



Material Safety Data Sheet

ARMADA 50 WP

MSDS Version: 1.0

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name ARMADA 50 WP
Chemical Name
Common Name
MSDS Number 2163
Chemical Family
Chemical Formulation

Bayer Environmental Science
 95 Chestnut Ridge Road
 Montvale, NJ 07645
 USA

For MEDICAL, TRANSPORTATION or Other EMERGENCY call 1-800-334-7577 24 hours/day
 For Product Information call 1-800-331-2867

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	40.4000	42.9000
Trifloxystrobin Technical	141517-21-7	7.9000	8.7000
Crystalline Silica (Quartz)	14808-60-7		1.2400

SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview May be harmful if swallowed, inhaled or absorbed through the skin. Do not get in eyes, on skin, or on clothing. Do not take internally.

Physical State Powder

Appearance White to Light grey

Chronic or Delayed Long-Term This product contains respirable crystalline silica. 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. As with all materials which can cause upper respiratory tract irritation, persons with a history of asthma, emphysema, or hyperreactive airways disease may be more susceptible to overexposure. Pulmonary and respiratory diseases may be aggravated by exposure to respirable crystalline

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silica.

SECTION 4. FIRST AID MEASURES

General	In case of poisoning, call the Medical Emergency Telephone Number on page 1.
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 all contaminated clothing immediately. 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. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Do not give anything by mouth to an unconscious or convulsing person.
Inhalation	Move 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	
Treatment	Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point	Not applicable
Suitable Extinguishing Media	Carbon dioxide (CO2), Dry chemical, Foam
Fire Fighting Instructions	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Contain contaminated water/fire fighting water. Dike area to prevent runoff and contamination of water sources. Equipment or materials involved in pesticide fires may become contaminated. Prevent use of contaminated buildings, area, and equipment until decontaminated. Wear self-contained breathing apparatus and protective suit.

SECTION 6. 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. Avoid breathing dust. Use recommended protective equipment while carefully sweeping up spilled material. 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

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waterways or contact vegetation.

SECTION 7. HANDLING AND STORAGE

Storing Procedures	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.
Work/Hygienic Procedures	Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Wash contaminated clothing before reuse.

SECTION 8. 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	Suitable chemical resistant gloves
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	Educate and train employees in safe use of the product.
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 mg/m3
	Form of Exposure Respirable fraction.
	OSHA Z1 PEL 15 mg/m3
	Form of Exposure Total dust.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White to Light grey
Physical State	Powder
pH	7.5 - 9.0 at 25 °C (as aqueous solution)
Bulk Density	13-16 lb/cu ft

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Exposure to moisture. Exposure to extreme heat.
Incompatibility	Strong oxidizing agents Acids
Hazardous Decomposition Products	Thermal decomposition Hydrogen chloride (HCl) Amines Nitrogen oxides (NOx) Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity studies have not been performed on this product but have been bridged from the acute toxicity database of similar "50 WP" formulations performed on the two separate active ingredients, triadimefon and trifloxystrobin, as well as, the acute toxicity database of each active ingredient. The acute toxicity values presented represent the expected US EPA Toxicity Category III classification for each acute hazard. The non-acute information pertains to the technical-grade active ingredients.

Acute Oral Toxicity	Rat: > 500 - 5,000 mg/kg
Acute Dermal Toxicity	Rat: > 2,000 - 5,000 mg/kg
Acute Inhalation Toxicity	Rat: LC50: 4-hr exposure to dust: > 0.5 - 2.0 mg/l Male/Female Rat: 1-hr exposure to dust (extrapolated from 4-hr LC50): > 2.0 - 8.0 mg/l
Skin Irritation	Rabbit: Moderate skin irritation
Eye Irritation	Rabbit: Mild eye irritation
Sensitization	Guinea pig: May cause sensitisation by skin contact.
Subchronic Toxicity	TRIADIMEFON: In subacute dermal toxicity studies in rats and rabbits, triadimefon caused slight dermal irritation and/or increases in activity and reactivity. In a subchronic inhalation study, daily exposure to triadimefon resulted in increased organ weights (liver).

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TRIFLOXYSTROBIN: In a 28-day dermal toxicity study in rats, trifloxystrobin was tolerated without local effects at doses up to and including the limit dose of 1000 mg/kg. Systemic effects were observed in males at the limit dose and included increased organ weights (liver & kidney).

Chronic Toxicity

TRIADIMEFON: The major organs affected from long-term exposure to triadimefon in chronic studies in rats and dogs were the liver and/or thyroid (secondary effects).

TRIFLOXYSTROBIN: The major organ affected from long-term exposure to trifloxystrobin in chronic studies in mice and dogs was the liver.

Assessment Carcinogenicity

TRIADIMEFON: EPA has classified triadimefon as a Group C (possible human carcinogen) based on borderline statistically significant increases in thyroid adenomas in male rats, and increases in liver adenomas in both sexes in mice. The Agency used a non-linear methodology approach for determining the Margin of Exposure (MOE) for the estimation of human cancer risk because the tumors were benign, and there were no apparent genotoxicity concerns. Therefore, EPA has a reasonable certainty that no harm will result from exposure to residues of triadimefon.

TRIFLOXYSTROBIN: Trifloxystrobin is not carcinogenic based on oncogenicity studies in rats and mice.

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

TRIADIMEFON TECHNICAL REPRODUCTION: In reproduction studies in rats, triadimefon caused reproductive effects (e.g., smaller litter sizes) in conjunction with parental toxicity at the highest dose tested.

DEVELOPMENTAL TOXICITY: Triadimefon is not a primary developmental toxicant based on developmental toxicity studies in rats and rabbits. Malformations were observed in both species but only at maternally-toxic dose levels.

TRIFLOXYSTROBIN TECHNICAL

REPRODUCTION: Trifloxystrobin is not a primary reproductive toxicant based on a two-generation reproduction study in rats

DEVELOPMENTAL TOXICITY: Trifloxystrobin is not a primary developmental toxicant based on developmental toxicity studies in rats and rabbits. Any developmental effects observed were secondary to maternal toxicity.

Neurotoxicity

TRIADIMEFON: Triadimefon caused prominent hyperactivity-related neurobehavioral changes in acute (oral gavage) and subchronic (diet) neurotoxicity screening studies in rats. There were no neuropathologic alterations in the skeletal muscle or neural tissues in either study.

TRIFLOXYSTROBIN: Trifloxystrobin is not a primary neurotoxicant based on an

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acute (oral gavage) neurotoxicity screening study in rats.

Mutagenicity

TRIADIMEFON: Triadimefon is not considered genotoxic or mutagenic based on in vitro and in vivo mutagenicity studies.

TRIFLOXYSTROBIN: Trifloxystrobin is not considered genotoxic or mutagenic based on in vitro and in vivo mutagenicity studies.

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 wash water.

SECTION 13. DISPOSAL CONSIDERATIONS

General Disposal Guidance

Pesticide Disposal: Contact manufacturer.

RCRA Classification

Not Regulated under this Statute

SECTION 14. TRANSPORT INFORMATION

DOT CLASSIFICATION:

Not regulated for Domestic Surface Transportation

FREIGHT CLASSIFICATION:

Compounds, Tree or Weedkilling, N.O.I., other than poison, having a density of 20 LBS or greater per cubic foot

SECTION 15. REGULATORY INFORMATION

US Federal Regulations

TSCA list

None

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

None

SARA Title III - section 302 - notification and information

None

SARA Title III - section 313 - toxic chemical release reporting

Triadimefon Technicial

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 Technicial

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

None

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)

None

SECTION 16. OTHER INFORMATION

NFPA	Health 2	Flammability 1	Reactivity 1	Others None
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MSDS REVISION INDICATOR: New Material Safety Data Sheet.

Approval Date: 07/06/2004

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