



**Material Safety Data Sheet**  
**AXIOM DF HERBICIDE**

MSDS Number: 102000006939  
 MSDS Version 2.0  
 Revision Date: 11/28/2006

**SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION**

**Product Name** AXIOM DF HERBICIDE  
**MSDS Number** 102000006939  
**EPA Registration No.** 264-766

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)

**SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS**

<u>Hazardous Component Name</u>	<u>CAS-No.</u>	<u>Average % by Weight</u>
Flufenacet	142459-58-3	54.40
Metribuzin	21087-64-9	13.60
Synthetic amorphous silica	112926-00-8	4.00
Quartz (Silica, Crystalline)	14808-60-7	0.064

**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. Wash thoroughly with soap and water after handling.

**Physical State** granular  
**Odor** weak characteristic  
**Appearance** light brown  
**Routes of Exposure** Inhalation, Skin contact, Skin Absorption, Eye contact  
**Immediate Effects**  
**Eye** Causes eye irritation. Do not get in eyes.  
**Skin** May cause sensitisation by skin contact. Avoid contact with skin and clothing. Harmful if absorbed through skin.



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<b>Ingestion</b>	Harmful if swallowed.
<b>Inhalation</b>	Avoid breathing dust.
<b>Chronic or Delayed Long-Term</b>	This product is not listed as a carcinogen by ACGIH, NTP, IARC or OSHA. However, it may contain crystalline silica (quartz), a substance which has been listed as a carcinogen by ACGIH, NTP and IARC. Crystalline silica is a naturally-occurring mineral component of many sands and clays. Although the carcinogenic potential of crystalline silica in humans is controversial, it must be considered if it is inhaled under excessive exposure conditions. The respirable portion of the silica that may be contained in this product, however, is small, such that inhalation exposure during anticipated conditions of use is minimal.
<b>Medical Conditions Aggravated by Exposure</b>	Pulmonary and respiratory diseases may be aggravated by exposure to respirable crystalline silica.

**SECTION 4. FIRST AID MEASURES**

<b>General</b>	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
<b>Eye</b>	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 physician or poison control center immediately.
<b>Skin</b>	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. 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. Do not leave victim unattended.
<b>Inhalation</b>	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 physician or poison control center immediately.
<b>Notes to Physician Treatment</b>	There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

**SECTION 5. FIRE FIGHTING MEASURES**

<b>Flash point</b>	not applicable
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**Fire and Explosion Hazards**      nitrogen oxides (NOx)  
                                  hydrogen fluoride  
                                  carbon monoxide (CO)  
                                  hydrogen cyanide (hydrocyanic acid)  
                                  Sulphur oxides

**Suitable Extinguishing Media**      water, carbon dioxide (CO2), dry chemical, foam

**Fire Fighting Instructions**      Dike area to prevent runoff and contamination of water sources. Avoid contact with spilled product or contaminated surfaces. Keep out of smoke. Cool closed containers exposed to fire with water spray. Fight fire from upwind position. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

**Personal Precautions**      Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

**Methods for Cleaning Up**      Avoid formation of dust. Sweep up or vacuum up spillage and collect in suitable container for disposal. When picked up, treat material as prescribed in Ch. 13. "Disposal considerations". Clean contaminated floors and objects thoroughly, observing environmental regulations. Rinse away with water. Decontaminate tools and equipment following cleanup. Use dry absorbent material such as clay granules to absorb and collect wash solution for proper disposal.

**Additional Advice**      Scrub contaminated area with soap and water.

Contaminated soil may have to be removed and disposed. Place contaminated material in appropriate container for disposal. Do not allow product to contact vegetation. Do not allow product to enter streams, sewers or other waterways. Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8.

**SECTION 7. HANDLING AND STORAGE**

**Handling Procedures**      Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.

**Storing Procedures**      Do not contaminate water, food, or feed by storage or handling. 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. Keep container tightly closed. Store in a place accessible by authorized persons only.



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**Work/Hygienic Procedures**

Handle in accordance with good industrial hygiene and safety practice. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

**Min/Max Storage Temperatures**

no data available

**SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**General Protection**

Follow all label instructions. Train employees in safe use of the product.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

**Engineering Controls**

Maintain exposure levels below the exposure limit through the use of general and local exhaust ventilation.

**Eye/Face Protection**

Chemical resistant goggles must be worn.

**Hand Protection**

Wear suitable gloves.

**Body Protection**

Wear long-sleeved shirt and long pants and shoes plus socks.

**Respiratory Protection**

When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

**Exposure Limits**

Synthetic amorphous silica	112926-00-8	ACGIH	TWA	10 mg/m3
		OSHA Z1A	TWA	6 mg/m3
		NIOSH	REL	6 mg/m3
		OSHA Z1	PEL	5 mg/m3
		Form of Exposure		Respirable fraction.
		OSHA Z1	PEL	15 mg/m3
		Form of Exposure		Total dust.
		Z3	TWA	15 millions of particles per cubic foot of air
		Form of Exposure		Respirable fraction.
		Z3	TWA	50 millions of particles per cubic foot of air
Form of Exposure		Total dust.		
Z3	TWA	5 mg/m3		
Form of Exposure		Respirable fraction.		



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		Z3	TWA	15 mg/m3
		Form of Exposure		Total dust.
		US CA OEL	TWA PEL	5 mg/m3
		Form of Exposure		Respirable fraction.
		US CA OEL	TWA PEL	10 mg/m3
		Form of Exposure		Total dust.
		US CA OEL	TWA PEL	5 mg/m3
		Form of Exposure		Respirable fraction.
		US CA OEL	TWA PEL	10 mg/m3
		Form of Exposure		Total dust.
		US CA OEL	TWA PEL	5 mg/m3
		Form of Exposure		Respirable fraction.
		US CA OEL	TWA PEL	10 mg/m3
		Form of Exposure		Total dust.
		Z3	TWA	20 millions of particles per cubic foot of air
		Z3	TWA	0.8 mg/m3
		Remarks		The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
Quartz (Silica, Crystalline)	14808-60-7	ACGIH	TWA	0.05 mg/m3
		Form of Exposure		Respirable fraction.
		ACGIH NIC	TWA	0.025 mg/m3
		Form of Exposure		Respirable fraction.
		NIOSH	REL	0.05 mg/m3
		Form of Exposure		Respirable dust.
		OSHA Z1A	TWA	0.1 mg/m3
		Form of Exposure		Respirable dust.
		Z3	TWA	2.4 millions of particles per cubic foot of air
		Form of Exposure		Respirable.
		Remarks		The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.
		Z3	TWA	0.1 mg/m3
		Form of Exposure		Respirable.
		Remarks		The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See



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Z3	TWA	regulation for specific equation.	0.3 mg/m3
Form of Exposure		Total dust.	
Remarks		The value is calculated from a specified equation using a value of 100%. Lower values of % will give higher exposure limits. See regulation for specific equation.	
US CA OEL	TWA PEL	Respirable dust.	0.1 mg/m3
Form of Exposure		Total dust.	0.3 mg/m3
US CA OEL	TWA PEL	Respirable fraction.	5 mg/m3
Form of Exposure		Total dust.	15 mg/m3
OSHA Z1	PEL		
Form of Exposure			
OSHA Z1	PEL		
Form of Exposure			

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	light brown
<b>Physical State</b>	granular
<b>Odor</b>	weak characteristic
<b>pH</b>	4 - 5 (10 %) at 20 °C
<b>Bulk Density</b>	496.6 - 528.6 kg/m3
<b>Water solubility</b>	dispersible
<b>Decomposition Temperature</b>	no data available

**SECTION 10. STABILITY AND REACTIVITY**

<b>Chemical Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	no data available
<b>Incompatibility</b>	bases
<b>Hazardous Decomposition Products</b>	no data available



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**Hazardous Reactions**      no data available

**SECTION 11. TOXICOLOGICAL INFORMATION**

**Acute Oral Toxicity**      female rat: LD50: ca. 371 mg/kg

male rat: LD50: ca. 1,365 mg/kg

**Acute Dermal Toxicity**      rat: LD50: > 5,000 mg/kg

**Skin Irritation**      rabbit: No skin irritation.

**Eye Irritation**      rabbit: No eye irritation.

**Sensitization**      rabbit: sensitizing

**Assessment Carcinogenicity**

**ACGIH**

Metribuzin	21087-64-9	Group A4
Quartz (Silica, Crystalline)	14808-60-7	Group A2

**NTP**

Quartz (Silica, Crystalline)	14808-60-7
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**IARC**

Quartz (Silica, Crystalline)	14808-60-7	Overall evaluation: 1
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**OSHA**

None.

**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 apply when weather conditions favor runoff or drift. Do not allow sprays to drift onto adjacent desirable plants. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Retain and dispose of contaminated wash water.



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**SECTION 13. DISPOSAL CONSIDERATIONS**

**General Disposal Guidance** Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal regulations. Follow container label instructions for disposal of wastes generated during use in compliance with the product label.

**Container Disposal** Do not re-use empty containers. Triple rinse containers. Puncture container to avoid re-use. Follow advice on product label and/or leaflet.

**SECTION 14. TRANSPORT INFORMATION**

TDG (Canada):  
Not regulated for road or rail.

TRANSPORTATION CLASSIFICATION: (United States)  
Not Regulated for shipment by any mode of transportation

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

**SECTION 15. REGULATORY INFORMATION**

**EPA Registration No.** 264-766

**US Federal Regulations**

**TSCA list**

Quartz (Silica, Crystalline) 14808-60-7

**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**

Metribuzin 21087-64-9 1.0%

**US States Regulatory Reporting**

**CA Prop65**

This product contains a chemical known to the State of California to cause cancer.

Quartz (Silica, Crystalline) 14808-60-7

This product does not contain any substances known to the State of California to cause reproductive harm.

**US State Right-To-Know Ingredients**

Metribuzin 21087-64-9 IL, MN, NJ, RI  
Synthetic amorphous silica 112926-00-8 CA, IL, MN, RI



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Quartz (Silica, Crystalline) 14808-60-7 IL, MA, MN, RI

**Canadian Regulations**

**Canadian Domestic Substance List**

Synthetic amorphous silica 112926-00-8  
Quartz (Silica, Crystalline) 14808-60-7

**Environmental**

**CERCLA**

None.

**Clean Water Section 307 Priority Pollutants**

None.

**Safe Drinking Water Act Maximum Contaminant Levels**

None.

**International Regulations**

**European Inventory of Existing Commercial Substances (EINECS)**

Metribuzin 21087-64-9  
Quartz (Silica, Crystalline) 14808-60-7

**SECTION 16. OTHER INFORMATION**

NFPA 704 (National Fire Protection Association):

Health - 2      Flammability - 0      Reactivity - 0      Others - none

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

Reason to Revise: Re-numbered due to system update; Updated each section.

Revision Date: 11/28/2006

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