

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name: **REFUGE HERBICIDE** Product No.: A13998A
 EPA Signal Word: Caution
 Active Ingredient(%): Glyphosate (52.3%) CAS No.: 39600-42-5
 Chemical Name: N-(phosphonomethyl) glycine, in the form of the monopotassium salt
 Chemical Class: Herbicide
 EPA Registration Number(s): 100-1362 **Section(s) Revised: 14**

2. HAZARDS IDENTIFICATION
Health and Environmental

Causes mild eye irritation.

Hazardous Decomposition Products

Flammable hydrogen gas may be formed on contact with incompatible metals. See "Conditions to Avoid", Section 10.

Physical Properties

Appearance: Clear, almost colorless solution

Odor: Odorless

Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with galvanized or unlined steel.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Glyphosate (52.3%)	Not Established	Not Established	10 mg/m ³ TWA ***	No

*** Syngenta Occupational Exposure Limit (OEL)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: B

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an

unconscious person.

- Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	> 200°F	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Applicable	

Unusual Fire, Explosion and Reactivity Hazards

This product may form flammable and explosive hydrogen gas when in contact with galvanized or unlined steel.

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO2 extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions in Protective Equipment Section. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Spray solutions of this product should be mixed, stored and applied using only plastic, plastic-lined steel, stainless steel or fiberglass containers. Concentrate should not be stored in galvanized steel, carbon steel, aluminum or unlined steel containers.

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

- Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.
- Eye Contact: Where eye contact is likely, use chemical splash goggles.
- Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.
- Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance: Clear, almost colorless solution
- Odor: Odorless
- Melting Point: Not Applicable
- Boiling Point: Not Available
- Specific Gravity/Density: 1.4 g/ml
- pH: 3 - 7 (1% dispersion in H₂O @ 77°F [25°C])

Solubility in H₂O

Glyphosate : Miscible in/with water

Vapor Pressure

Glyphosate : Not Available

10. STABILITY AND REACTIVITY

- Stability: Stable under normal use and storage conditions.
- Hazardous Polymerization: Will not occur.
- Conditions to Avoid: Concentrate should not be stored in galvanized steel, carbon steel, aluminum or unlined steel containers. Spray solutions should not be mixed, stored or applied in containers other than plastic, plastic-lined steel, stainless steel or fiberglass.
- Materials to Avoid: See "Conditions to Avoid", Section 10
- Hazardous Decomposition Products: Flammable hydrogen gas may be formed on contact with incompatible metals. See "Conditions to Avoid", Section 10.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion:
- Oral (LD₅₀ Rabbit) : > 5000 mg/kg body weight
- Dermal:
- Dermal (LD₅₀ Rabbit) : > 5000 mg/kg body weight
- Inhalation:
- Inhalation (LC₅₀ Rat) : > 6.97 mg/l air - 4 hours
- Eye Contact: Mildly Irritating (Rabbit)
- Skin Contact: Non-Irritating (Rabbit)
- Skin Sensitization: Not Available

Reproductive/Developmental Effects

Glyphosate : Did not show reproductive toxicity effects in animal experiments.

Chronic/Subchronic Toxicity Studies

Glyphosate : Not Applicable

Carcinogenicity

Glyphosate : Did not show carcinogenic, teratogenic or mutagenic effects in animal experiments.

Other Toxicity Information

None

Toxicity of Other Components

Not Applicable

Target Organs

Active Ingredients

Glyphosate : Skin

Inert Ingredients

Not Applicable

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

Glyphosate :

Fish (Rainbow Trout) 96-hour LC50 (calculated) Approx 280 mg/l

Fish (Bluegill Sunfish) 96-hour LC50 (calculated) Approx 100 mg/l

Green Algae 72-hour ErC50 (calculated) Approx 39 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 (calculated) > 1,000 mg/l

Green Algae 72-hour EbC50 (calculated) Approx 37 mg/l

Environmental Fate

Glyphosate :

Information applies to glyphosate acid: Substance is soluble in water. Substance has low mobility in soil. There is evidence of photodegradation in water. (acid pH) Substance is substantially biodegradable in soil. (aerobic conditions)

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Not regulated.

Comments

Water Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Glyphosate), Marine Pollutant

Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Glyphosate)
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Not Applicable

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

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Replaces: 7/20/2010

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

End of MSDS