Limits

Crystalline Silica (Quartz)	14808-60-7	NIOSH	REL	0.05 mg/m ³
			Form of Exposure	Respirable dust.
			OSHA Z1A TWA	0.1 mg/m ³
			Form of Exposure	Respirable dust.
			US CA OEL TWA PEL	0.1 mg/m ³
			Form of Exposure	Respirable dust.
US CA OEL TWA PEL	0.3 mg/m ³			
Form of Exposure	Total dust.			
ACGIH	TWA	0.05 mg/m ³		

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Brown
Physical State	Solid granules
Odor	Sharp Musty

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pH 7.0 - 8.5 (as aqueous suspension)
Bulk Density 32-37 lb/cu ft

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability Stable

Incompatibility Strong oxidizing agents
Acids

Hazardous Products of Decomposition Proposed compounds due to fire or other extreme conditions:
Hydrogen chloride
Amines
Nitrogen oxides (NOx)
Carbon monoxide

Hazardous Polymerization (Conditions to avoid) Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicology information provided has been extrapolated from a similar formulation, BAYLETON 50% WP. The non-acute information pertains to the active ingredient, triadimefon.

Acute Oral Toxicity Male Rat: LD50: 812 mg/kg
Female Rat: LD50: 1,470 mg/kg

Acute Dermal Toxicity Male and Female Rat: LD50: > 2,000 mg/kg
Male and Female Rabbit: LD50: > 2,000 mg/kg

Acute Inhalation Toxicity Male and Female Rat: LC50: 4-hr exposure to dust: > 3.532 mg/l (analytical)
Male and Female Rat: 1-hr exposure to dust (extrapolated from 4-hr LC50): > 14.128 mg/l (analytical)

Skin Irritation Rabbit: Slight dermal irritant.

Eye Irritation Rabbit: Minimally irritating.

Sensitization Guinea pig: Dermal sensitization studies have not been performed on this product as formulated, however, dermal sensitization studies performed on a similar formulation, BAYLETON 25 T/O, and the active ingredient, triadimefon, have been positive.

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Sub-Chronic Toxicity

In a 4 week dermal toxicity study, rabbits were exposed to the active ingredient for 7 hours/day, 5 days/week, at levels of 50 and 250 mg/kg. Slight dermal irritation was exhibited by rabbits of both dose groups.

In a 3 week dermal toxicity study, rats were treated with triadimefon at levels of 100, 300 or 1000 mg/kg for 6 hours/day, 5 days/week. At 1000 mg/kg, behavioral changes observed included increased reactivity and increased activity. Based on clinical signs, the no-observed-effect-level (NOEL) was 300 mg/kg.

In a subchronic inhalation study, rats were exposed to triadimefon for 6 hours/day, for 15 days to liquid aerosol concentrations of 78.7 and 307 mg/cubic meter. The no effect concentration was 78.7 mg/cubic meter. Liver weights were increased at 307 mg/cubic meter.

Chronic Toxicity

In a 2 year study, dogs were administered triadimefon at dietary concentrations of 100, 330 or 1000 ppm. The high dose was administered at 1000 ppm for 54 weeks and then increased to 2000 ppm for the remainder of the study. Liver weights and liver enzyme levels were increased at the high dose, however, histopathological examinations did not reveal any damage to the liver. The NOEL was 330 ppm.

When rats were administered triadimefon for 2 years at dietary concentrations ranging from 50 to 1800 ppm, the NOEL was 300 ppm. Effects observed at the high dose included reduced body weights, increased feed consumption, changes in serum chemistries, increased liver weights and thyroid effects.

Assessment Carcinogenicity

Triadimefon was tested for carcinogenicity in 2 feeding studies using rats. In the first study, rats were administered dietary concentrations of 50 or 500 ppm for 2 years. No evidence of a carcinogenic effect was found. In the second study, triadimefon was administered for 2 years at dietary concentrations of 50, 300 or 1800 ppm. At the high dose only, there was a slight increase in the incidence of benign follicular adenomas of the thyroid.

In oncogenicity studies using mice, triadimefon was administered at dietary concentrations of 50, 300 or 1800 ppm. At the high dose only, there was an increase in the incidence of benign liver tumor. No increase in malignant tumors occurred.

ACGIH

Crystalline Silica (Quartz)

14808-60-7

Group A2

NTP

Crystalline Silica (Quartz)

14808-60-7

IARC

OSHA

None

Reproductive & Developmental Toxicity

REPRODUCTION: In reproduction studies, triadimefon was administered to rats at dietary concentrations of 50, 300 or 1800 ppm. At 1800 ppm, reproductive effects including smaller litter sizes, reduced litter weights, and reduced viability

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and lactation were observed; at this dose, parental body weight gains were depressed and a reduction in mating occurred. The reproductive NOEL was 300 ppm.

DEVELOPMENTAL TOXICITY: In developmental toxicity studies using rats, triadimefon was administered during gestation at oral doses ranging from 10 to 100 mg/kg. The overall NOELs derived from these studies for maternal and developmental toxicity were 10 and 30 mg/kg, respectively. In an inhalation developmental toxicity study, rats were exposed to triadimefon during gestation at liquid aerosol concentrations of 14.0, 33.2 or 113.7 mg/cubic meter for 6 hours/day. The NOEL for maternal toxicity was 14.0 mg/cubic meter. No developmental effects were observed.

In developmental toxicity studies using rabbits, triadimefon was administered during gestation at oral doses ranging from 5 to 120 mg/kg. The overall NOEL derived from these studies for both maternal and developmental toxicity was 20 mg/kg.

Neurotoxicity

In acute and subchronic screening studies using rats, triadimefon caused neurobehavioral changes related to hyperactivity. The origin of hyperactivity development has been elucidated by a number of mechanistic studies in the published literature and was shown to be a pharmacotoxicological phenomenon involving dopaminergic neurotransmitter systems. There were no micropathologic findings in the skeletal muscle or neural tissues in either study. The NOEL in the acute neurotoxicity study for irreversible effects on the nervous system was 600 mg/kg for males and 450 mg/kg for females, the highest dose tested for each sex. In the subchronic neurotoxicity study the NOEL for irreversible effects on the nervous system was 2200 ppm for males and females, the highest dose tested.

Mutagenicity

Numerous in vitro and in vivo mutagenicity studies have been conducted on triadimefon, all of which are negative.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Precautions

Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment washwater. Apply this product only as specified on the label.

Do not apply when weather conditions favor runoff or drift.

Ecological Information

Ground Water Advisory: This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

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SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Never place unused product down any indoor or outdoor drain.

Container Disposal Completely empty bag into application equipment. Then dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

For Homeowners: Do not reuse containers. If empty, place in trash or offer for recycling if available. If partly filled, call your local solid waste agency for disposal instructions. Refer to the product label for other disposal instructions.

RCRA Classification Not Regulated under this Statute

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:
Not regulated for Domestic Surface Transportation

FREIGHT CLASSIFICATION:
Insecticides or Fungicides, N.O.I.; other than poison

SECTION 15. REGULATORY INFORMATION

EPA Registration No. 432-1360

US Federal Regulations

TSCA list

Crystalline Silica (Quartz) 14808-60-7

TSCA 12b export notification

None

SARA Title III - section 302 - notification and information

None

SARA Title III - section 313 - toxic chemical release reporting

Triadimefon Technical 43121-43-3 1.0%

US States Regulatory Reporting

CA Prop65

This product contains a chemical known to the state of California to cause birth defects or other reproductive harm.	Triadimefon Technical	43121-43-3	Male reproductive toxin.
	Triadimefon	43121-43-3	Female

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Technical			reproductive toxin.
Triadimefon Technical	43121-43-3		Developmental toxin.

US State right-to-know ingredients

Triadimefon Technical	43121-43-3	NJ
Crystalline Silica (Quartz)	14808-60-7	IL, MA, MN, PA

Canadian Regulations

Canadian Domestic Substance List

Crystalline Silica (Quartz)	14808-60-7
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Environmental

CERCLA

None

Clean Water Section 307 Priority Pollutants

None

Safe Drinking Water Act Maximum Contaminant Levels

None

International Regulations

EU Classification

None

European Inventory of Existing Commercial Substances (EINECS)

Triadimefon Technical	43121-43-3
Crystalline Silica (Quartz)	14808-60-7

SECTION 16. OTHER INFORMATION

NFPA	Health	Flammability	Reactivity	Others
	1	1	1	

MSDS REVISION INDICATOR: New Material Safety Data Sheet.

Approval Date: 02/09/2004

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