MATERIAL SAFETY DATA SHEET

DATE PREPARED: 04/07/1999

MSDS No: 7016

SOLARIS

Roundup Sure Shot Foam

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Roundup Sure Shot Foam
PRODUCT DESCRIPTION: Herbicide

MANUFACTURER

Monsanto Company
Lawn & Garden Products
41 South High Street
Columbus, OH 43215

24 HR. EMERGENCY TELEPHONE NUMBERS

Emergency Phone 1-800-225-2883

EPA REG. NO.: 71995-16 **PN:** 100-116A

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS#
Glyphosate, isopropylamine salt	0.96	38641-94-0

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: White, creamy smooth liquid in aerosol container

IMMEDIATE CONCERNS: CAUSES 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: This substance causes moderate eye irritation as indicated by possible discomfort, tearing, swelling, redness, and blurred vision See Toxicological

Information, section 11.

SKIN: This substance is not expected to cause skin irritation. See Toxicological Information, section 11.

INGESTION: If swallowed, this product may cause gastrointestinal tract irritation. See Toxicological Information, section 11

INHALATION: If inhaled, this substance is considered practically non-toxic to internal organs. This substance may be irritating if inhaled. See Toxicological Information, section 11.

COMMENTS HEALTH: Inhalation and skin contact are expected to be the primary routes of occupational exposure to ROUNDUP Sure Shot Foam. Occupational exposure to this material has not been reported to cause significant adverse health effects. However, swallowing of a similar, but more concentrated formulation, has been reported to produce gastrointestinal discomfort, nausea, vomiting and diarrhea.

---

4. FIRST AID MEASURES

EYES: Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Call a physician 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: Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required. If respiratory discomfort or irritation occurs, move the person to fresh air. See a doctor if discomfort or irritation continues

ADDITIONAL INFORMATION: In case of medical emergencies involving this product, call day or night, (800) 225-2883.

---

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: >200°F TAG CC

EXTINGUISHING MEDIA: Water spray, foam, CO_2, dry chemical or any class B extinguishing agent.

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. Keep containers cool with a water spray. 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: READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL Store in accordance with NFPA 30B for a Level I aerosol. DO NOT USE OR STORE near flame, sparks or hot surfaces. USE ONLY IN WELL VENTILATED AREA. CONTAINER UNDER PRESSURE Exposure to heat or prolonged exposure to sun may cause container to burst. Do not puncture, incinerate or store above 130°F.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: No special ventilation is necessary.

PERSONAL PROTECTION

EYES AND FACE: For application of product in accordance with label instructions,

no special eye protection is needed.

Where there is significant potential for eye contact, wear chemical goggles and have eye flushing equipment available.

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 throughly after handling.

RESPIRATORY: Avoid breathing vapor or mist. Use NIOSH/MSHA approved respiratory protection equipment when airborne exposure limits are exceeded (see below). Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH/MSHA or the manufacturer. Respiratory protection programs must comply with 29 C.F.R. 1910.134.

For application of product in accordance with label instructions, no special respiratory protection is required.

---

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Aerosol

APPEARANCE: Creamy, white liquid in aerosol canister

pH: ~6.7 to 7.1

SOLUBILITY IN WATER: Soluble

DENSITY: 8.43 lbs./gal. at 20°C

SPECIFIC GRAVITY: 1.0124 gr/cc

VISCOSITY: Same as water.

---

10. STABILITY AND REACTIVITY

STABLE: YES

HAZARDOUS POLYMERIZATION: YES

HAZARDOUS DECOMPOSITION: None.

---

11. TOXICOLOGICAL INFORMATION

ACUTE

EYES: rabbit - moderately irritating, irritation cleared by test day 7.
EPA FIFRA toxicity category - III.

DERMAL LD_{50}: The hazard evaluation for this product was based on the non-aerosol form of the product. Pratically non-toxic, (Rat LD50 >5000 mg/Kg) Non irritating to skin (Rabbits). EPA FIFRA toxicity category - IV.

ORAL LD_{50}: The hazard evaluation for this product was based on the non-aerosol form of the product. Practically non-toxic, (Rat LD50 >5000 mg/Kg). EPA FIFRA toxicity category - IV

INHALATION LC_{50}: The hazard evaluation for this product was based on the non-aerosol form of the product. Practically non-toxic, (Rat 4-hr LC50 >10mg/L). EPA FIFRA toxicity category - IV.

SENSITIZATION: Guinea pig - no evidence of allergic skin reactions.

SUBCHRONIC: 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 is available on glyphosate, the active herbicidal ingredient of MON 0139.
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 to be 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.

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 in vivo animals or in vitro cellular

studies.

COMMENTS: See Section 16 for definition of EPA FIFRA toxicity categories.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: Studies performed with a concentrated solution of the isopropylamine salt of glyphosate indicate the following:

MON 0139 Technical (62%)
48-hr LC50 Daphnia: 930 mg/L, Practically Nontoxic
96-hr LC50 Bluegill: >1,000 mg/L, Practically Nontoxic
96-hr LC50 Trout: >1,000 mg/L, Practically Nontoxic
96-hr LC50 Carp: >10,000 ppm, Practically Nontoxic

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: Securely wrap partially filled or empty container in several layers of newspaper and discard in trash.

EMPTY CONTAINER: Replace cap and discard container in trash.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Consumer Commodity

PRIMARY HAZARD CLASS/DIVISION: ORM-D

UN/NA NUMBER: None

PACKING GROUP: No

U.S. SURFACE FREIGHT CLASS: NMFC NBR 102120

AIR (ICAO/IATA)

PROPER SHIPPING NAME: Consumer Commodity

SPECIAL SHIPPING NOTES: The description shown may not apply to all

shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

PRODUCT CLASSIFICATION UNDER SECTION 311 OF SARA				
ACUTE: NO	CHRONIC: NO	FIRE: NO	REACTIVITY: NO	PRESSURE GENERATING: NO

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

HMIS CODES

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

NFPA CODES

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

APPROVAL DATE: 04/13/1999

REVISION SUMMARY New MSDSIn Section 13
Product Disposal (text)

In Section 16
Manufacturer Disclaimer (text) Section 16 Footnotes

MANUFACTURER SUPPLEMENTAL NOTES: EPA FIFRA (Federal Insecticide, Fungicide and Rodenticide Act) Toxicity Categories: The EPA toxicity categories are based on the results of the acute toxicology studies. The toxicology findings are compared to the FIFRA criteria to determine the product label signal word, precautionary and first aid statements. The EPA FIFRA toxicity category summary

EPA FIFRA Product Label Toxicity Rating
Toxicity Category Signal Word

I DANGER Most toxic and irritating
II WARNING
III CAUTION
IV CAUTION Least toxic and irritating

COMMENTS: For additional information concerning this product, call the 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.

Although the information and recommendations set forth herein (herinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Monsanto Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determinations as to its suitability for their purposes prior to use. In no event will Monsanto Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.