

MONSANTO Company

Material Safety Data Sheet

Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

Product name**RODEO® Emerged Aquatic Weed and Brush Herbicide****EPA Reg. No.**

524-343

Product use

Herbicide

Chemical name

Not applicable

Synonyms

None

Company

MONSANTO Company, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

Telephone: 800-332-3111, **Fax:** 314-694-5557**Emergency numbers**

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., Puerto Rico, Canada, or Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).

FOR MEDICAL EMERGENCY - Day or Night: 314-694-4000 (collect calls accepted).

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	53.5
Water	7732-18-5	46.5

OSHA Status

This product is not hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

3. HAZARDS IDENTIFICATION

Emergency overview**Appearance and odour (colour/form/odour):** Colourless - Amber / Liquid, (viscous) / Odourless

CAUTION!

Potential health effects**Likely routes of exposure**

Skin contact, eye contact, inhalation

Eye contact, short term

Not expected to produce significant adverse effects 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.

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

Take off contaminated clothing, wristwatch, jewellery.

Wash affected skin with plenty of water.

Wash clothes before re-use.

Inhalation

Remove to fresh air.

Ingestion

Immediately offer water to drink.

Do NOT induce vomiting unless directed by medical personnel.

If symptoms occur, get medical attention.

Advice to doctors

This product is not an inhibitor of cholinesterase.

Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE FIGHTING MEASURES

Flash point

None.

Extinguishing media

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

Unusual fire and explosion hazards

None.

Environmental precautions: see section 6.

Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (P_xO_y), nitrogen oxides (NO_x)

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

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimize spread.

Keep out of drains, sewers, ditches and water ways.

Notify authorities.

Methods for cleaning up**SMALL QUANTITIES:**

Flush spill area with water.

LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimize use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE**Handling**

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

Avoid contact with skin and eyes.

When using do not eat, drink or smoke.

Wash hands thoroughly after handling or contact.

Thoroughly clean equipment after use.

Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.

Refer to section 13 for disposal of rinse water.

Emptied containers retain vapour and product residue.

Observe all labelled safeguards until container is cleaned, reconditioned or destroyed.

Storage

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

Compatible materials for storage: stainless steel, aluminium, fibreglass, plastic, glass lining

Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10.

Keep out of reach of children.

Keep away from food, drink and animal feed.

Keep only in the original container.

Partial crystallization may occur on prolonged storage below the minimum storage temperature.

If frozen, place in warm room and shake frequently to put back into solution.

Minimum shelf life: 5 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Airborne exposure limits**

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Water	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

No special requirement when used as recommended.

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:	Colourless - Amber
Form:	Liquid (viscous)
Odour:	Odourless
Flash point:	None.
Specific gravity:	1.206 @ 20 °C / 15.6 °C
Solubility:	Water: Completely miscible.
pH:	4.6 - 4.8 @ 63 g/l
Partition coefficient (log Pow):	< 0.000 (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.

Materials to avoid/Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

11. TOXICOLOGICAL INFORMATION

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

Data obtained on product and components are summarized below.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol: > 1.3 mg/L

Slightly toxic.

FIFRA category III.

Skin sensitization

Guinea pig, 9-induction Buehler test:

Positive incidence: 0 %

Mutagenicity

Micronucleus test(s):

Not mutagenic.

Ames test(s):

Not mutagenic with and without metabolic activation.

Isopropylamine salt of glyphosate (62%)

Acute oral toxicity**Rat, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

No mortality.

Mouse, LD50 (limit test): > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

No mortality.

Acute dermal toxicity**Rabbit, LD50 (limit test):** > 5,000 mg/kg body weight

Practically non-toxic.

FIFRA category IV.

No mortality.

Skin irritation**Rabbit, 6 animals, Draize test:**

Days to heal: 3

Primary Irritation Index (PII): 0.0/8.0

Essentially non irritating.

FIFRA category IV.

Eye irritation**Rabbit, 6 animals , OECD 405 test:**

Days to heal: 0

FIFRA category IV.

Acute inhalation toxicity**Rat, LC50, 4 hours, aerosol :** > 4.24 mg/L

Practically non-toxic.

FIFRA category IV.

No mortality. Maximum attainable concentration.

Repeated dose toxicity**Dog, oral, 6 months:**

LOAEL toxicity: > 300 mg/kg diet

Target organs/systems : None.

Other effects : decrease of body weight gain

N-(phosphonomethyl)glycine: {glyphosate}**Mutagenicity****In vitro and in vivo mutagenicity test(s):**

Not mutagenic.

Repeated dose toxicity**Rabbit, dermal, 21 days:**

NOAEL toxicity: > 5,000 mg/kg body weight/day

Target organs/systems : None.

Other effects : None.

Rat, oral, 3 months:

NOAEL toxicity: > 20,000 mg/kg diet

Target organs/systems : None.

Other effects : None.

Carcinogenicity**Mouse, oral, 24 months:**

NOEL tumour: > 30,000 mg/kg diet

NOAEL toxicity: ~ 5,000 mg/kg diet

Tumours: None.

Target organs/systems : liver

Other effects: decrease of body weight gain, histopathologic effects

Rat, oral, 24 months:

NOEL tumour: > 20,000 mg/kg diet
NOAEL toxicity: ~ 8,000 mg/kg diet
Tumours: None.
Target organs/systems : eyes
Other effects : decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

Rat, oral, 3 generations:

NOAEL toxicity: > 30 mg/kg body weight
NOAEL reproduction: > 30 mg/kg body weight
Target organs/systems in parents: None.
Other effects in parents: None.
Target organs/systems in pups: None.
Other effects in pups: None.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:

NOAEL toxicity: 1,000 mg/kg body weight
NOAEL development: 1,000 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss, delayed ossification
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:

NOAEL toxicity: 175 mg/kg body weight
NOAEL development: 175 mg/kg body weight
Target organs/systems in mother animal: None.
Other effects in mother animal: decrease of survival
Developmental effects: None.

12. ECOLOGICAL INFORMATION

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

Data obtained on components are summarized below.

Isopropylamine salt of glyphosate (62%)

Aquatic toxicity, fish

Bluegill sunfish (*Lepomis macrochirus*):

Acute toxicity (limit test), 96 hours, static, LC50: > 1,000 mg/L
practically non-toxic

Rainbow trout (*Oncorhynchus mykiss*):

Acute toxicity (limit test), 96 hours, static, LC50: > 1,000 mg/L
practically non-toxic

Aquatic toxicity, invertebrates

Water flea (*Daphnia magna*):

Acute toxicity (limit test), 48 hours, static, EC50: 930 mg/L
practically non-toxic

Aquatic toxicity, algae/aquatic plants

Green algae (*Scenedesmus subspicatus*):

Acute toxicity, 72 hours, static, EbC50 (biomass): 72.9 mg/L
slightly toxic

Soil organism toxicity, invertebrates

Earthworm (*Eisenia foetida*):

Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil
practically non-toxic

N-(phosphonomethyl)glycine: {glyphosate}

Avian toxicity**Bobwhite quail (*Colinus virginianus*):**

Dietary toxicity (limit test), 5 days, LC50: > 4,640 mg/kg diet
practically non-toxic

Mallard duck (*Anas platyrhynchos*):

Dietary toxicity (limit test), 5 days, LC50: > 4,640 mg/kg diet
practically non-toxic

Bobwhite quail (*Colinus virginianus*):

Acute oral toxicity (limit test), LD50: > 3,851 mg/kg body weight
practically non-toxic

Mallard duck (*Anas platyrhynchos*):

Reproductive toxicity, 16 weeks, NOEC: >= 1,000 mg/kg diet

Bobwhite quail (*Colinus virginianus*):

Reproductive toxicity, 17 weeks, NOEC: >= 1,000 mg/kg diet

Arthropod toxicity**Honey bee (*Apis mellifera*):**

Oral/contact, 48 hours, LD50: > 100 µg/bee
practically non-toxic

Bioaccumulation**Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1
No significant bioaccumulation is expected.

Dissipation**Soil, field:**

Half life: 2 - 174 days
Koc: 884 - 60,000 L/kg
Binds strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS**Product**

Not classified as hazardous waste by the Resource, Conservation and Recovery Act (RCRA), 40 CFR 261.
Recycle if appropriate facilities/equipment available.
Burn in special, controlled high temperature incinerator.
Keep out of drains, sewers, ditches and water ways.
Follow all local/regional/national regulations.
Consult your attorney or appropriate regulatory officials for information on disposal.

Container

Triple rinse empty containers.
Pour rinse water into spray tank.
Store for collection by approved waste disposal service.
Dispose of as non hazardous industrial waste.
Do NOT re-use containers.
Follow all local/regional/national 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.

Not hazardous under the applicable DOT, ICAO/IATA, IMO, TDG and Mexican regulations.

15. REGULATORY INFORMATION

TSCA Inventory

All components are on the US EPA's TSCA Inventory

SARA Title III Rules

Section 311/312 Hazard Categories

Not applicable.

Section 302 Extremely Hazardous Substances

Not applicable.

Section 313 Toxic Chemical(s)

Not applicable.

CERCLA Reportable quantity

Not applicable.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

For more information refer to product label.

Please consult Monsanto if further information is needed.

Follow all local/regional/national regulations.

In this document the British spelling was applied.

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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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