

ROUNDUP® ORIGINAL Herbicide

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: ROUNDUP® ORIGINAL Herbicide
MSDS NUMBER: S00012114

DATE: November, 1997
EPA Reg. No.: 524-445

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

FOR MEDICAL EMERGENCY CALL (collect calls accepted): 314-694-4000

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

COMPONENT	CAS NO.	% BY WEIGHT
Active Ingredient:		
Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	1071-83-6	41.0 59.0
Inert Ingredients:		
		100.0
Inert Ingredient Component		
Ethoxylated Tallowamines *	61791-83-6	

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

See Section 8 for exposure limits.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

APPEARANCE AND ODOR: Clear, viscous amber-colored solution

WARNING STATEMENTS:

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

CAUSES SUBSTANTIAL BUT TEMPORARY EYE INJURY

HARMFUL IF SWALLOWED OR INHALED

REFORMULATION IS PROHIBITED

SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS

POTENTIAL HEALTH EFFECTS

LIKELY ROUTES OF EXPOSURE: Skin contact and inhalation

EYE CONTACT: ROUNDUP® ORIGINAL Herbicide may cause pain, redness and tearing based on toxicity studies.

SKIN CONTACT: ROUNDUP® ORIGINAL Herbicide is no more than slightly toxic and no more than slightly irritating based on toxicity studies.

INGESTION: ROUNDUP® ORIGINAL herbicide is no more than slightly toxic based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed. Ingestion of similar formulations has been reported to produce gastrointestinal discomfort with irritation of the mouth, nausea, vomiting and diarrhea. Oral ingestion of large quantities of one similar product has been reported to result in hypotension and lung edema.

INHALATION: ROUNDUP® ORIGINAL Herbicide is no more than slightly toxic if inhaled based on toxicity studies.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

Refer to Section 11 for toxicological information.

4. FIRST AID MEASURES

IF IN EYES: Immediately hold eyelids open and flush with plenty of water. Get medical attention.

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: Remove individual to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. Get medical attention

IF SWALLOWED: This product will cause gastrointestinal tract irritation. Immediately dilute by swallowing water or milk. Get medical attention

NOTE: For additional human emergency first aid or treatment guidance, call collect, anytime, day or night (314) 694-4000.

5. FIRE FIGHTING MEASURES

FLASH POINT: None

METHOD: Pensky-Mariens

AUTOIGNITION TEMPERATURE: Not determined.

HAZARDOUS PRODUCTS OF COMBUSTION: CO₂, CO, NO_x

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

Contain large spills with dikes and transfer the material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush residual spill area with water.

Large spills that soak into the ground should be dug up, placed in metal drums and disposed of in accordance with instructions provided under DISPOSAL, Section 13 of this MSDS. Contact appropriate state agency when considering a land spreading disposal option.

Leaking containers should be separated from non-leakers and either the container or its contents transferred to a drum or other non-leaking container and disposed of in accordance with instructions provided under DISPOSAL, Section 13 of this MSDS. Any recovered spilled liquid should be similarly collected and disposed of.

7. HANDLING AND STORAGE

HANDLING: Do not get in eyes or on clothing. Avoid breathing vapor or spray mist. Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 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 washwaters. Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned, or destroyed. **DO NOT REUSE THIS CONTAINER.**

Spray solutions of this product should be mixed, stored or applied using only stainless steel, aluminum, fiberglass, plastic or plastic-lined containers.

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS. This product or spray solutions of this product react with such containers and tanks to produce hydrogen gas that may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

STORAGE: Product is stable under normal conditions of storage and handling for at least 5 years. Store in a cool, well-ventilated place away from foodstuffs, reducing agents and acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION: Wear chemical splash goggles during mixing/pouring operations or other activities in which eye contact with undiluted ROUNDUP® ORIGINAL Herbicide is likely to occur.

SKIN PROTECTION: Wear appropriate protective clothing to prevent skin contact. Applicators and other handlers must wear long-sleeved shirt, long pants, shoes plus socks and protective eyewear. 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.

RESPIRATORY PROTECTION:

For Handling of the Undiluted Product: Undiluted ROUNDUP® ORIGINAL Herbicide is not likely to be present an airborne exposure concern during normal handling. If there is an accidental discharge of the material during manufacture or handling that produces a heavy vapor or mist, workers should use NIOSH/MSHA approved equipment. In work situations where an air purifying respirator is appropriate to be used, use of a full face respirator equipped with purifying elements for protection against organic vapor and dust/mist approved for pesticides is recommended. Use cartridges with MSHA/NIOSH approval number TC-23C or canister with MSHA/NIOSH approval number TC-14G. Full facepiece replaces the need for chemical goggles. Observe respirator use limitations specified by the manufacturers. Respiratory protection programs must comply with 29 CFR §1910.134.

For Application of Product Diluted in accordance with label instructions: Respirators are not required for applications of use - dilution's of ROUNDUP® ORIGINAL Herbicide.

VENTILATION: No special precautions are recommended.

AIRBORNE EXPOSURE LIMITS:

PRODUCT/COMPONENT	OSHA PEL	ACGIH TLV
ROUNDUP® ORIGINAL Herbicide	Not established	Not established
Ethoxylated Tallowamine	Not established	Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: clear, viscous amber-colored solution

Odor: practically odorless to slight amine-like odor

pH: 4.7 (1% solution)

Specific Gravity: 1.17 @ 25/25 degrees C

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: Product is stable under normal conditions of storage and handling. Store in a cool, well-ventilated place away from foodstuffs, reducing agents and acids.

MATERIALS TO AVOID: Acids and bases.

HAZARDOUS DECOMPOSITION PRODUCTS: None
HAZARDOUS POLYMERIZATION: Does not occur. This product can react with caustic (basic) materials to liberate heat. This is not a polymerization but rather a chemical neutralization in an acid base reaction.

11. TOXICOLOGICAL INFORMATION

Data from laboratory studies conducted by Monsanto with ROUNDUP® ORIGINAL Herbicide are summarized below:

Single exposure (acute) studies indicate:

Oral - Practically Non-toxic (Rat LD₅₀, >5,000 mg/Kg); FIFRA Category IV

Dermal - Practically Non-toxic (Rabbit LD₅₀, >5,000 mg/Kg); FIFRA Category IV

Inhalation - Slightly toxic (Rat 4-hr LC₅₀, - 2.6 mg/L); FIFRA Category III

Eye Irritation - Rabbits (6); 24-hr exp.; Slight to Moderate Irritation, Eye irritation was evident at day 14 but cleared by day 21 after exposure in 1 animal; FIFRA Category II; EC: Corneal Opacity - 0.0, Iris - 0.0, Erythema - 1.7, Chemosis - 0.8

Skin Irritation - Rabbits (6); 4-hr exp.; Essentially Non-irritating; Slight erythema (redness) clearing in all animals within 24 hours; FIFRA Category IV; EC: Erythema - 0.0, Edema-0.0

No skin allergy was observed in guinea pigs following repeated skin exposure.

COMPONENTS

Data from laboratory studies conducted by Monsanto and from the scientific literature on components of ROUNDUP® ORIGINAL Herbicide:

Isopropylamine Salt of Glyphosate

Data from studies with a formulation comprised of 62% isopropylamine salt of glyphosate (MON 0139) indicate the following:

In repeat dosing studies (6-month), dogs fed MON 0139 exhibited slight body weight changes. Following repeated skin exposure (3-week) to MON 0139, skin irritation was the primary effect in rabbits.

Additional toxicity information is available on glyphosate, the active herbicidal ingredient of MON 0139. Following repeated exposures (90-days) to glyphosate in their feed, decreased weight gains were noted at the highest test level in mice, while no treatment-related effects occurred in rats. Following repeated skin exposure (3 weeks) to glyphosate, slight skin irritation was the primary effect observed in rabbits. No skin allergy was observed in guinea pigs following repeated skin exposure. There was no evidence of effects on the nervous system, including delayed effects in chickens (repeat oral doses) or cholinesterase inhibition in rats (single oral doses). Reduced body weight gain and effects on liver tissues were observed with long-term (2-year) feeding of glyphosate to mice at high-dose levels. Reduced body weight gain and eye changes were observed at the high-dose level in one long-term (2 year) feeding study with rats, while no treatment-related effects occurred in a second study. No adverse effects were observed in feeding studies with dogs. Glyphosate did not produce tumors in any of these studies. **Based on the results from the chronic studies, EPA has classified glyphosate in category E (evidence of non-carcinogenicity for humans).** No birth defects were noted in rats and rabbits given glyphosate orally during pregnancy, even at amounts which produced adverse effects on the mothers. Glyphosate was fed continuously to rats at very high dose levels for 2 successive generations. Toxicity was reported in offspring from the high dose, a level which also produced adverse effects on the mothers. In a 3 generation study conducted at lower dose levels, no effects were seen on the ability of male or female rats to reproduce. Glyphosate has produced no genetic changes in a variety of standard tests using animals and animal or bacterial cells.

Ethoxylated Tallowamine

The surfactant component of ROUNDUP® ORIGINAL Herbicide is reported to cause irritation to the eyes and skin and may contribute to the irritation potential reported for this herbicide. Ingestion may produce gastrointestinal irritation, nausea, vomiting and diarrhea.

12. ECOLOGICAL INFORMATION

ROUNDUP® ORIGINAL Herbicide has been shown to be slightly to moderately toxic in aquatic studies. ROUNDUP® ORIGINAL Herbicide has been shown to be practically non-toxic to avian species following subacute dietary exposure.

Rainbow Trout 96-hr LC ₅₀	22 mg/L (static)	Fathead minnow 96-hr LC ₅₀	9.4 mg/L
Rainbow Trout 96-hr LC ₅₀	8.2 mg/L (dynamic)	Channel catfish 96-hr LC ₅₀	16 mg/L
Daphnia Magna 48-hr LC ₅₀	37 mg/L (aeration)	Chinook Salmon 96-hr LC ₅₀	20 mg/L
Daphnia Magna 48-hr LC ₅₀	24 mg/L (without aeration)	Coho Salmon 96-hr LC ₅₀	22 mg/L
Bluegill Sunfish 96-hr LC ₅₀	5.8 mg/L (dynamic)	Algae S. Capricornutum 72-hr EC ₅₀	2.1 mg/L
Bluegill Sunfish 96-hr LC ₅₀	14 mg/L (static)	Bobwhite Quail 8-day LC ₅₀	> 6300 ppm
Gammarus pseudolimnaeus 48-hr EC ₅₀	42 mg/L	Mallard Duck 8-day LC ₅₀	>6300 ppm

13. DISPOSAL CONSIDERATIONS

Wastes resulting from the use of this product that cannot be used or chemically reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, state or local procedures.

Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. DO NOT CUT OR WELD ON OR NEAR THIS CONTAINER.

Metal Drums: Triple rinse container. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

Metal Bulk: Triple rinse emptied bulk containers. Then offer for recycling or reconditioning or disposal in a manner approved by state and local authorities.

Plastic Drums and mini bulk: Do not reuse container. Return container per the Monsanto container return program.

If not returned, triple rinse container, then puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed, by state and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORT INFORMATION

Follow the precautions indicated in the Handling and Storage Section, Section 7 of this MSDS.

DOT Proper Shipping Name: Not Applicable

DOT Hazard Class/I.D. No.: Not Applicable

DOT Label: Not Applicable

U.S. Surface Freight Classification: Weed killing compound, N.O.I.B.N.

15. REGULATORY INFORMATION

SARA Hazard Notification:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Immediate

Section 313 Toxic Chemical(s): Not Applicable

Reportable Quantity (RQ) under U.S. CERCLA: Not Applicable

TSCA Inventory: All components are on the US EPA's TSCA Inventory List

16. OTHER INFORMATION

REASON FOR REVISION: New

Supersedes MSDS dated: New

ROUNDUP® 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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