

MONSANTO Europe S.A.
Material Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name
Monitor®

Product use
Herbicide

Chemical name
Not applicable.

Synonyms
None.

Company/(Sales office)
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient
N-[[[4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]-2-(ethylsulfonyl)imidazo[1,2-a]pyridine-3-sulfonamide;
{Sulfosulfuron}

Composition

Components	CAS No.	EINECS/ ELINCS No.	% by weight (approximate)	EU Symbols & R phrases of components
Sulfosulfuron	141776-32-1		80	N; R50/53; {b}
Inert carrier			11	
Minor formulating ingredients			9	

3. HAZARDS IDENTIFICATION

EU label (manufacturer self-classification) - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.

N - Dangerous for the environment
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

National classification - U.K.

N - Dangerous for the environment
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Potential health effects

Likely routes of exposure
Skin contact

Eye contact, short term

Not expected to produce significant adverse eye effects as contact with the granule is unlikely when recommended use instructions are followed.

Skin contact, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Inhalation, short term

Not expected to produce significant adverse effects when recommended use instructions are followed.

Potential environmental effects

- || Very toxic to aquatic organisms.
- || May cause long-term adverse effects in the aquatic environment.

Potential other effects

Risk of dust explosion.

Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST AID MEASURES

Eye contact

Immediately flush with plenty of water.
If easy to do, remove contact lenses.

Skin contact

Wash affected skin with plenty of water.
Use soap if available.
Take off contaminated clothing, wristwatch, jewellery.
Wash clothes and clean shoes before re-use.

Inhalation

Remove to fresh air.

Ingestion

Rinse mouth thoroughly with water.
Remove particles from mouth.
Immediately offer water to drink.
Do NOT induce vomiting unless directed by medical personnel.
If symptoms occur, get medical attention.

5. FIRE-FIGHTING MEASURES

Flash point

Not applicable.

Extinguishing media

Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)

Unusual fire and explosion hazards

If this material is milled or the process generates fines, the fines could form an explosive mixture if dispersed in a sufficient quantity of air.
Minimise use of water to prevent environmental contamination.
Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), sulphur oxides (SO_x), hydrogen chloride (HCl), nitrogen oxides (NO_x), ammonia (NH₃)

Fire fighting equipment

Self-contained breathing apparatus.
Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protection recommended in section 8.

Environmental precautions

- Minimise spread.
- Keep out of drains, sewers, ditches and water ways.
- Consult an expert immediately.
- Notify authorities.

Methods for cleaning up

- Use vacuum equipment designed specifically for combustible dust.
- Dig up heavily contaminated soil.
- Collect in containers for disposal.
- Flush residues with small quantities of water.
- Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

Handling

- When using do not eat, drink or smoke.
- Wash hands thoroughly after handling or contact.
- Wash contaminated clothing before re-use.
- Thoroughly clean equipment after use.
- Emptied packages retain product residue and dust.
- Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.
- Refer to section 13 for disposal of rinse water.
- Dust generated during handling and/or storage can form explosive mixtures in air.
- Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Storage

- Maximum storage temperature: 54 °C
- Keep out of reach of children.
- Keep away from food, drink and animal feed.
- Keep only in the original container.
- Use appropriate containment to avoid environmental contamination.
- Keep container off wet floors.
- Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne exposure limits

Components	Exposure Guidelines
Sulfosulfuron	No specific occupational exposure limit has been established.
Inert carrier	No specific occupational exposure limit has been established.
Minor formulating ingredients	No specific occupational exposure limit has been established.

Engineering controls

- No special requirement when used as recommended.

Eye protection

- No special requirement when used as recommended.

Skin protection

- If repeated or prolonged contact:
Wear chemical resistant gloves.

Respiratory protection

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

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.

Colour/colour range:	Whitish
Form:	Granules, (free-flowing)
Odour:	Odourless
Flash point:	Not applicable.
Particle size:	> 99.5 % Mesh size 40
Density:	0.55 g/cm ³ ; (pour density)
Solubility:	Water: Soluble
pH:	5.5 @ 20 °C @ 10 g/l
Partition coefficient (log Pow):	< 1 (active ingredient)

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of handling and storage.

Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

Hazardous polymerization

Does not occur.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Monsanto has not conducted toxicity studies on this product. Data obtained on similar products and on components are summarized below.

Similar formulation

Acute oral toxicity

Rat, LD50: > 5,000 mg/kg body weight
No mortality.

Acute dermal toxicity

Rat, LD50: > 5,000 mg/kg body weight
Other effects: none
No mortality.

Skin irritation

Rabbit, 6 animals, OECD 404 test:
Redness, mean EU score: 0.1
Swelling, mean EU score: 0.00
Days to heal: 2

Eye irritation

Rabbit, 6 animals, OECD 405 test:
Conjunctival redness, mean EU score: 0.3
Conjunctival swelling, mean EU score: 0.00

Corneal opacity, mean EU score: 0.00
Iris lesions, mean EU score: 0.00
Days to heal: 3

Acute inhalation toxicity

Rat, LC50, 4 hours, dust: > 3.2 mg/L
Other effects: none
No mortality.

Skin sensitization

Guinea pig, maximisation test:
Positive incidence: 0 %

Active ingredient

Mutagenicity

In vitro and in vivo mutagenicity test(s):
Not mutagenic.

Repeated dose toxicity

Rat, oral, 90 days:
NOAEL toxicity: 6,000 mg/kg diet
Other effects: weight loss

Mouse, oral, 90 days:
NOAEL toxicity: > 7,000 mg/kg diet
Other effects: none

Chronic effects/carcinogenicity

Mouse, oral, 18 months:
NOEL tumour: 3,000 mg/kg diet
NOAEL toxicity: 700 mg/kg diet
Tumours: urinary bladder
Target organs/systems: urinary bladder
Other effects: histopathologic effects, blood biochemistry effects
Tumours not relevant to man.

Rat, oral, 22 months:
NOEL tumour: 500 mg/kg diet
NOAEL toxicity: 500 mg/kg diet
Tumours: urinary bladder (carcinoma), urinary bladder (papilloma)
Target organs/systems: urethra, urinary bladder, kidneys
Other effects: organ weight change, histopathologic effects, increased mortality
Tumours not relevant to man.

Toxicity to reproduction/fertility

Rat, oral, 2 generations:
NOAEL toxicity: 5,000 mg/kg diet
NOAEL reproduction: 20,000 mg/kg diet
Target organs/systems in parents: kidneys
Other effects in parents: weight loss, decrease of body weight gain, organ weight change
Target organs/systems in pups: none
Other effects in pups: none

Developmental toxicity/teratogenicity

Rat, oral, 6 - 15 days of gestation:
NOAEL toxicity: 1,000 mg/kg body weight/day
NOAEL development: 1,000 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: none
Developmental effects: none
No adverse treatment related effects in offspring.

Rabbit, oral, 7 - 18 days of gestation:
NOAEL toxicity: 1,000 mg/kg body weight/day
NOAEL development: 1,000 mg/kg body weight/day
Target organs/systems in mother animal: none
Other effects in mother animal: none
Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products and on components are summarized below.

Similar formulation

Aquatic toxicity, algae/aquatic plants

Green algae (*Selenastrum capricornutum*):

Acute toxicity, 72 hours, static, ErC50 (growth rate): 0.62 mg/L

Arthropod toxicity

Honey bee (*Apis mellifera*):

Oral/contact, 72 hours, LD50: > 128 µg/bee

Active ingredient

Aquatic toxicity, fish

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity (limit test), 96 hours, static, LC50: > 95 mg/L

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity (limit test), 96 hours, static, LC50: > 96 mg/L

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity (limit test), 48 hours, static, EC50: > 96 mg/L

Avian toxicity

Bobwhite quail (*Colinus virginianus*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity, single dose, LD50: > 2,250 mg/kg body weight

Mallard duck (*Anas platyrhynchos*):

Acute oral toxicity, single dose, LD50: > 2,250 mg/kg body weight

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity (limit test), 14 days, LC50: > 848 mg/kg dry soil

Bioaccumulation

No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 11 - 47 days

Water, aerobic:

Half life: 16 - 20 days

13. DISPOSAL CONSIDERATIONS

Product

- Send to special chemical waste disposal facility.
- Burn in special, controlled high temperature incinerator.
- Recycle if appropriate facilities/equipment available.
- Keep out of drains, sewers, ditches and water ways.
- Follow all local/regional/national/international regulations.

Container

- Empty packaging completely.
- Ensure packaging cannot be reused.
- Store for collection by approved waste disposal service.
- Dispose of as hazardous industrial waste.
- Burn in special, controlled high temperature incinerator.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.
Follow all local/regional/national/international regulations.

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.

ADR/RID

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. , (sulfosulfuron)
UN No.: UN3077
Class: 9
Kemler: 90
Packing Group: III

IMO

Voluntary classification by manufacturer applied for sea shipments within countries that have signed the ADR agreement, according to IMDG special provision 909:

See ADR/RID

Classification by the criteria of the IMDG code itself:
FOR IMDG NOT REGULATED FOR TRANSPORT

IATA/ICAO

For ICAO not regulated for transport.

15. REGULATORY INFORMATION

EU label (manufacturer self-classification) - Classification following the EU Dangerous Preparations' Directive 1999/45/EC.

N - Dangerous for the environment

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S35 This material and its container must be disposed of in a safe way.
S57 Use appropriate containment to avoid environmental contamination.

National classification - U.K.

N - Dangerous for the environment

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S35 This material and its container must be disposed of in a safe way.
S57 Use appropriate containment to avoid environmental contamination.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.
Follow all local/regional/national/international regulations.
Please consult supplier if further information is needed.

This Safety Data Sheet has been prepared following the EU Directive 91/155/EEC as last amended by EU Directive 2001/58/EC.

In this document the British spelling was applied.

® Registered trademark.

|| Changes versus previous edition.

EU Symbols & R phrases of components

Components	EU Symbols & R phrases of components
Sulfosulfuron	N - Dangerous for the environment R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Inert carrier	
Minor formulating ingredients	

Endnotes:

- {a} EU label (manufacturer self-classification)
- {b} EU label (Annex I)
- {c} National classification

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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