

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: RM43™ 43% Glyphosate Plus Weed Preventer
EPA Reg. No.: 35935-94-84009
Synonyms: Mixture of Glyphosate and Imazapyr
Product Type: Herbicide

Company Name: Ragan and Massey, Inc.
 101 Ponchatoula Parkway
 Ponchatoula, LA 70454
 (800) 264-5281

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC Day or Night: 1-800-424-9300
 For Medical Emergencies Only, Call 1-877-325-1840

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Sections Revised: New

2. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance and Odor: Clear yellow liquid with slight odor.
Warning Statements: Keep out of reach of children. DANGER. Corrosive. Causes irreversible eye damage. Harmful if swallowed. Do not get in eyes or on clothing.

Potential Health Effects:
Likely Routes of Exposure: Eye, ingestion and skin contact.
Eye Contact: Causes irreversible eye damage based on toxicity studies.
Skin Contact: Slightly irritating based on toxicity studies.
Ingestion: Slightly toxic if ingested based on toxicity studies. No significant adverse health effects are expected to develop if only small amounts (less than a mouthful) are swallowed
Inhalation: Moderately toxic based on toxicity studies and can cause irritation. Inhalation of dusts may cause irritation, coughing and sneezing.
Medical Conditions Aggravated by Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:
 This product is toxic to plants. Drift and run-off may be hazardous to plants in water adjacent to treated areas.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Glyphosate: (N-(phosphonomethyl) glycine	1071-83-6	43.68
Imazapyr	81334-34-1	0.78
Other Ingredients Including isopropylamine	75-31-0	55.54

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

5. FIRE FIGHTING MEASURES

Flash Point: Not applicable due to aqueous formulation

Autoignition Temperature: Not applicable

Flammability Limits: Not applicable

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as oxides of carbon, nitrogen and phosphorous.

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 3 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Cleanup and Disposal: Avoid creation of dusty conditions. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE**Handling:**

Causes irreversible eye damage. Harmful if swallowed. Do not get in eyes or on clothing.

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and

water. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Storage:

Store product in original container in a safe place and protect from freezing. Do not contaminate water, food, or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles, face shield or safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin wear long-sleeved shirt and long pants, shoes plus socks, chemical resistant gloves made of any waterproof material such natural rubber >_ 14 mils, nitrile rubber >_ 14 mils, or viton >_ 14 mils. When mixing, loading, or cleaning equipment a chemical resistant apron must be worn. An emergency shower or water supply should be readily accessible to the work area.

Respiratory Protection: NIOSH approved particulate filtering respirator with N or R, P or HE class filter media.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Glyphosate	NE	NE	NE	NE	
Imazapyr	NE	NE	NE	NE	
Isopropylamine	5	10	5	10	ppm

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Clear yellow liquid with slight odor

Boiling Point: 200° F

Density: 1.171 g/mL

Evaporation Rate: Not applicable

Freezing Point: Not applicable

pH: 3.75 – 4.75 (1% solution)

Solubility in Water: Soluble

Specific Gravity: 1.171

Vapor Density: Not applicable

Vapor Pressure: Not applicable

Viscosity: Not applicable

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids. This product reacts with galvanized steel or unlined steel (except stainless steel) to produce hydrogen gas that may form a highly combustible gas mixture which could flash or explode.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon, nitrogen and phosphorous.

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION**Toxicological Data (Glyphosate):**

Data from laboratory studies conducted on a similar, but not identical, Glyphosate formulation:

Oral: Rat LD₅₀: >5,000 mg/kg

Dermal: Rabbit LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.4 mg/l

Eye Irritation: Rabbit: Moderately to severely irritating.

Skin Irritation: Rabbit: Non-irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Toxicological Data (Imazapyr):

Data from laboratory studies conducted on Imazapyr Technical:

Oral: Rat LD₅₀: >5,000 mg/kg

Dermal: Rabbit LD₅₀: >2,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >1.3 mg/l

Eye Irritation: Rabbit: Severely irritating/corrosive

Skin Irritation: Rabbit: Slightly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to glyphosate may decrease body weight gains and effects to liver. For imazapyr, no adverse effects at approximately 1,700 mg/kg/day (highest dose tested).

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to glyphosate may cause effects to the liver. There was no evidence of carcinogenicity in animal studies using glyphosate. EPA has given glyphosate a Group E classification (evidence of non-carcinogenicity in humans). Imazapyr did not cause cancer in laboratory animals. EPA has classified imazapyr as a Group E (evidence of non-carcinogenicity for humans) carcinogen.

Reproductive Toxicity: In laboratory animal studies with glyphosate, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. The results of animal studies with imazapyr gave no indication of a fertility impairing effect.

Developmental Toxicity: In animal studies, glyphosate did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects to the mother. No indications of a developmental toxic / teratogenic effect were seen in animal studies with imazapyr.

Genotoxicity: Glyphosate has produced no genetic changes in a variety of standard in vitro (bacterial cells) and in vivo tests using animals. For imazapyr, no mutagenic effect was found in various tests with microorganisms and mammals.

Assessment Carcinogenicity: None listed with ACGIH, IARC, NTP or OSHA.

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION**Ecotoxicity:**

Data on Glyphosate Technical:

96-hour LC₅₀ Bluegill: 120 mg/l96-hour LC₅₀ Rainbow Trout: 86 mg/l48-hour LC₅₀ Daphnia: 780 mg/lBobwhite Quail 8-day Dietary LC₅₀: >4,500 ppmMallard Duck 8-day Dietary LC₅₀: >4,500 ppm

Data on Imazapyr Technical:

96-hour LC₅₀ Bluegill: >100 mg/l96-hour LC₅₀ Rainbow Trout: >100 mg/l48-hour EC₅₀ Daphnia: >100 mg/l7-day EC₅₀ Green Algae: 71 mg/lHoney Bee LD₅₀: >100 mg/beeBobwhite Quail 8-day Dietary LC₅₀: >5,000 ppmBobwhite Quail Oral LD₅₀: >2,150 mg/kgMallard Duck 8-day Dietary LC₅₀: >5,000 ppmMallard Duck Oral LD₅₀: >2,150 mg/kg**Environmental Fate:**

In the environment, salts of glyphosate rapidly dissociate to glyphosate, which adsorbs strongly to soil and is expected to be immobile in soil. Glyphosate is readily degraded by soil microbes to AMPA (aminomethyl phosphonic acid) that is further degraded to carbon dioxide. Glyphosate and AMPA are unlikely to enter ground water due to their strong adsorptive characteristics. Terrestrially-applied glyphosate has the potential to move into surface waters through soil erosion because it may be adsorbed to soil particles suspended in the runoff. Aquatic applications registered for certain formulations may also result in glyphosate entering surface waters. Complete degradation is slow, but dissipation in water is rapid because glyphosate is bound in sediments and has low biological availability to aquatic organisms. These characteristics suggest a low potential for bioconcentration in aquatic organisms and this has been verified by laboratory investigations of glyphosate bioconcentration in numerous marine and freshwater organisms with and without soil. The maximum whole body bioconcentration factors for fish were observed to be less than 1X. Bioconcentration factors for sediment dwelling mollusks and crayfish tended to be slightly higher, but were always less than 10X. In addition, any residues accumulated in organisms were rapidly eliminated.

Imazapyr is degraded by microbial metabolism and can be relatively persistent in soils. It has an average half-life in soils that ranges from 2 weeks to 5 months. Half-lives tend to be shorter in forest litter and soils. Imazapyr is water-soluble and variably binds to organic materials in the soils. Although the potential to leach is high, leaching is limited under typical field conditions. In water, imazapyr can be rapidly degraded by photolysis with a half-life averaging 2 days. Due to its rapid photodegradation by sunlight, water contamination by imazapyr is generally not of concern.

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

Pesticide wastes may be acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling and Disposal:

Nonrefillable Containers smaller than 5 Gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. 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. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this MSDS.

DOT: Non Regulated

IMDG: Non Regulated

IATA: Non Regulated

For Department of Transportation (DOT) regulatory information, if required, consult transportation regulations, product shipping papers or call Nufarm's DOT Manager at 708-755-2104, Monday through Friday, 8:00 AM to 5:00 PM Central Time.

15. REGULATORY INFORMATION**U.S. Federal Regulations:**

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

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

Immediate

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

None

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

16. OTHER INFORMATION

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED 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-accepted label.

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