

MATERIAL SAFETY DATA SHEET

DATE PREPARED: 07/26/2000

MSDS No: 71955-25

Roundup® Weed & Grass Killer Super Concentrate

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Roundup® Weed & Grass Killer Super Concentrate

PRODUCT DESCRIPTION: Herbicide

MANUFACTURER

Monsanto Company
Lawn & Garden Products
P. O. Box 1750
Columbus, OH 43216
EPA REG. NO.: 71995-25

24 HR. EMERGENCY TELEPHONE NUMBERS

Emergency Phone 1-800-225-2883

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Chemical Name</u>	<u>Wt.%</u>	<u>CAS Registry #</u>
Glyphosate, Isopropylamine salt	50.2	38641-94-0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE:

Light amber liquid

IMMEDIATE CONCERNS: -

- MAY CAUSE EYE IRRITATION
- AVOID CONTACT WITH EYES OR CLOTHING
- WASH THOROUGHLY WITH SOAP AND WATER AFTER HANDLING
- KEEP OUT OF REACH OF CHILDREN

POTENTIAL HEALTH EFFECTS

EYES:

Eye contact may include discomfort, tearing, swelling, redness, and blurred vision. See Toxicological Information, section 11.

SKIN:

This substance is not expected to cause prolonged or significant skin irritation. If absorbed through the skin, this substance is considered practically non-toxic to internal organs. This product is not expected to cause allergic skin reaction. See Toxicology Information, section 11.

INGESTION:

Ingestion may produce irritation of the digestive tract as demonstrated by signs and symptoms of mouth membrane irritation, nausea, vomiting and diarrhea. See Toxicology Information, section 11.

INHALATION:

Overexposure to spray mist may result in minor irritation of the upper respiratory tract. See Toxicological Information section (11).

4. FIRST AID MEASURES

EYES:

If in eyes, immediately flush with plenty of water. Get medical attention if irritation persists.

SKIN:

No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INGESTION:

If swallowed, immediately telephone a poison control center, emergency treatment center or a physician for advice. DO NOT make person vomit unless directed to do so by medical personnel. If medical advice cannot be obtained, then immediately take person and product container, with label, to an emergency treatment center.

INHALATION:

If respiratory discomfort or irritation occurs, move the person into fresh air. See a doctor if discomfort or irritation continues.

ADDITIONAL INFORMATION:

Medical Information: Call day or night, 1-800-225-2883.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: None; TAG Closed Cup

EXTINGUISHING MEDIA:

Water spray, foam, CO₂, dry chemical or any class B extinguishing agent.

HAZARDOUS COMBUSTION PRODUCTS:

This material will not burn.

FIRE FIGHTING PROCEDURES:

For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment. This may include self-contained breathing apparatus to protect against the hazardous effects of normal products of combustion or oxygen deficiency. Equipment should be thoroughly cleaned after use. Read the entire document.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL:

Soak up spilled material with paper towels and discard in trash.

LARGE SPILL:

Liquid spills on floor or other impervious surfaces should be contained or diked, and should be absorbed with attapulgite, bentonite or other absorbent clays. Collect contaminated absorbent, place in plastic-lined metal drum and dispose of in accordance with instructions provided under Section 13. "DISPOSAL". Thoroughly scrub floor or other impervious surface with a strong industrial type detergent solution and rinse with water.

For liquid spills that soak into the ground, contact the applicable Federal, State and or County Health Dept. for disposal recommendations. If disposal is required then refer to Section 13 "DISPOSAL" for instructions.

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 Section 13 "Disposal". Any recovered spilled liquid should be similarly collected and disposed of.

Do not contaminate water, foodstuffs or feed by storage or disposal.

GENERAL PROCEDURES:

Observe all protection and safety precautions when cleaning up spills -- see Section 8. "EXPOSURE CONTROLS/PERSONAL PROTECTION". For help with any spill, leak, fire or exposure involving this material, call day or night (800) 225-2883.

7. HANDLING AND STORAGE

GENERAL PROCEDURES:

Keep pesticide in original container. Store in a secure, preferably locked, storage area. Protect container from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

No special ventilation is necessary.

PERSONAL PROTECTION

EYES AND FACE:

Workers handling the concentrate should wear chemical goggles to prevent eye contact during mixing/transfer operations or other activities where there is potential for eye contact with the concentrated product. The wearing of goggles is not required during use of this product in accordance with label instruction.

SKIN:

Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

RESPIRATORY:

For Handling the Concentrated Product: Avoid breathing vapor or mist. This product concentrate is not likely to pose an airborne exposure concern during manufacture or packaging. In the event of abnormal exposure conditions, use NIOSH approved equipment. In work situations where an air purifying elements for protection against organic vapor and dust/mist approved for pesticides is

recommended. 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 Use of Product in accordance with label instructions: Respirators are not required for use of this product in accordance with label instructions.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Practically odorless to slight amine-like odor

COLOR: Amber to yellow liquid

SOLUBILITY IN WATER: Soluble

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: Does not occur.

STABILITY: Product is stable for at least 5 years under normal conditions of warehouse storage.

INCOMPATIBLE MATERIALS:

Mix, spray, apply and store solutions of this product only in stainless steel, aluminum, fiberglass, plastic or plastic-lined steel containers.

DO NOT MIX, APPLY OR STORE THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED OR UNLINED STEEL (EXCEPT STAINLESS STEEL) SPRAYERS, because the product and such containers can react to produce a highly combustible mixture of hydrogen gas. This buildup of hydrogen gas in a closed container can create enough pressure to cause the container to rupture, or can flash or explode, causing serious personal injury, if ignited by open flame, spark, welders torch, lit cigarette or any other ignition source.

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: Rabbit – moderately irritating, EPA FIFRA Toxicity Category - III.

DERMAL LD₅₀: Rat = >5.0 g/kg. Practically non-toxic, EPA FIFRA toxicity category – IV.

SKIN IRRITATION: Rabbit – slightly irritating. EPA FIFRA toxicity category – IV.

ORAL LD₅₀: Rat = >5.0 g/kg. Practically non-toxic, EPA FIFRA toxicity category – IV.

INHALATION: Practically non-toxic, EPA FIFRA toxicity category – IV.

SENSITIZATION:

Guinea pig – no evidence of allergic skin reactions.

SUB CHRONIC:

Data from glyphosate laboratory toxicology studies were conducted with a formulation comprised of 62% isopropylamine salt of glyphosate (MON 0139).

Rabbits - 3 week dermal: Repeated daily primarily resulted in slight skin irritation.

Dogs - 6 month feeding: Only slight body weight changes noted.

Additional toxicity information available on glyphosate, the active herbicidal ingredient:

Rats - 90 day feeding: No treatment related effects.

Mice - 90 day feeding: Decreased weight gains at the high dose level group animals.

CARCINOGENICITY:

CARCINOGENICITY COMMENTS: GLYPHOSATE: Glyphosate is not considered a carcinogen. Glyphosate did not produce tumors in any of the long-term toxicology studies. EPA has classified glyphosate in category "E" (Evidence of noncarcinogenicity for humans).

Mice: 2-year feeding study. Reduced body weight gain and effects on liver tissues were observed at high dose levels.

Rats: 2-year feeding study. Reduced body weight gain and eye changes were observed at the high dose level in one study, while no treatment related effects occurred in a second study conducted at lower dose levels.

Dogs: No adverse effects were observed in feeding studies with dogs.

NEUROTOXICITY:

GLYPHOSATE: There was no evidence of nervous system toxicity, including delayed induced peripheral neuropathy in chickens (repeated oral dosing) or cholinesterase inhibition in rats (single oral dosing).

TERATOGENICITY:

GLYPHOSATE: No evidence of teratogenic effects. Results of rat and rabbit teratology studies indicate that no birth defects were noted. This included dose levels of glyphosate that were maternally toxic.

REPRODUCTIVE TOXIN:

GLYPHOSATE: No evidence of adverse reproductive effects. 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.

MUTAGENICITY:

GLYPHOSATE: Glyphosate has not produced any genetic changes in various mutagenicity tests involving animals and animal or bacterial cells.

COMMENTS:

See Section 16 for definition of EPA FIFRA toxicity categories.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA:

Do not apply directly to water. Do not contaminate water when disposing of equipment washwaters.

ECOTOXICOLOGICAL INFORMATION:

Monsanto has not conducted environmental toxicity studies with this product. Available data for a similar formulation are summarized below:

Aquatic Invertebrates: 48-hr EC50 Daphnia magna: 11 mg/L;

Slightly Toxic

Warmwater Fish: 96-hr LC50 Bluegill sunfish: 7.5 mg/L;

Moderately Toxic

Coldwater Fish:	96-hr LC50 Rainbow trout: 5.5 mg/L;	Moderately Toxic
Avian Species:	8-day LC ₅₀ Bobwhite quail: >5,620 ppm;	Practically Nontoxic
	8-day LC ₅₀ Mallard duck: >5,620 ppm;	Practically Nontoxic
Arthropods:	48-hr Oral LD ₅₀ Honeybee: >100 µg/bee;	Practically Nontoxic
	48-hr Contact LD ₅₀ Honeybee: >100 µg /bee;	Practically Nontoxic

The results of degradation and bioconcentration studies with the active ingredient in this product indicate that it is rapidly adsorbed to soil, readily biodegrades in soil and water, and does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

FOR LARGE SPILLS:

Material collected that cannot be reprocessed should be disposed of in a landfill approved for pesticide disposal or in accordance with applicable Federal, State or local procedures.

PRODUCT DISPOSAL:

Monsanto is committed to responsible environmental practices and recommends that all of the product be used up, carefully following all label directions and precautions.

If necessary to dispose of partially filled product container, then securely wrap it in several layers of newspaper and discard in trash. Never pour product down any drain.

EMPTY CONTAINER:

Do not reuse container. Rinse thoroughly before discarding in trash.

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

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA

ACUTE: YES CHRONIC: NO FIRE: NO REACTIVITY: NO PRESSURE GENERATING: NO

311/312 HAZARD CATEGORIES: Immediate

313 REPORTABLE INGREDIENTS: None

TITLE III NOTES: Immediate (acute) health hazard: Product is moderately irritating to the eyes.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: All non FIFRA regulated components are on the US EPA's TSCA Inventory List.

STATE REGULATIONS

PROPOSITION 65 STATEMENT:

No ingredients on list.

16. OTHER INFORMATION

Hazard Rating Systems: This information is for people trained in the use of the following hazard identification systems. National paint & Coatings Association's (NPCA) "Hazardous Materials Identification System" (HMIS) and the National Fire Protection Association's (NFPA) Hazard Diamond.

HMIS CODES

FIRE: 0 HEALTH: 1 REACTIVITY: 0 PROTECTION: -

NFPA CODES

FIRE: 0 HEALTH: 1 REACTIVITY: 0 SPECIAL: -

Key 4 = Severe
 3 = Serious
 2 = Moderate
 1 = Slight
 0 = Minimal

Approval Date: 7/26/2000

REVISION SUMMARY: New MSDS

COMMENTS: For additional information concerning this product, call the Roundup Consumer Helpline at 800-225-2883.

MANUFACTURER DISCLAIMER:

This Material Safety Data Sheet (MSDS) contains health, safety and environmental information for you and your employees. It does not replace the precautionary language, use directions, or the storage and disposal information found on the product label. Information contained in this MSDS will help you to prepare for emergency response and to meet community right-to-know, emergency response and reporting requirements under SARA Title III and many other laws. Emergency response agencies and health care providers will also find this additional information useful.

Use of this product is regulated by the U.S. Environmental Protection Agency (EPA) through the approved label copy. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

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