

MATERIAL SAFETY DATA SHEET



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TRANSPORTATION EMERGENCY

CHEMTREC (800)-424-9300

EMERGENCY AND PRODUCT INFORMATION

OLYMPIC (800)-356-4647

STRIKE® 50 WDG

EPA Registration Number: 432-1367-59807

I. CHEMICAL PRODUCT INFORMATION

PRODUCT NAME Strike® 50WDG
Greenhouse and Nursery Systemic Fungicide
CHEMICAL FAMILY Triazole Fungicide
CHEMICAL NAME 1-(4-Chlorophenoxy)-3,3-di-
methyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone.
SYNONYMS Triadimefon
EPA Registration No. 432-1367-59807
PRODUCT USE For control of certain diseas-
es on flowers, foliage plants, shrubs, and shade trees in com-
mercial nurseries, garden centers and greenhouses.

Skin Mild skin irritant. 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 STRIKE (triadimefon) during normal use. This product may contain up to approximately 1.5% total crystalline silica. However, the amount of respirable crystalline silica is expected to 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.

II. COMPOSITION / INFORMATION ON INGREDIENTS

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

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.

III. HAZARDS IDENTIFICATION

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

Emergency Overview Caution! Avoid breathing dust or spray mist. 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.

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.

Physical State Granular
Odor Sharp Musty
Appearance Brown
Routes of Exposure Eye contact, Skin contact, Inhalation, Skin absorption.

IMMEDIATE EFFECTS

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

IV. FIRST AID MEASURES

General Have the product container or label with you when calling a poison control center or doctor or going for treatment.

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 Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Call a poison control center or doctor for treatment advice.

Ingestion Call a poison control center or doctor immediately for treatment advice. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Have person sip a glass of water if able to swallow.

Inhalation. Take affected 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 treatment advice.

Notes to Physician:

Signs and Symptoms Poisoning is accompanied by hyperactivity followed by sedation.

Treatment Treat symptomatically. There is no antidote.

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V. FIRE FIGHTING MEASURES

Flash point : Not applicable
Suitable Extinguishing Media . . . : Water
Fire Fighting Instructions : In the event of fire, wear self-contained breathing apparatus. Stay upwind. Do not allow run-off from fire fighting to enter drains or water courses.

VI. ACCIDENTAL RELEASE MEASURES

General and Disposal : Keep unnecessary people away, isolate hazard area and deny entry. Avoid contact with spilled product or contaminated surfaces.
Land Spill or Leaks : Avoid dust formation. Use recommended protective equipment while carefully sweeping up spilled material. Avoid breathing dust. Avoid contact with skin. Place in covered container for reuse or disposal. Scrub contaminated area with soap and water. Rinse away 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.

VII. HANDLING AND STORAGE

Handling Procedures : Avoid breathing dust or spray mist. Handle and open container in a manner as to prevent spillage. Avoid contact with skin, eyes and clothing.
Storing Procedures : 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. Do not contaminate water, food or feed by storage or disposal.
Do not freeze. Protect containers from physical damage. Avoid moisture.

Work/Hygienic Procedures : Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
Wash thoroughly with soap and water after handling. Remove and wash contaminated clothing before re-use.

Min/Max Storage Temperatures . . . : Do not transport or store below 0° C / 32° F.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls : Maintain exposure levels below the 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 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.

Educate and train employees in safe use of the product. Follow all label instructions.

Exposure Limits

Crystalline Silica (Quartz)		14808-60-7
NIOSH	REL	0.05 mg/m3
Form of Exposure	Respirable dust	
OSHA Z1A	TWA	0.1 mg/m3
Form of Exposure	Respirable dust	
US CA OEL	TWA PEL	0.1 mg/m3
Form of Exposure	Respirable dust	
US CA OEL	TWA PEL	0.3 mg/m3
Form of Exposure	Total dust	
ACGIH	TWA	0.05 mg/m3
Form of Exposure	Respirable fraction	
OSHA Z1	PEL	5.0 mg/m3
Form of Exposure	Respirable fraction	
OSHA Z1	PEL	15.0 mg/m3
Form of Exposure	Total dust	

IX. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Brown
Physical State : Granular
Odor : Sharp musty
pH : 7.0 - 8.5 Aqueous solution
Bulk Density : 32-37 lb.cu ft.

X. STABILITY AND REACTIVITY

Chemical Stability : Stable.
Incompatibility : Strong oxidizing agents. Acids
Hazardous Products of Decomposition : Proposed compounds due to fire or other extreme conditions:
Amines
Carbon monoxide
Hydrogen chloride (HCl)
Nitrogen oxides (NOx)

Hazardous Polymerization : Will not occur.
(Conditions to Avoid)

XI. TOXICOLOGICAL INFORMATION

Acute toxicology information provided has been extrapolated from a similar formulation, Strike 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/Female Rat:
LD50: > 2,000 mg/kg
Male/Female Rabbit:
LD50: > 2,000 mg/kg

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

Male/Female Rat: 1-hr exposure to dust (extrapolated from 4-hr LC50): > 14.128 mg/l (analytical).

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Skin Irritation : Rabbit: slight irritation.

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, and the active ingredient, triadimefon, have been positive.

Subchronic 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

Crystalline Silica (Quartz) 14808-60-7

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 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 113.2 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 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.

XII. 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. Apply this product only as specified on the label. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water.

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.

XIII. DISPOSAL CONSIDERATIONS

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

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Container Disposal. : Empty remaining contents.
If burned, stay out of smoke. Then dispose of empty container
in a sanitary landfill or by incineration, or, if allowed by State
and local authorities, by burning.

RCRA Classification. : Not regulated under this
statute

XIV. TRANSPORT INFORMATION

DOT CLASSIFICATION : Not regulated for
Domestic Surface Transportation

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

XV. REGULATORY INFORMATION

EPA Registration No. : 432-1367-59807

US Federal Regulations

TSCA list

Crystalline Silica (Quartz) 14808-60-7

US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Sunpt D)

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 cancer.

Crystalline Silica (Quartz) 14808-60-7

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 Technical	43121-43-3	Female 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

Environmental

CERCLA

None

Clean Water Section 307 Priority Pollutants

None

Safe Drinking Water Act Maximum Contaminant Levels

None

XVI. OTHER INFORMATION

NFPA 704 (National Fire Protection Association)

	Health	Flammability	Reactivity	Others
NFPA	1	1	1	None

0=minimal hazard, 1=slight hazard, 2=moderate hazard
3=severe hazard, 4=extreme hazard

Reason to issue: New Material Safety Data Sheet.

Approval Date: 09/15/2004
Supersedes Date: 04/18/2001

This information is provided in good faith but without express or im-
plied warranty. Buyer assumes all responsibility for safety and use not
in accordance with label instructions.

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