

MONSANTO

MATERIAL SAFETY DATA

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: OUTRIDER® Herbicide

MSDS NUMBER: S00013266

DATE: May 26, 1999

EPA Reg. No.: 524-500

MONSANTO COMPANY, 800 N. LINDBERGH BLVD., ST. LOUIS, MO 63167

FOR CHEMICAL EMERGENCY, SPILL LEAK, FIRE, EXPOSURE, OR ACCIDENT

Call CHEMTREC - Day or Night - 1-800-424-9300 Toll free in the continental U.S., Hawaii, Puerto Rico, Canada, Alaska, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted)

For additional non-emergency information, call: 800-332-3111

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Component</u>	<u>CAS No.</u>	<u>% by Weight</u>
Sulfosulfuron; 1-(2-ethylsulfonylimidazo[1,2a]pyridin-3-ylsulfonyl)-3-(4,6-dimethoxypyrimidin-2-yl)urea	141776-32-1	75
Emulsifier*	Trade Secret	25

* -- Hazardous chemical(s) under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Appearance and Odor: off-white solid

Keep out of reach of children.

CAUTION !

CAUSES EYE IRRITATION

Avoid contact with eyes or clothing. Was thoroughly with soap and water after handling.

In case of contact, immediately flush eyes with plenty of water. Get medical attention if irritation persists.

POTENTIAL HEALTH EFFECTS

Likely Routes of Exposure: Inhalation and dermal contact

Eye Contact: No more than slightly irritating based on toxicity studies of a representative material.

Skin Contact: Slightly irritating and practically non-toxic based on toxicity studies of a representative material.

Inhalation: Nontoxic based on toxicity studies of a representative material.

Ingestion: Practically non-toxic based on toxicity studies of a representative material. No significant adverse

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES: Immediately flush eyes with plenty of water. Get medical attention if irritation persists.

IF ON SKIN: Immediate first aid is not likely to be required. However, this material can be removed with soap and water. Wash heavily contaminated clothing before reuse.

IF INHALED: Immediate first aid is not likely to be required. However, if symptoms occur, remove to fresh air. Remove material from eyes, skin and clothing.

IF SWALLOWED: Immediate first aid is not likely to be required. A physician or Poison Control Center can be contacted for advice. Wash heavily contaminated clothing before reuse.

5. FIRE FIGHTING MEASURES

Flash Point: None

Hazardous Products of Combustion: None known

Extinguishing Media: In case of fire, use water (flood with water), dry chemical, CO₂, or alcohol foam.

Unusual Fire and Explosion Hazards: None

Fire Fighting Equipment: Fire fighters and others exposed to products of combustion should wear self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

In case of spill, sweep, scoop or vacuum and remove. Flush residual spill area with water.

Refer to Section 13 for disposal information.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with eyes, skin and clothing. Wash thoroughly with soap and water after handling. 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 water when disposing of equipment wash waters. The use of any pesticide in a manner that may kill or otherwise harm an endangered species or adversely modify their habitat is a violation of Federal laws.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed.

STORAGE: Product is considered stable under normal conditions of storage and handling but no definitive data is available. Do not contaminate water, foodstuffs, feed or seed by storage or disposal.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Wear chemical safety goggles to prevent eye contact during operations such as mixing or transfer or other activities when there is potential for eye contact.

Skin Protection: Although this product does not present a significant skin concern, minimize skin contamination by following good handling practices. Applicators and other handlers must wear: long sleeved shirt, long pants, and shoes with socks. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection: Avoid breathing dust or vapor. This product is not likely to pose an airborne exposure concern when handled and used in accordance with label instructions.

Ventilation: Provide natural or mechanical ventilation to minimize exposure. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Airborne Exposure Limits:

<u>Product:</u>	<u>OSHA PEL</u>	<u>ACGIH/TLV</u>
OUTRIDER® Herbicide	Not established	Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: off-white solid

Odor: non-distinct

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: None known.

Hazardous Decomposition Products: None known.

Hazardous Polymerization: None known.

11. TOXICOLOGICAL INFORMATION

Monsanto has not conducted toxicology studies on OUTRIDER® Herbicide. However, the following toxicological data were developed for MON 37532, a material considered to be representative of OUTRIDER® Herbicide:

Single exposure, acute toxicology studies with MON 37532 indicate the following:

Rat Oral LD50	>5000 mg/kg;	Practically nontoxic,	FIFRA Cat. IV
Rat Dermal LD50	>5000 mg/kg;	Practically nontoxic,	FIFRA Cat. IV
Rabbit Eye Irritation	clear by 72 hours,	slightly irritating,	FIFRA Cat. III
Rabbit Skin Irritation		slightly irritating,	FIFRA Cat. IV
Rat Inhalation LC50	highest achievable concentration - > 2.6 mg/l	Practically nontoxic,	FIFRA Cat. IV

Guinea pig dermal sensitization (maximization design) - negative

COMPONENTS:

The following toxicological data were developed for MON 37500, the active ingredient in this material.

MON 37500

No evidence of genotoxicity was observed in a standard battery of *in vivo* and *in vitro* tests. Negative results were reported for the following studies; mouse bone marrow micronucleus assay, chromosome aberrations study (*in vitro* cytogenetics with human lymphocyte cells), Ames/Salmonella assay in 5 strains and a CHO/HGPRT gene mutation assay.

Results from rat and rabbit full teratology studies revealed no developmental effects up to the limit doses (NOEL of 1,000 mg/Kg/day in the rabbit and the rat). MON 37500 was fed continuously to rats at very high dose levels for 2 successive generations. No effects were seen in the ability of rats to reproduce, and there were no adverse effects to offspring of either generation.

An acute neurotoxicity study in rats at levels up to and including 2,000 mg/kg by oral gavage resulted in no observed adverse effects based on routine measures of neurotoxicity and no significant histopathological findings. Nor were there any signs of neurotoxicity or general toxicity in rats during a subchronic neurotoxicity study in which the animals were exposed for 13 weeks to MON 37500 in feed at concentrations up to 20,000 ppm(1211 – 1467 mg/kg/day).

Results from subchronic oral feeding studies in rats, mice and dogs (via capsules in dogs) indicate that the primary target organ system is the urinary tract. Urinary crystals have been observed and prolonged oral exposure at very elevated dose levels has resulted in the formation of uroliths (calculi), with eventual urine obstruction and death. In the rat, mild body weight/weight gain effects occurred at a dose level of 20,000 ppm (approx. 1,300-1,500 mg/Kg/day). The No-Observed-Effect-Level (NOEL) was considered to be 6,000 ppm (approx. 400-450 mg/Kg/day). In the mouse, an equivocal decrease in alkaline phosphatase occurred in females at the highest dose level. The No-Observed-Effect-Level (NOEL) was considered to be 3,000 ppm (approx. 900 mg/Kg/day) in females and 7,000 ppm (approx. 1,100 mg/Kg/day) in males. In dogs, MON 37500 produced toxicity secondary to urinary crystal formation and urolithiasis at dose levels of 300 and 1,000 mg/Kg/day in females and at 1,000 mg/Kg/day in males. The No Observed Effect Level (NOEL) in this study was 100 mg/Kg/day for female and 300 mg/Kg/day for male dogs.

MON 37500 has been tested in chronic oral toxicity studies in mice, rats, and dogs. No adverse effects were observed in female mice. In male mice, there was a slight increase in the incidence of benign mesenchymal tumors in conjunction with a finding of urinary bladder calculi at 7000 ppm. This tumor type is unique to the strain of mouse used in the study. The NOEL for chronic toxicity for male mice was 700 ppm (93.4 mg/kg/day) and 7000 ppm (1388.2 mg/kg/day) in female mice. In rats, urinary bladder tumors were observed in conjunction with findings of calculi. The NOEL for oncogenic effects in this study was 5000 ppm (244.2 mg/kg/day) in male rats and 500 ppm (30.4 mg/kg/day) in female rats. The NOELs for chronic toxicity was 500 ppm (24.4 and 30.4 mg/kg/day for male and female rats, respectively). MON 37500 was considered to have demonstrated chronic toxicity secondary to urinary calculus formation at 500 mg/kg/day in a single male dog. There were no adverse treatment-related effects observed in female dogs, although urinary calculi were

present at 500 mg/kg/day. The NOEL for chronic toxicity for male and female dogs was 100 mg/kg/day.

12. ECOLOGICAL INFORMATION

Monsanto has not conducted environmental toxicity studies on this material. However, results of studies conducted with the active ingredient in this formulation are summarized below:

Invertebrates:	Daphnia magna	48-hr EC50: >96 mg/L;	No More Than Slightly Toxic
Warmwater fish:	Bluegill sunfish	96-hr LC50: >96 mg/L;	No More Than Slightly Toxic
Coldwater fish:	Rainbow trout	96-hr LC50: >95 mg/L;	No More Than Slightly Toxic
Algae:	Scenedesmus	72-hr EC50: 3.1 mg/L;	Moderately Toxic
	Selenastrum	5-day EC50: 0.367 mg/L;	Highly Toxic
	Anabaena	5-day LC50: 0.77 mg/L;	Highly Toxic
Duckweed:	Lemna gibba	14-day IC50: ~0.001 mg/L;	Very Highly Toxic
Terrestrial Invertebrate:	Earthworm	14-day LC50: >848 mg/kg;	No More Than Slightly Toxic
Beneficial Arthropods:	Honey Bee	oral LD50: >30 microgram/bee;	Relatively Nontoxic
	Honey Bee	dermal LD50: >25 microgram/bee;	No More Than Slightly Toxic

Avian dietary toxicity studies with MON 37500 resulted in an 8-day LC50 of greater than 5620 mg/kg feed for bobwhite quail and mallard duck. Results in mallard duck and bobwhite quail reproduction studies indicated no adverse effects on appearance, growth, behavior, mortality or egg production.

Environmental fate studies indicate that the active ingredient biodegrades in soil and water, with half-live values in the range of 16 - 32 days.

13. DISPOSAL CONSIDERATIONS

This material when discarded is not a hazardous waste as that term is defined by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261. Dispose of by in a landfill approved for pesticide disposal or by incineration or recycle in accordance with local, state and federal regulations. Consult your attorney or appropriate regulatory officials for information on such disposal.

This product should not be dumped, spilled, rinsed or washed into sewers or public waterways.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

This product is not hazardous under the applicable DOT, ICAO/IATA, or IMDG regulations.

15. REGULATORY INFORMATION

TSCA Inventory: This product is a pesticide and is not subject to TSCA.

SARA Hazard Notification

Hazard Categories Under Title III Rules (40 CFR 370):	Immediate
Section 302 Extremely Hazardous Substances:	Not applicable
Section 313 Toxic Chemical(s):	None

CERCLA Reportable Quantity: Not applicable

Refer to Section 2 for OSHA Hazardous Chemical(s).

16. OTHER INFORMATION

REASON FOR REVISION: Corrected non-emergency phone number Supersedes MSDS dated: 5/11/1999
OUTRIDER is a registered trademark of Monsanto Company

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS provides important health, safety, and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-approved label.

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