



**Material Safety Data Sheet**

**EPIC™ DF HERBICIDE**

MSDS Number: 102000012283

MSDS Version 2.0

Revision Date: 03/17/2006

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

**Product Name** EPIC™ DF HERBICIDE  
**MSDS Number** 102000012283  
**EPA Registration No.** 264-800  
**Product Use** For weed control in field corn and corn grown for silage.

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	48.00
Isoxaflutole	141112-29-0	10.00
Quartz (Silica, Crystalline)	14808-60-7	0.15

**SECTION 3. HAZARDS IDENTIFICATION**

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

**Emergency Overview** Caution! Harmful by inhalation and if swallowed. Avoid contact with skin, eyes and clothing. Avoid breathing dust.

**Physical State** granular solid

**Appearance** tan

**Routes of Exposure** Eye contact, Skin contact, Inhalation, Skin Absorption, Ingestion

**Immediate Effects**

**Eye** Mild eye irritation. Avoid contact with eyes.

**Skin** Mild skin irritation. Avoid contact with skin and clothing.

**Ingestion** Harmful if swallowed. Do not take internally.

**Inhalation** Harmful if inhaled. Avoid breathing dust.



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**Chronic or Delayed Long-Term**

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.

This product or its components may have target organ effects.

**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 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>	Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. 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 gulps 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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<b>Fire and Explosion Hazards</b>	Accumulation of fine dust may entail the risk of a dust explosion in the presence of air.
<b>Suitable Extinguishing Media</b>	water, carbon dioxide (CO2), dry chemical, foam
<b>Fire Fighting Instructions</b>	Keep out of smoke. Fight fire from upwind position. Equipment or materials involved in pesticide fires may become contaminated. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.  In the event of fire, wear self-contained breathing apparatus.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions</b>	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.
<b>Methods for Cleaning Up</b>	Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
<b>Additional Advice</b>	Use personal protective equipment. Do not allow product to enter streams, sewers or other waterways. Do not allow product to contact vegetation.

**SECTION 7. HANDLING AND STORAGE**

<b>Handling Procedures</b>	Handle and open container in a manner as to prevent spillage.
<b>Storing Procedures</b>	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.
<b>Work/Hygienic Procedures</b>	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.  Take off contaminated clothing and shoes immediately. Then wash thoroughly and put on clean clothing.  Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. As soon as practical, wash thoroughly and change into clean clothing.
<b>Min/Max Storage Temperatures</b>	Do not transport or store below -18 °C / -0 °F Do not transport or store above 38 °C / 100 °F 30-day average not to exceed maximum temperature.



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

**General Protection** 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.

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

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

**Eye/Face Protection** tightly fitting safety goggles

**Hand Protection** Chemical resistant nitrile rubber gloves

**Body Protection** Wear long-sleeved shirt and long pants and 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).

**Exposure Limits**

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		
Form of Exposure		Respirable fraction.	5 mg/m3
OSHA Z1	PEL	Total dust.	15 mg/m3
Form of Exposure			
OSHA Z1	PEL		
Form of Exposure			

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Appearance</b>	tan
<b>Physical State</b>	granular solid
<b>pH</b>	3.6 (5 %) at 25 °C
<b>Bulk Density</b>	30 - 36 lb./cu. ft.

**SECTION 10. STABILITY AND REACTIVITY**

<b>Chemical Stability</b>	Stable
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**SECTION 11. TOXICOLOGICAL INFORMATION**

Only an eye irritation study has been conducted on this product as formulated. The other acute toxicity studies were performed on a similar formulation containing a higher percentage of the active ingredients, flufenacet and isoxaflutole. The non-acute information pertains to the technical-grade active ingredients.

<b>Acute Oral Toxicity</b>	male rat: LD50: 1,136 mg/kg
	female rat: LD50: 773 mg/kg
<b>Acute Dermal Toxicity</b>	male/female rat: LD50: > 5,000 mg/kg



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**Acute Inhalation Toxicity** male/female rat: LC50: > 1.2 mg/l  
Exposure time: 4 h  
Determined in the form of liquid aerosol.  
(actual)  
Maximum attainable concentration.  
No deaths

male/female rat: LC50: > 4.8 mg/l  
Exposure time: 1 h  
Determined in the form of liquid aerosol.  
Extrapolated from the 4 hr LC50.  
(actual)

**Skin Irritation** rabbit: Slight irritation.

**Eye Irritation** rabbit: Mild eye irritation.

**Sensitization** guinea pig: Non-sensitizing.

**Chronic Toxicity** Flufenacet caused liver, kidney, thyroid, eye, and/or brain effects in chronic dietary studies in rats and dogs. In addition, neurological effects were observed in dogs.

The principal organs affected in rats and mice from long-term exposure to isoxaflutole included the liver and/or thyroids.

**Assessment Carcinogenicity**

Flufenacet was not carcinogenic in oncogenicity studies in rats and mice.

In long-term feeding studies, isoxaflutole caused liver tumors in rats and mice and thyroid tumors in rats. These effects were only seen at the highest dose tested (the Maximum Tolerated Dose) which was far higher than any exposure that could be envisaged for humans. Thus, isoxaflutole presents negligible, if any, increased cancer risk for humans.

**ACGIH**

Quartz (Silica, Crystalline)	14808-60-7	Group A2
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**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.

**Reproductive & Developmental Toxicity**

**REPRODUCTION:**  
Flufenacet and isoxaflutole were not reproductive toxicants in multi-generation studies in rats.

**DEVELOPMENTAL TOXICITY:.**  
Flufenacet was not a primary developmental toxicant in rats and rabbits. Developmental effects were observed only at doses that caused maternal



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toxicity.

Isoxaflutole was not a developmental toxicant in laboratory animals.

**Neurotoxicity**

Flufenacet caused neurobehavioral effects and/or neuropathological changes in acute and subchronic neurotoxicity screening studies in rats. In a developmental neurotoxicity study in rats, flufenacet did not cause any specific neurobehavioral effects in the offspring.

Isoxaflutole was not a neurotoxicant in acute, subchronic or developmental neurotoxicity screening studies in rats.

**Mutagenicity**

Flufenacet and isoxaflutole were not genotoxic in a battery of in vitro and in vivo tests.

**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 contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Drift or runoff may adversely affect non-target plants. Drift and runoff from treated areas may be hazardous to fish/aquatic organisms in adjacent sites. Apply this product only as specified on the label.

**SECTION 13. DISPOSAL CONSIDERATIONS**

**General Disposal Guidance**

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal**

Triple rinse containers. Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or incineration, or if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

**SECTION 14. TRANSPORT INFORMATION**

TRANSPORTATION CLASSIFICATION:  
Not regulated for 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**



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**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**

None.

**US States Regulatory Reporting**

**CA Prop65**

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

Isoxaflutole 141112-29-0

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**

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

**Canadian Regulations**

**Canadian Domestic Substance List**

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)**

Quartz (Silica, Crystalline) 14808-60-7

**SECTION 16. OTHER INFORMATION**

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 2 Reactivity - 1 Others - none

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

Reason to Revise: Update Section 11, Toxicology.



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