



Material Safety Data Sheet

RADIUS™ HERBICIDE

MSDS Number: 102000012422

MSDS Version 1.0

Revision Date: 04/15/2005

SECTION 1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name RADIUS™ HERBICIDE
MSDS Number 102000012422
EPA Registration No. 264-852
Product Use A herbicide used 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	35.70
Isoxaflutole	141112-29-0	4.30

SECTION 3. HAZARDS IDENTIFICATION

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

Emergency Overview Caution! Hazard to humans and domestic animals. Harmful if swallowed. Harmful if inhaled. Avoid contact with skin, eyes and clothing. Avoid inhalation of vapour or mist.

Physical State liquid viscous

Appearance off-white

SECTION 4. 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 Take off all contaminated clothing immediately. Rinse immediately with plenty of water for at least 15 minutes. Call a poison control center or doctor for treatment advice.



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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. Never give anything by mouth to an unconscious 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 There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point no data available

Suitable Extinguishing Media Use appropriate extinguishing media for material that is supplying fuel.

Fire Fighting Instructions Keep unnecessary people away, isolate hazard area and deny entry. Dike area to prevent runoff and contamination of water sources. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear personal protective equipment. Unprotected persons must be kept away. Refer to protective measures listed in sections 7 and 8.

Methods for Cleaning Up Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Decontaminate tools and equipment following cleanup. Collect washings for disposal. Dispose in accordance with all local, state/provincial and federal regulations.

Additional Advice Avoid contact with spilled product or contaminated surfaces. Do not allow material to enter streams, sewers, or other waterways or contact vegetation. Contact Bayer for further assistance if necessary.



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SECTION 7. HANDLING AND STORAGE

Handling Procedures Use proper protective equipment to minimize personal exposure (see Section 8).

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.

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.

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Remove clothing immediately if pesticide gets inside. 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.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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

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.

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. An emergency eye wash must be readily accessible to the work area.

Hand Protection Chemical-resistant gloves made of waterproof material such as neoprene, butyl rubber, barrier laminate or nitrile rubber.

Body Protection Wear long-sleeved shirt and long pants and shoes plus socks. An emergency shower must be readily accessible to the work area.

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.



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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	off-white
Physical State	liquid viscous
pH	3.5 at 20 °C Aqueous suspension
Density	1.2 g/cm ³

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
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SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity studies have not been performed on this product as formulated. The acute toxicity data provided has been bridged from a similar formulation containing the active ingredients, flufenacet technical and isoxaflutole technical. The non-acute information pertains to the technical-grade active ingredients.

Isoxaflutole is not mutagenic, teratogenic or a reproductive toxin. In long-term feeding studies in rodents, liver tumors were observed 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.

Acute Oral Toxicity	male/female rat: LD50: > 500 - < 1,000 mg/kg
Acute Dermal Toxicity	male/female rat: LD50: > 4,000 mg/kg
Acute Inhalation Toxicity	male/female rat: LC50: 4-hr exposure to liquid aerosol: > 1.886 mg/l (actual) Maximum attainable concentration. No deaths
Skin Irritation	rabbit: slight irritation
Eye Irritation	rabbit: Minimally irritating.
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.

Assessment Carcinogenicity

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



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ACGIH
None.
NTP
None.
IARC
None.
OSHA
None.

Reproductive & Developmental Toxicity

REPRODUCTION: Flufenacet was not mutagenic or genotoxic in a battery of in vitro and in vivo mutagenicity studies.

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

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.

Mutagenicity

Flufenacet was not mutagenic or genotoxic in a battery of in vitro and in vivo mutagenicity studies.

SECTION 12. ECOLOGICAL INFORMATION

Environmental Precautions

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. 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.



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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 all modes 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. 264-852

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**
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

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

US State Right-To-Know Ingredients
None.

Canadian Regulations

Canadian Domestic Substance List
None.



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Environmental

CERCLA

None.

Clean Water Section 307 Priority Pollutants

None.

Safe Drinking Water Act Maximum Contaminant Levels

None.

SECTION 16. OTHER INFORMATION

NFPA

Health - 1 Flammability - 0 Reactivity - 0 Others - none

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

Reason to Revise: New MSDS.

Revision Date: 04/15/2005

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