



**CENTRALBIDDING**  
FROM CENTRAL AUCTION HOUSE

**5000119867 ONE TIME PURCHASE OF A HERBICIDE WEED KILLER**  
Jefferson Parish Government

Project documents obtained from [www.CentralBidding.com](http://www.CentralBidding.com)

22-May-2017 06:27:07 PM

DATE: 5/19/2017

INVITATION TO BID  
THIS IS NOT AN ORDER

Page: 1

BID NO.: 50-00119867

**JEFFERSON PARISH**

PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETN, LA. 70054-0009  
504-364-2678

**Target Specialty Products**

VENDOR: ~~27118 BLANK BID COPY VENDOR~~

BUYER: DMEVANS

Bids will be received until 11:00 AM, 5/25/2017 via online at [www.jeffparishbids.net](http://www.jeffparishbids.net) or by hand delivery, USPS mail or other courier service to Purchasing Department, 200 Derbigny Street (General Government Building), Suite 4400, Gretna, LA 70053. For convenience, bidders may also submit bids in the East Bank Purchasing Department, Suite 404, Jefferson Parish Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Jefferson LA 70123. However, if submitting bids on the day of bid opening, bidders must submit at the West Bank location only.

All bids submitted are subject to these instructions and general conditions and any special conditions and specifications contained herein, all of which are made part of this bid proposal reference. By submitting a bid, vendor agrees to comply with all provisions of Louisiana Law, as well be in compliance with the Jefferson Parish Code of Ordinances, Louisiana Code of Ethics, applicable Jefferson Parish ethical standards and Jefferson Parish Resolution No. 113646 and/or Resolution No. 113647. A copy of these resolutions may be obtained from the Office of the Parish Clerk, Suite 6700, Jefferson Parish General Government Building, 200 Derbigny Street, Gretna, LA 70053. You may also obtain a copy by visiting the Purchasing Department webpage at [purchasing.jeffparish.net](http://purchasing.jeffparish.net) and clicking on On-line forms.

All vendors submitting bids should register as a Jefferson Parish vendor if not already yet registered. Registration forms may be downloaded from <http://purchasing.jeffparish.net> and by clicking on Vendor Information. Current W-9 forms with respective Tax Identification numbers and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, vendor registration is mandatory. Further, a current W-9 form and respective Tax Identification number must be supplied upon contract execution, should you be awarded a contract and/or issued purchase order. Failure to do so may result in delay of payment.

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Delivered, anywhere within the Parish as designated by the Purchasing Department. JEFFERSON PARISH WILL ACCEPT ONE BID ONLY FROM EACH VENDOR. Items bid must meet specifications. JEFFERSON PARISH will accept one price for each item unless otherwise indicated. Two or more prices for one item will result in bid rejection. Bidders are required to complete, sign and return the bid form and/or complete and return the associated line item pricing forms as indicated. The price quoted for work shall be stated in figures. In the event there is a difference in unit prices and totals, the unit prices shall prevail.

JEFFERSON PARISH reserves the right to award contracts or place orders on a lump sum or individual item basis, or such combination, as shall in its judgment be in the best interest of JEFFERSON PARISH. Every contract or order shall be awarded to the LOWEST RESPONSIVE and RESPONSIBLE BIDDER, taking into consideration the CONFORMITY WITH THE SPECIFICATIONS and the DELIVERY AND/OR COMPLETION DATE.

PROTESTS: Only those vendors that submitted a bid in response to this solicitation may submit a protest in writing to the Director of the Purchasing within 48 hours of bid opening. The Purchasing Director will review it in connection with the Parish Attorney's Office as appropriate and a written response will be provided as soon as possible.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in the quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH requires all products to be new (current) and all work must be performed according to standard practices for the project. Unless otherwise specified, no aftermarket parts will be accepted. Unless otherwise specified, all workmanship and materials must have at least one (1) year guaranty, in writing, from the date of delivery and/or acceptance of the project. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

If this bid requires a pre-bid conference (see Additional Requirements section), bidders are advised that such conference will be held to allow bidders the opportunity to identify any discrepancies in the bid specifications and seek further clarification regarding instructions. The Purchasing Department will issue a written response to bidders' questions in the form of an Addendum.

All formal Addenda require written acknowledgment on the bid form by the bidder. Failure to acknowledge an Addendum on the bid form shall cause the bid to be rejected; JEFFERSON PARISH reserves the right to award bid to next lowest responsive and responsible bidder in this event.

USE OF BRAND NAMES AND STOCK NUMBERS: Where brand names and stock numbers are specified, it is for the purpose of establishing certain minimum standards of quality. Bids may be submitted for products of equal quality, provided brand names and stock numbers are specified. Complete product data may be required prior to award.

Quantities listed are for bidding purposes only. Actual requirements may be more or less than quantities listed.

Bidders are not to exclude from participation in, deny the benefits of, or subject to discrimination under any program or activity, any person in the United States on the grounds of race, color, national origin, or sex; nor discriminate on the basis of age under the Age Discrimination Act of 1975, or with respect to an otherwise qualified handicapped individual as provided in Section 504 of the Rehabilitation Act of 1973, or on the basis of religion, except that any exemption from such prohibition against discrimination on the basis of religion as provided in the Civil Rights Act of 1964, or Title VI and VII of the Act of April 11, 1968, shall also apply. This assurance includes compliance with the administrative requirements of the Revenue Sharing final handicapped discrimination provisions contained in Section 51.55 (c), (d), (e), and (k)(5) of the Regulations. New construction or renovation projects must comply with Section 504 of the 1973 Rehabilitation Act, as amended, in accordance with the American National Standard Institute's specifications (ANSI A17.1-1961).

Jefferson Parish and its partners as the recipients of federal funds are fully committed to awarding a contract(s) to firm(s) that will provide high quality services and that are dedicated to diversity and to containing costs. Thus, Jefferson Parish strongly encourages the involvement of minority and/or woman-owned business enterprises (DBE's, including MBE's, WBE's and SBE's) to stimulate participation in procurement and assistance programs.



## INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS

**IN ACCORDANCE WITH STATE REGULATIONS JEFFERSON PARISH OFFERS ELECTRONIC PROCUREMENT TO ALL VENDORS**

This electronic procurement system allows vendors the convenience of reviewing and submitting bids online. This is a secure site and authorized personnel have limited read access only. Bidders are encouraged to submit electronically using this free service; while the website accepts various file types, one single PDF file containing all appropriate and required bid documents is preferred. Bidders submitting uploaded images of bid responses are solely responsible for clarity. If uploaded images/documents are not legible, then bidder's submission will be rejected. Please note all requirements contained in this bid package for electronic bid submission.

Please visit our E-Procurement Page at [www.jeffparishbids.net](http://www.jeffparishbids.net) to register and view Jefferson Parish solicitations. For more information, please visit the Purchasing Department page at <http://purchasing.jeffparish.net>.

**ADDITIONAL REQUIREMENTS FOR THIS BID**

PLEASE MATCH THE NUMBERS PRINTED IN THIS BOX WITH THE CORRESPONDING INSTRUCTIONS BELOW.

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1. All bidders must attend the MANDATORY pre-bid conference and will be required to sign in and out as evidence of attendance. In accordance with LSA R.S. 38:2212(l), all prospective bidders shall be present at the beginning of the MANDATORY pre-bid conference and shall remain in attendance for the duration of the conference. Any prospective bidder who fails to attend the conference or remain for the duration shall be prohibited from submitting a bid for the project.
2. Attendance to this pre-bid conference is optional. However, failure to attend the pre-bid conference shall not relieve the bidder of responsibility for information discussed at the conference. Furthermore, failure to attend the pre-bid conference and inspection does not relieve the successful bidder from the necessity of furnishing materials or performing any work that may be required to complete the work in accordance with the specification with no additional cost to the owner.
3. Contractor must hold current applicable JEFFERSON PARISH licenses with the Department of Inspection and Code Enforcement. Contractor shall obtain any and all permits required by the JEFFERSON PARISH Department of Inspection and Code Enforcement. The contractor shall be responsible for the payment of these permits. All permits must be obtained prior to the start of the project. Contractor must also hold any and all applicable Federal and State licenses. Contractor shall be responsible for the payment of these permits and shall obtain them prior to the start of the project.
4. A LA State Contractor's License will be required in accordance with LSA R.S. 37-2150 et. seq. and such license number will be shown on the outside of the bid envelope. Failure to comply will cause the bid to be rejected. Additionally if submitting the bid electronically, then the license number must be entered in the appropriate field in the Electronic Procurement system. Failure to comply will cause the bid to be rejected.
5. It is the bidder's responsibility to visit the job site and evaluate the job before submitting a bid.
6. Job site must be clean and free of all litter and debris daily and upon completion of the contract. Passageways must be kept clean and free of material, equipment, and debris at all times. Flammable material must be removed from the job site daily because storage will not be permitted on the premises. Precautions must be exercised at all times to safeguard the welfare of JEFFERSON PARISH and the general public.



**INSTRUCTIONS FOR BIDDERS AND GENERAL CONDITIONS**

7. **PUBLIC WORKS BIDS:** All awards for public works in excess of \$5,000.00 will be reduced to a formal contract which shall be recorded at the contractor's expense with the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. A price list of recordation costs may be obtained from the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish of Jefferson. All awards in excess of \$25,000.00 will require both a performance and a payment bond. Unless otherwise stated in the bid specifications, the performance bond requirements shall be 100% of the contract price. Unless otherwise state in the bid specifications, the payment bond requirements shall be 100% of the contract price. Both bonds shall be supplied at the signing of the contract.
8. **NON-PUBLIC WORKS BIDS:** A performance bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The performance bond shall be supplied at the signing of the contract.
9. **NON-PUBLIC WORKS BIDS:** A payment bond will be required for this bid. The amount of the bond will be 100% of the contract price unless otherwise indicated in the specifications. The payment bond shall be supplied at the signing of the contract.
10. Unless otherwise stated in the bid specifications, the successful bidder will be required to procure standard insurance policies evidencing Parish-mandated insurance requirements as indicated on the attached "insurance requirements" sheet. All bidders must comply with the instructions in this sheet. Failure to comply will cause bid to be rejected.
11. A bid bond will be required with bid submission in the amount of 5% of the total bid, unless otherwise stated in the bid specifications. Acceptable forms shall be limited to cashier's check, certified check, or surety bid bond. All sureties must be in original format (no copies). If submitting a bid online, vendors must submit an electronic bid bond through the respective online clearinghouse bond management system(s) as indicated in the electronic bid solicitation on Central Auction House. No scanned paper copies of any bid bond will be accepted as part of the electronic bid submission.
12. This is a requirements contract to be provided on an as needed basis. JEFFERSON PARISH makes no representations on warranties with regard to minimum guaranteed quantities unless otherwise stated in the bid specifications.
13. Freight charges should be included in total cost when quoting. If not quoted FOB DELIVERED, freight must be quoted as a separate item. Bid may be rejected if not quoted FOB DELIVERED or if freight charges are not indicated on bid form.
14. **PUBLIC WORKS BIDS - Completed, Signed and Properly Notarized Affidavits Required;** This applies to all solicitations for construction, alteration or demolition of public buildings or projects, in conformity with the provisions contained in LSA-RS 38:2212.9, LSA-RS 38:2212.10, LSA-RS 38:2224, and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Conviction Affidavit, Non-Collusion Affidavit, Campaign Contribution Affidavit, Debt Disclosures Affidavit and E-Verify Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
15. **NON PUBLIC WORK BIDS - Completed, Signed and Properly Notarized Affidavits Required** in conformity with the provisions contained in LSA - RS 38:2224 and Sec 2-923.1 of the Jefferson Parish Code of Ordinances. For bidding purposes, all bidders must submit with bid submission COMPLETED, SIGNED and PROPERLY NOTARIZED Affidavits, including: Non-Collusion Affidavit, Debt Disclosures Affidavit and Campaign Contribution Affidavit. For the convenience of vendors, all affidavits have been combined into one form entitled NON PUBLIC WORKS BID AFFIDAVIT. This affidavit must be submitted in its original format, and without material alteration, in order to be compliant and for the bid to be considered responsive. A scanned copy of the completed, signed and properly notarized affidavit may be submitted with the bid, however, the successful bidder must submit the original affidavit in its original format and without material alteration upon contract execution. Failure to comply will result in the bid submission being rejected as non-responsive. The Parish reserves the right to award bid to the next lowest responsive and responsible bidder in this event.
16. The ensuing contract for this bid solicitation may be eligible for FEMA reimbursement and/or Federal funding/reimbursement. As such, the referenced appendix will be applicable accordingly and shall be considered a part of the bid documents. All applicable certifications must be duly completed, signed and submitted with bid submission. Failure to submit applicable certifications with bid submission will result in bid rejection.

It shall be the duty of every parish officer, employee, department, agency, special district, board, and commission: and the duty of every contractor, subcontractor, and licensee of the parish, and the duty of every applicant for certification of eligibility for a parish contract or program, to cooperate with the Inspector General in any investigation, audit, inspection, performance review, or hearing pursuant to Jefferson Parish Code of Ordinances Section 2-155.10(19). By submitting a bid, vendor acknowledges this and will abide by all provisions of the referenced Jefferson Parish Code of Ordinances.



DATE: 5/19/2017

INVITATION TO BID  
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Page: 4

BID NO.: 50-00119867

## JEFFERSON PARISH

PURCHASING DEPARTMENT  
P.O. BOX 9  
GRETN, LA. 70054-0009  
504-364-2678

Target Specialty Products

VENDOR: ~~27118 BLANK BID COPY VENDOR~~

BUYER: DMEVANS

As per LSA-RS 47:301 et seq., all governmental bodies are excluded from payment of sales taxes to any Louisiana taxing body. Quotations shall be based on F.O.B. Agency warehouse or jobsite, anywhere within the Parish as designated by the Purchasing Department.

JEFFERSON PARISH reserves the right to cancel all or any part of an order if not shipped promptly. No charges will be allowed for parking or cartage unless specified in quotation. The order must not be filled at a higher price than quoted. JEFFERSON PARISH reserves the right to cancel at any time and for any reason by issuing a THIRTY (30) day written notice to the contractor.

JEFFERSON PARISH is expecting all products to be new and all work to be done in workman-like manner, according to standard practices. Any deviations or alteration from the specifications must be indicated on the bid form for each item and upon request, product data for same must be submitted by the time specified by the Purchasing Department.

**DELIVERY: FOB JEFFERSON PARISH**

INDICATE DELIVERY DATE ON EQUIPMENT AND SUPPLIES

2-10

INDICATE STARTING TIME (IN DAYS) FOR CONSTRUCTION WORK

INDICATE COMPLETION TIME (IN DAYS) FOR CONSTRUCTION WORK

In the event that addenda are issued with this bid, bidders MUST acknowledge all addenda on the bid form. Bidder must acknowledge receipt of an addendum on the bid form as indicated. Failure to acknowledge any addendum on the bid form will result in bid rejection.

Acknowledge Receipt of Addenda: NUMBER: N/A

NUMBER: \_\_\_\_\_

NUMBER: \_\_\_\_\_

NUMBER: \_\_\_\_\_

LOUISIANA CONTRACTOR'S LICENSE NO.: (if applicable) N/A

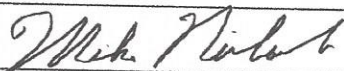
**\*\*\* ALL BIDDERS MUST COMPLETE SECTION BELOW \*\*\***

FIRM NAME:

Rentokil North America, Inc. DBA Target Specialty Products

SIGNATURE:

(Must be signed here)



TITLE:

Vector Business Manager

PRINT OR TYPE NAME:

Mike Nichols

ADDRESS:

1225 N. Post Oak Rd.

CITY, STATE:

Houston, TX

ZIP:

77055

TELEPHONE:

(800) 901-9746 or (713) 682-4411

FAX:

(713) 682-4374

EMAIL ADDRESS:

mike.nichols@target-specialty.com

TOTAL PRICE OF ALL BID ITEMS: \$ 2,844.00



## INVITATION TO BID FROM JEFFERSON PARISH - continued

BID NO.: 50-00119867

SEALED BID

ITEM NUMBER	QUANTITY	U/M	DESCRIPTION OF ARTICLES	UNIT PRICE QUOTED	TOTALS
1	240.00	GL	ONE TIME PURCHASE OF A HERBICIDE - WEED KILLER  0010 - HERBICIDE, WEED KILLER, 41 PERCENT GLYPHOSATE, N-(PHOSPHONOMETHYL) GLYCINE AND 15 PERCENT SURFACTANT CONCENTRATED, (2) 2-1/2 GALLON CONTAINERS PER CASE, WITH MSDS SHEETS, LESCO PROSECUTOR BRAND SK NUMBER 00-0490050  Bidding Ranger Pro by Monsanto, 41% Glyphosate,, 2 x 2.5 gallon jugs / case Label and SDS attached. Item # 503455.	\$11.85 / gal	\$2,844.00





# JEFFERSON PARISH

Department of Purchasing

Michael S. Yenni  
Parish President

Brenda C. Patel  
Director

## **CHANGES TO JEFFERSON PARISH BIDDING PROCEDURES**

The East bank Office of Purchasing is now open! We are located in the Joseph S. Yenni Building, 1221 Elmwood Park Blvd., Suite 404, Jefferson, LA 70123. Bidders may submit bid responses at this location, pending authorization in each bid package. **Bidders should carefully read and must respond accordingly per the requirements of the bid packages. NOTE: Bidders submitting bids on the day of bid opening, bidders must submit at the West Bank location only.**

### **Other Changes Continued:**

- For all advertised bids, corporate resolutions and/or written evidence of signature authority must be included with bid submission.
- Effective June 1, 2017, bidders may no longer send bid responses via facsimile, as some bid solicitations may provide. Vendors responding to bid solicitations may only submit via USPS, courier service, hand delivery or via online by registering free of charge at [www.jeffparishbids.net](http://www.jeffparishbids.net). For more information, please contact the Purchasing Department or visit [jeffparish.net](http://jeffparish.net).
- Current W9 Forms and vendor applications may be submitted at any time; however, if your company is not registered and/or a current W-9 form is not on file, a current W-9 form must be supplied upon contract execution, should you be awarded a contract and/or issued a purchase order.
- Upon contract execution, successful bidder must continue producing final insurance certificates per standard Jefferson Parish insurance requirements. Proof of insurance is required for bidding purposes. Bidders must read the insurance requirements attachment included in each bid package for specific instructions.

**Bidders should reference the "Additional Requirements" section of the bid instructions and/or the "Important Notice to Bidders" included in the bid package for specific requirements to respond accordingly.**

For more information, please call Jefferson Parish Purchasing at 504-364-2678.

General Government Bldg. -- 200 Derbigny St -- Suite 4400 - Gretna, LA 70053

Office 504.364.2678 -- Fax 504.364.2693

Email: [Purchasing@jeffparish.net](mailto:Purchasing@jeffparish.net) Website: [www.jeffparish.net](http://www.jeffparish.net)



## ATTENTION:

This specimen label is provided for general information only.

- This pesticide product may not yet be available or approved for sale or use in your area.
- It is your responsibility to follow all Federal, state and local laws and regulations regarding the use of pesticides.
- Before using any pesticide, be sure the intended use is approved in your state or locality.
- Your state or locality may require additional precautions and instructions for use of this product that are not included here.
- Monsanto does not guarantee the completeness or accuracy of this specimen label. The information found in this label may differ from the information found on the product label. You must have the EPA approved labeling with you at the time of use and must read and follow all label directions.
- You should not base any use of a similar product on the precautions, instructions for use or other information you find here.
- Always follow the precautions and instructions for use on the label of the pesticide you are using.

21225H2-13



Ranger PRO herbicide is a complete broad-spectrum postemergence professional herbicide for industrial, turf and ornamental weed control.

## Complete Directions for Use

EPA Reg. No. 524-517

2010-1

**AVOID CONTACT OF HERBICIDE WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION IS LIKELY TO RESULT.**

Read the entire label before using this product.

Use only according to label instructions.

Not all products listed in this label are registered for use in California. Check the registration status of each product in California before using.

Read the "LIMIT OF WARRANTY AND LIABILITY" statement at the end of the label before buying or using. If terms are not acceptable, return at once unopened.

THIS IS AN END-USE PRODUCT. MONSANTO DOES NOT INTEND AND HAS NOT REGISTERED IT FOR REFORMULATION. SEE INDIVIDUAL CONTAINER LABEL FOR REPACKAGING LIMITATIONS.

## 1.0 INGREDIENTS

### ACTIVE INGREDIENT:

\*Glyphosate, N-(phosphonomethyl)glycine,  
in the form of its isopropylamine salt ..... 41.0%  
OTHER INGREDIENTS (including surfactant): ..... 59.0%  
100.0%

\*Contains 480 grams per liter or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per liter or 3 pounds per U.S. gallon of the acid, glyphosate.

This product is protected by U.S. Patent Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No license granted under any non-U.S. patent(s).

## 2.0 IMPORTANT PHONE NUMBERS

FOR PRODUCT INFORMATION OR ASSISTANCE IN USING THIS PRODUCT,  
**CALL TOLL-FREE, 1-800-332-3111.**

IN CASE OF AN EMERGENCY INVOLVING THIS PRODUCT, OR FOR MEDICAL ASSISTANCE,  
**CALL COLLECT, DAY OR NIGHT, (314)-694-4000.**

## 3.0 PRECAUTIONARY STATEMENTS

### 3.1 Hazards to Humans and Domestic Animals

Keep out of reach of children.

## CAUTION!

CAUSES EYE IRRITATION.

Avoid contact with eyes or clothing.

**FIRST AID:** Call a poison control center or doctor for treatment advice.

### IF IN EYES

- Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.
- Remove contact lenses if present after the first 5 minutes then continue rinsing eye.

- Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
- You may also contact (314) 694-4000, collect day or night, for emergency medical treatment information.
- This product is identified as **Ranger PRO® herbicide, EPA Registration No. 524-517.**

**DOMESTIC ANIMALS:** This product is considered to be relatively nontoxic to dogs and other domestic animals; however, ingestion of this product or large amounts of freshly sprayed vegetation may result in temporary gastrointestinal irritation (vomiting, diarrhea, colic, etc.). If such symptoms are observed, provide the animal with plenty of fluids to prevent dehydration. Call a veterinarian if symptoms persist for more than 24 hours.

### Personal Protective Equipment (PPE)

**Applicators and other handlers must wear:** long-sleeved shirt and long pants, shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

Users should:

- 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.

## 3.2 Environmental Hazards

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 cleaning equipment or disposing of equipment washwaters.

## 3.3 Physical or Chemical Hazards

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

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL 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 which 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.



## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in any manner inconsistent with its labeling. This product can only be used in accordance with the Directions for Use on this label or in separately published Monsanto Supplemental Labeling or Fact Sheets. Supplemental labeling can be found on the Internet at [www.agrian.com](http://www.agrian.com), [www.cdms.net](http://www.cdms.net) or [www.greenbook.net](http://www.greenbook.net) websites or obtained by contacting your Authorized Monsanto Retailer or Monsanto Company Representative.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulations.

### Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and restricted entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water, is: coveralls, chemical resistant gloves greater than 14 mils in thickness composed of materials such as butyl rubber, natural rubber, neoprene rubber, or nitrile rubber, shoes plus socks.

### Non-Agricultural Use Requirements

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (40 CFR Part 170) for agricultural pesticides. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Keep people and pets off treated areas until spray solution has dried.

## 4.0 STORAGE AND DISPOSAL

Proper pesticide storage and disposal are essential to protect against exposure to people and the environment due to leaks and spills, excess product or waste, and vandalism. Do not allow this product to contaminate water, foodstuffs, feed or seed by storage or disposal.

**PESTICIDE STORAGE:** Store pesticides away from food, pet food, feed, seed, fertilizers, and veterinary supplies. Keep container closed to prevent spills and contamination.

**PESTICIDE DISPOSAL:** To avoid wastes, use all material in this container, including rinsate, by application in accordance with label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program. Such programs are often run by state or local governments or by industry. All disposal must be in accordance with applicable Federal, State and local procedures. See container label for container handling and disposal instructions and for refilling limitations.

## 5.0 PRODUCT INFORMATION

**Product Description:** This product is a postemergence, systemic herbicide with no residual soil activity. It gives broad-spectrum control of many annual weeds, perennial weeds, woody brush and trees. It is formulated as a water-soluble liquid containing surfactant and no additional surfactant is needed or recommended. It may be applied through standard equipment after dilution and mixing with water or other carriers according to label instructions.

**Time to Symptoms:** This product moves through the plant from the point of foliage contact to and into the root system. Visible effects are a gradual wilting and yellowing of the plant which advances to complete browning of above-ground growth and deterioration of underground plant parts. Effects are visible on most annual weeds within 2 to 4 days, but on most perennial weeds may not occur for 7 days or more. Extremely cool or cloudy weather following treatment may slow activity of this product and delay development of visual symptoms.

**Stage of Weeds:** Annual weeds are easiest to control when they are small. Best control of most perennial weeds is obtained when treatment is made at late growth stages approaching maturity. See the "WEEDS CONTROLLED" sections of this label for specific weed rates.

Always use the higher product application rate in the range when weed growth is heavy or dense, or when weeds are growing in an undisturbed (non-cultivated) area. Reduced

weed control may result from treating weeds with disease or insect damage, weeds heavily covered with dust, or weeds under poor growing conditions.

**Mode of Action in Plants:** The active ingredient in this product inhibits an enzyme found only in plants and microorganisms that is essential to formation of specific amino acids.

**Cultural Considerations:** Reduced control may result when applications are made to annual or perennial weeds that have been mowed, grazed or cut, and have not been allowed to regrow to the appropriate stage for treatment.

**Rainfastness:** Heavy rainfall soon after application may wash this product off of the foliage and a repeat application may be required for adequate control.

**Spray Coverage:** For best results, ensure spray coverage is uniform and complete. Do not spray foliage to the point of runoff.

**No Soil Activity:** Weeds must be emerged at the time of application to be controlled by this product. Weeds germinating from seed after application will not be controlled. Unemerged plants arising from unattached underground rhizomes or rootstocks of perennials will not be affected by the herbicide and will continue to grow.

**Maximum Application Rates:** The maximum application or use rates stated throughout this label are given in units of volume (fluid ounces or quarts) of this product per acre. However, the maximum allowed application rates apply to this product combined with the use of any and all other herbicides containing the active ingredient glyphosate, whether applied separately or as tank mixtures, on a basis of total pounds of glyphosate (acid equivalents) per acre. If more than one glyphosate-containing product is applied to the same site within the same year, you must ensure that the total use of glyphosate (pounds acid equivalents) does not exceed the maximum allowed. The combined total of all treatments must not exceed 10.6 quarts of this product (10.6 pounds of glyphosate acid) per acre per year. See the "INGREDIENTS" section of this label for necessary product information.

### ATTENTION

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS, DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE PLANTS AND CROPS.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended. The likelihood of injury occurring from the use of this product increases when winds are gusty, as wind velocity increases, when wind direction is constantly changing or when there are other meteorological conditions that favor spray drift. When spraying, avoid combinations of pressure and nozzle type that will result in splatter or fine particles (mist) that are likely to drift. AVOID APPLYING AT EXCESSIVE SPEED OR PRESSURE.

**NOTE:** Use of this product in any manner not consistent with this label may result in injury to persons, animals or crops, or other unintended consequences.

## 5.1 Weed Resistance Management

GROUP	9	HERBICIDE
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Glyphosate, the active ingredient in this product, is a Group 9 herbicide based on the mode of action classification system of the Weed Science Society of America. Any weed population may contain plants naturally resistant to Group 9 herbicides. Weed species resistant to Group 9 herbicides may be effectively managed utilizing another herbicide from a different Group or using other cultural or mechanical practices.

To minimize the occurrence of glyphosate resistant biotypes observe the following good weed management practices:

- Scout your application site before and after herbicide applications.
- Control weeds early when they are relatively small.
- Incorporate other herbicides and cultural or mechanical practices as part of your weed control system where appropriate.
- Utilize the label rate for the most difficult weed in the site. Avoid tank-mixtures with other herbicides that reduce this product's efficacy (through antagonism) or tank mixtures which encourage rates of this product below the labeled amounts.
- Control weed escapes and prevent weeds from setting seeds.
- Clean equipment before moving from site to site to minimize spread of weed seed.
- Use new commercial seed as free of weed seed as possible.
- Report any incidence of repeated non-performance of this product on a particular weed to your Monsanto representative, local retailer, or county extension agent.

## 5.2 Management for Glyphosate Resistant Weed Biotypes

**NOTE:** Appropriate testing is critical in order to confirm weed resistance to glyphosate. Contact your Monsanto representative to determine if resistance has been confirmed to any particular weed biotype in your area. Control instructions for biotypes confirmed as resistant to glyphosate are made available on separately published supplemental



labeling or Fact Sheets for this product and may be obtained from your local retailer or Monsanto representative.

Since the occurrence of new glyphosate resistant weeds cannot be determined until after product use and scientific confirmation, Monsanto Company is not responsible for any losses that may result from the failure of this product to control glyphosate resistant weed biotypes.

The following good weed management practices are encouraged to reduce the spread of confirmed glyphosate resistant biotypes:

- If a naturally occurring resistant biotype is present at your site, this product may be tank-mixed or applied sequentially with an appropriately labeled herbicide with a different mode of action to achieve control.
- Cultural and mechanical control practices may also be used as appropriate.
- Scout treated sites after herbicide applications and control escapes of resistant biotypes before they set seed.
- Thoroughly clean equipment before leaving sites known to contain resistant biotypes.

## 6.0 MIXING

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

DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.

Use caution to avoid siphoning back into the carrier source. Use approved anti-back-siphoning devices where required by state or local regulations.

Clean sprayer parts immediately after using this product by thoroughly flushing with water.

**NOTE:** REDUCED RESULTS MAY OCCUR IF WATER CONTAINING SOIL IS USED, VISIBLY MUDDY WATER OR WATER FROM PONDS AND DITCHES THAT IS NOT CLEAR.

### 6.1 Mixing with Water

This product mixes readily with water. Mix spray solutions of this product as follows: Fill the mixing or spray tank with the required amount of clean water. Add the labeled amount of this product near the end of the filling process and mix gently (well). During mixing and application, foaming of the spray solution may occur. To prevent or minimize foam, avoid the use of mechanical agitators, terminate by-pass and return lines at the bottom of the tank and, if needed, use an approved anti-foam or defoaming agent.

### 6.2 Tank Mixtures

This product does not provide residual weed control. This product may be tank-mixed with other herbicides to provide residual weed control, a broader weed control spectrum or an alternate mode of action. Always read and follow label directions for all products in the tank mixture. Use according to the most restrictive precautionary statements for each product in the mixture. Any labeled rate of this product may be used in a tank mix.

When this label describes a tank mixture with a generic active ingredient such as diuron, 2,4-D or dicamba, the user is responsible for ensuring the mixture product label allows the specific application.

Buyer and all users are responsible for all loss or damage in connection with the use or handling of mixtures of this product with herbicides or other materials that are not expressly listed in this label. Mixing this product with herbicides or other materials not identified on this label may result in reduced performance.

### 6.3 Tank Mixing Procedure

When tank mixing, read and carefully observe label directions, cautionary statements and all information on the labels of all products used. Add the tank-mix product to the tank as directed by the label. Maintain agitation and add the labeled amount of this product.

Maintain good agitation at all times until the contents of the tank are sprayed. If the spray mixture is allowed to settle, thorough agitation may be required to resuspend the mixture before spraying is resumed.

Keep by-pass line on or near the bottom of the tank to minimize foaming. Screen size in nozzle or line strainers should be no finer than 50-mesh.

Always predetermine the compatibility of labeled tank mixtures of this product with water carrier by mixing small proportional quantities in advance. Ensure that the specific tank mixture product is registered for application at the desired site.

Refer to the "Tank Mixtures" section for additional precautions.

### 6.4 Mixing Percent Solutions

Prepare the desired volume of spray solution by mixing the amount of this product in water as shown in the following table:

#### Spray Solution

Desired Volume	Amount of Ranger PRO Herbicide					
	1/2%	1%	1-1/2%	2%	5%	10%
1 gal	2/3 oz	1-1/3 oz	2 oz	2-2/3 oz	6-1/2 oz	13 oz
25 gal	1 pt	1 qt	1-1/2 qt	2 qt	5 qt	10 qt
100 gal	2 qt	1 gal	1-1/2 gal	2 gal	5 gal	10 gal

2 tablespoons = 1 fluid ounce

For use in backpack, knapsack or pump-up sprayers, it is suggested that the labeled amount of this product be mixed with water in a larger container. Fill sprayer with the mixed solution.

## 6.5 Surfactants

Nonionic surfactants which are labeled for use with herbicides may be used. Do not reduce rates of this product when adding surfactant. When adding additional surfactant, use 0.5 percent surfactant concentration (2 quarts per 100 gallons of spray solution) when using surfactants which contain at least 70 percent active ingredient or a 1 percent surfactant concentration (4 quarts per 100 gallons of spray solution) for those surfactants containing less than 70 percent active ingredient. Read and carefully observe surfactant cautionary statements and other information appearing on the surfactant label.

## 6.6 Colorants or Dyes

Approved colorants or marking dyes may be added to this product. Colorants or dyes used in spray solutions of this product may reduce performance, especially at lower rates or dilution. Use colorants or dyes according to the manufacturer's instructions.

## 6.7 Drift Control Additives

Drift reduction additives may be used with all equipment types, except wiper applicators, and sponge bars. When a drift reduction additive is used, read and carefully observe precautionary statements and all other information appearing on the additive label. The use of drift reduction additives can affect spray coverage which may result in reduced performance.

## 7.0 APPLICATION EQUIPMENT AND TECHNIQUES

Do not apply this product through any type of irrigation system.

APPLY THESE SPRAY SOLUTIONS IN PROPERLY MAINTAINED AND CALIBRATED EQUIPMENT CAPABLE OF DELIVERING DESIRED VOLUMES.

#### SPRAY DRIFT MANAGEMENT

AVOID DRIFT. EXTREME CARE MUST BE USED WHEN APPLYING THIS PRODUCT TO PREVENT INJURY TO DESIRABLE VEGETATION.

Do not allow the herbicide solution to mist, drip, drift or splash onto desirable vegetation since minute quantities of this product can cause severe damage or destruction to the crop, plants or other areas on which treatment was not intended.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment- and weather-related factors determines the potential for spray drift. The applicator and/or the grower is responsible for considering all these factors when making decisions.

### 7.1 Aerial Equipment

DO NOT APPLY THIS PRODUCT USING AERIAL SPRAY EQUIPMENT EXCEPT UNDER CONDITIONS AS SPECIFIED WITHIN THIS LABEL.

FOR AERIAL APPLICATION IN CALIFORNIA, REFER TO THE FEDERAL SUPPLEMENTAL LABEL FOR AERIAL APPLICATIONS IN THAT STATE FOR SPECIFIC INSTRUCTIONS, RESTRICTIONS AND REQUIREMENTS.

TO PREVENT INJURY TO ADJACENT DESIRABLE VEGETATION, APPROPRIATE BUFFER ZONES MUST BE MAINTAINED.

Avoid direct application to any body of water.

Use the labeled rates of this herbicide in 3 to 25 gallons of water per acre.

Coarse sprays are less likely to drift; therefore, do not use nozzles or nozzle configurations that dispense spray as fine spray droplets. Do not angle nozzles forward into the air stream and do not increase spray volume by increasing nozzle pressure. Drift control additives may be used. When a drift control additive is used, read and carefully observe the cautionary statements and all other information appearing on the additive label.

Ensure uniform application—To avoid streaked, uneven or overlapped application, use appropriate marking devices.

#### Aircraft Maintenance

PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. The maintenance of an



organic coating (paint) which meets aerospace specification MIL-C-38413 may prevent corrosion. To prevent corrosion of exposed parts, thoroughly wash aircraft after each day of spraying to remove residues of this product accumulated during spraying or from spills. Landing gear is most susceptible.

#### AERIAL SPRAY DRIFT MANAGEMENT

The following drift management requirements must be followed to avoid off-target drift movement from aerial applications to agricultural field crops.

1. The distance of the outermost nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees. Where states have more stringent regulations, they should be observed.

#### Importance of droplet size

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see the **Wind, Temperature and Humidity**, and **Temperature Inversion** sections of this label).

#### Controlling droplet size

- **Volume:** Use high flow-rate nozzles to apply the highest practical spray volume. Nozzles with the higher rated flows produce larger droplets.
- **Pressure:** Use the lower spray pressures labeled for the nozzle. Higher pressure reduces droplet size and does not improve canopy penetration. When higher flow-rates are needed, use higher flow-rate nozzles instead of increasing pressure.
- **Number of nozzles:** Use the minimum number of nozzles that provide uniform coverage.
- **Nozzle orientation:** Orienting nozzles so that the spray is released backwards, parallel to the air stream, will produce larger droplets than other orientations. Significant deflection from the horizontal will reduce droplet size and increase drift potential.
- **Nozzle type:** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce larger droplets than other nozzle types.
- **Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.
- **Application Height:** Applications must not be made at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces the exposure of the droplets to evaporation and wind.

#### Swath Adjustment

When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance increases, with increasing drift potential (higher wind, smaller droplets, etc.).

#### Wind

Drift potential is lowest between wind speeds of 2 to 10 miles per hour. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application must be avoided below 2 miles per hour due to variable wind direction and high inversion potential. **NOTE:** Local terrain can influence wind patterns. Every applicator must be familiar with local wind patterns and how they affect drift.

#### Temperature and Humidity

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

#### Temperature Inversions

Applications must not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

#### Sensitive Areas

This product must only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

## 7.2 Ground Broadcast Equipment

Apply the labeled rates of this product in 3 to 40 gallons of water per acre as a broadcast spray unless otherwise specified in this label or in separate supplemental labeling or Fact Sheets published by Monsanto. As density of weeds increases, increase spray volume within the labeled range to ensure complete coverage. Carefully select proper nozzles to avoid spraying a fine mist. For best results with ground application equipment, use flat-fan nozzles. Check for even distribution of spray droplets.

## 7.3 Backpack or High-Volume Equipment

Apply to foliage of vegetation to be controlled. For applications made on a spray-to-wet basis, ensure spray coverage is uniform and complete. Do not spray to the point of runoff. Use coarse sprays only.

Refer to the "Annual Weeds" instructions of "WEEDS CONTROLLED" section for specific rates and restrictions.

## 7.4 Selective Equipment

This product may be diluted with water and applied through recirculating spray systems, shielded applicators, hooded sprayers, wiper applicators or sponge bars, to listed weeds growing in any site specified on this label.

AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION. Contact of this product with desirable vegetation may result in unwanted plant damage or destruction.

#### Recirculating Spray

A recirculating spray system directs the spray solution onto weeds growing above desirable vegetation, while spray solution not intercepted by weeds is collected and returned to the spray tank for reuse.

Adjust application equipment used above desired vegetation to the lowest spray stream or wiper contact point is at least 2 inches above the desirable vegetation. Droplets, mist, foam or splatter of the herbicide solution settling on desirable vegetation is likely to result in discoloration, stunting or destruction.

Better results may be obtained when more of the weed is exposed to the herbicide solution. Weeds not contacted by the herbicide solution will not be affected. This may occur in dense clumps, severe infestations or when the height of the weeds varies so that not all weeds are contacted. In these instances, repeat treatment may be necessary.

#### Shielded and Hooded Applicators

A shielded or hooded applicator directs the herbicide solution onto weeds, while shielding desirable vegetation from the herbicide. Use nozzles that provide uniform coverage within the treated area. Keep shields on these sprayers adjusted to protect desirable vegetation. **EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF HERBICIDE WITH DESIRABLE VEGETATION.**

#### Wiper Applicators and Sponge Bars

A wiper or sponge applicator applies the herbicide solution onto weeds by rubbing the weed with an absorbent material containing the herbicide solution. Equipment must be designed, maintained and operated to prevent the herbicide solution from contacting desirable vegetation. Operate this equipment at ground speeds no greater than 5 miles per hour. Performance may be improved by reducing speed in areas of heavy weed infestations to ensure adequate wiper saturation. Better results may be obtained if 2 applications are made in opposite directions.

Avoid leakage or dripping onto desirable vegetation. Adjust height of applicator to ensure adequate contact with weeds. Keep wiping surfaces clean. Be aware that, on sloping ground, the herbicide solution may migrate, causing dripping on the lower end and drying of the wicks on the upper end of a wiper applicator.

Do not use wiper equipment when weeds are wet.

Mix only the amount of solution to be used during a 1-day period, as reduced product performance may result from the use of solutions held in storage. Clean wiper parts immediately after using this product by thoroughly flushing with water.

**For Rope or Sponge Wick Applicators:** Solutions ranging from 33 to 75 percent of this product in water may be used.

**For Panel Applicators and Pressure-Feed Systems:** Solutions ranging from 33 to 100 percent of this product in water may be used.

When applied as directed, this product **CONTROLS** the following weeds:

Corn, volunteer	Sicklepod
Panicum, Texas	Spanishneedles
Rye, common	Starbur, bristly
Shattercane	

When applied as directed, this product **SUPPRESSES** the following weeds:

Beggarweed, Florida	Ragweed, common
Bermudagrass	Ragweed, giant
Dogbane, hemp	Smutgrass
Dogfennel	Sunflower
Guineagrass	Thistle, Canada
Johnsongrass	Thistle, musk
Milkweed	Vaseygrass
Nightshade, silverleaf	Velvetleaf
Pigweed, redroot	



## 7.5 Injection Systems

This product may be used in aerial or ground injection spray systems. It may be used as a liquid concentrate or diluted prior to injecting into the spray stream. Do not mix this product with the undiluted concentrate of other products when using injection systems unless specifically directed.

## 7.6 CDA Equipment

The rate of this product applied per acre by controlled droplet application (CDA) equipment must not be less than the amount directed in this label when applied by conventional broadcast equipment. For vehicle-mounted CDA equipment, apply 2 to 15 gallons of water per acre.

CDA equipment produces a spray pattern that is not easily visible. Extreme care must be exercised to avoid spray or drift contacting the foliage or any other tissue of desirable vegetation, as damage or destruction is likely to result.

## 8.0 SITE AND USE INSTRUCTIONS

Detailed instructions follow alphabetically, by site.

Unless otherwise specified on this label or in separate supplemental labeling or Fact Sheets published by Monsanto, applications may be made to control any weeds listed in the annual, perennial and woody brush tables. Also refer to the "Selective Equipment" section.

### 8.1 Cut Stump

Cut stump treatments may be made on any site listed on this label. This product will control many types of woody brush and tree species. Apply this product using suitable equipment to ensure coverage of the entire cambium. Cut trees or resprouts close to the soil surface. Apply a 50- to 100-percent solution of this product to the freshly-cut surface **immediately after** cutting. Delays in application may result in reduced performance. For best results, make applications during periods of active growth and full leaf expansion.

**DO NOT MAKE CUT STUMP APPLICATIONS WHEN THE ROOTS OF DESIRABLE WOODY BRUSH OR TREES MAY BE GRAFTED TO THE ROOTS OF THE CUT STUMP.** Some sprouts, stems, or trees may share the same root system. Adjacent trees having a similar age, height and spacing may signal shared roots. Whether grafted or shared, injury is likely to occur to non-treated stems/trees when one or more trees sharing common roots are treated.

### 8.2 Forestry Site Preparation

This product is labeled for the control or partial control of woody brush, trees and herbaceous weeds in forestry sites and for use in preparing or establishing wildlife openings within these sites and maintaining logging roads.

This product is labeled for use in site preparation prior to planting any tree species, including Christmas trees, eucalyptus, hybrid tree cultivars and silvicultural nursery sites.

Use higher rates of this product within the labeled range for control or partial control of woody brush, trees and hard-to-control perennial herbaceous weeds. For best results, apply to actively growing woody brush and trees after full leaf expansion and before fall color and leaf drop. Increase rates within the labeled range for control of perennial herbaceous weeds any time after emergence and before seedheads, flowers or berries appear.

Use the lower rates of this product within the labeled range for control of annual herbaceous weeds and actively growing perennial herbaceous weeds after seedheads, flowers or berries appear. Apply to the foliage of actively growing annual herbaceous weeds any time after emergence.

This product has no herbicidal or residual activity in the soil. Where repeat applications are necessary, do not exceed 10.6 quarts of this product per acre per year.

**TANK MIXTURES:** Tank mixtures of this product may be used to increase the spectrum of vegetation controlled. When tank mixing, read and carefully observe the label claims, cautionary statements and all information on the labels of all products used. Use according to the most restrictive precautionary statements for each product in the mixture.

**NOTE:** For forestry site preparation, make sure the tank-mix product is approved for use prior to planting the desired species. Observe planting interval restrictions.

Any labeled rate of this product may be used in a tank mix with the following products for forestry site preparation.

Arsenal Applicators Concentrate	Garlon 3A
Chopper	Garlon 4
Chopper Gen2	Oust XP
Escort	

For control of herbaceous weeds, use the lower labeled tank mixture rates. For control of dense stands or tough-to-control woody brush and trees, use the higher labeled tank mixture rates.

**Do not apply this product as an over-the-top broadcast spray for forestry conifer or hardwood release unless otherwise directed on this label or in separately published Monsanto supplemental labeling or Fact Sheets.**

## 8.3 Non-Crop Areas and Industrial Sites

This product may be used in non-crop areas, airports, apartment complexes, commercial sites, ditch banks, driveways, dry ditches, dry canals, fencerows, forestry sites, golf courses, greenhouses, industrial sites, landscape areas, lumber yards, manufacturing sites, municipal sites, natural areas, office complexes, ornamentals, parks, parking areas, petroleum tank farms and pumping installations, railroads, recreational areas, residential areas, rights-of-way, roadsides, schools, shadehouses, sports complexes, storage areas, substations, turfgrass areas, utility sites, warehouse areas, and wildlife management sites.

This product may also be used in non-food crop sites, Christmas tree farms, plant nurseries, sod or turf seed farms.

Unless otherwise specified, applications may be made to control any weeds listed in the "WEEDS CONTROLLED" section of this label.

### Weed Control, Trim-and-Edge, Bare Ground

This product may be used in non-crop and non-food crop areas. It may be applied with any application equipment described in this label. This product may be used to trim-and-edge around objects in non-crop sites, for spot treatment of unwanted vegetation and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

**TANK MIXTURES:** This product may be tank mixed with the following products provided that the specific product is labeled for application at the use site. Refer to the individual product labels for approved sites and application rates.

Arsenal	Pendulum WDG
Barricade 65WG	Plateau
Clarity	Princep DF
diuron	Princep Liquid
Endurance	Ronstar 50 WSP
Escort	Sahara
Garlon 3A	simazine
Garlon 4	Surflan
Karmex	Telar
Krovar I DF	Vanquish
Oust XP	2,4-D
Pendulum 3.3 EC	

This product plus dicamba tank mixtures may not be applied by air in California.

When applied as a tank mixture for bare ground, this product provides control of the emerged annual weeds and control or partial control of emerged perennial weeds, woody brush and trees.

For control or partial control of the following perennial weeds, apply 1 to 2 quarts of this product plus 2 to 8 ounces of Oust XP per acre.

Bahiagrass	Fescue, tall
Bermudagrass	Johnsongrass
Broomsedge	Poorjoe
Dallisgrass	Quackgrass
Dock, curly	Vaseygrass
Dogfennel	Vervain, blue

### Chemical Mowing - Perennials

This product will suppress perennial grasses listed in this section to serve as a substitute for mowing. Use 8 fluid ounces of this product per acre when treating tall fescue, fine fescue, orchardgrass, quackgrass or reed canarygrass covers. Use 6 fluid ounces of this product per acre when treating Kentucky bluegrass. Apply treatments in 10 to 40 gallons of spray solution per acre.

Use only in areas where some temporary injury or discoloration of perennial grasses can be tolerated.

### Chemical Mowing - Annuals

For growth suppression of some annual grasses, annual ryegrass, wild barley and wild oats growing in coarse turf on roadsides or other industrial areas, apply 4 to 5 fluid ounces of this product in 10 to 40 gallons of spray solution per acre. Make applications when annual grasses are actively growing and before the seedheads are in the boot stage of development. Treatments may cause injury to the desired grasses.

### Bromus Species and Medusahead in Pastures and Rangelands

**Bromus species.** This product may be used to treat downy brome (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), soft chess (*Bromus mollis*) and cheatgrass (*Bromus secalinus*) found in industrial, rangeland and pasture sites. Apply 8 to 16 fluid ounces of this product per acre on a broadcast basis.

For best results, coincide treatment with early seedhead emergence of the most mature plants. Delaying the application until this growth stage will maximize the emergence of other weedy grass flushes. Make applications to the same site each year until seed



banks are depleted and the desirable perennial grasses can become reestablished on the site.

**Medusahead.** To treat medusahead, apply 16 fluid ounces of this product per acre as soon as plants are actively growing, and prior to the 4-leaf stage. Applications may be made in the fall or spring.

Applications to brome and medusahead may be made using ground or aerial equipment. Aerial applications for these uses may be made using fixed wing or helicopter equipment. For aerial applications, apply in 2 to 10 gallons of water per acre. For applications using ground equipment, apply in 10 to 20 gallons of water per acre. When applied as directed in this label, there are no grazing restrictions.

#### **Dormant Turfgrass**

This product may be used to control or suppress many winter annual weeds and tall fescue for effective release of dormant bermudagrass and bahiagrass turf. Treat only when turf is dormant and prior to spring green-up.

Apply 8 to 64 fluid ounces of this product per acre. Apply the labeled rates in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated.

Treatments in excess of 16 fluid ounces per acre may result in injury or delayed green-up in highly maintained areas, golf courses and lawns. DO NOT apply tank mixtures of this product plus Oust XP in highly maintained turfgrass areas. For further uses, refer to the "Roadsides" section of this label, which gives rates for dormant bermudagrass treatment and the "Roadsides" section of this label, which gives rates for dormant bermudagrass and bahiagrass treatments.

#### **Actively Growing Bermudagrass**

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. DO NOT apply more than 16 fluid ounces of this product per acre in highly maintained turfgrass areas. DO NOT apply tank mixtures of this product plus Oust XP in highly maintained turfgrass areas. For further uses, refer to the "Roadsides" section of this label, which gives rates for actively growing bermudagrass treatments. Use only in areas where some temporary injury or discoloration can be tolerated.

#### **Turfgrass Renovation, Seed, or Sod Production**

This product controls most existing vegetation prior to renovating turfgrass areas or establishing turfgrass grown for seed or sod. For maximum control of existing vegetation, delay planting or sodding to determine if any regrowth from escaped underground plant parts occurs. Where repeat treatments are necessary, sufficient regrowth must be attained prior to application. For warm-season grasses like bermudagrass, summer or fall applications provide the best control. Where existing vegetation is growing under mowed turfgrass management, apply this product after omitting at least one regular mowing to allow sufficient growth for good interception of the spray.

Do not disturb soil or underground plant parts before treatment. Delay tillage or renovation techniques such as vertical mowing, coring or slicing for 7 days after application to allow translocation into underground plant parts.

Desirable turfgrasses may be planted following the above procedures.

Hand-held equipment may be used for spot treatment of unwanted vegetation growing in existing turfgrass. Broadcast or hand-held equipment may be used to control sod remnants or other unwanted vegetation after sod is harvested.

If application rates total 3 quarts per acre or less, no waiting period between treatment and feeding or livestock grazing is required. If the rate is greater than 3 quarts per acre, remove domestic livestock before application and wait 8 weeks after application before grazing or harvesting.

## **8.4 Habitat Management**

#### **Habitat Restoration and Management**

This product may be used to control exotic and other undesirable vegetation in habitat management and natural areas, including rangeland and wildlife refuges. Applications can be made to allow recovery of native plant species, prior to planting desirable native species, and for similar broad-spectrum vegetation control requirements. Spot treatments can be made to selectively remove unwanted plants for habitat management and enhancement.

#### **Wildlife Food Plots**

This product may be used as a site preparation treatment prior to planting wildlife food plots. Any wildlife food species may be planted after applying this product, or native species may be allowed to repopulate the area. If tillage is needed to prepare a seedbed, wait 7 days after application before tillage to allow translocation into underground plant parts.

## **8.5 Injection and Frill (Woody Brush and Trees)**

This product may be used to control or partially control woody brush and trees by injection or frill applications. Apply this product using suitable equipment that must penetrate into the living tissue. Apply the equivalent of 1/25 fluid ounce (1 ml) of this product per each 2 to 3 inches of trunk diameter at breast height (DBH). This is best achieved by applying a 50 to 100 percent concentration of this product either to a continuous frill around

the tree or as cuts evenly spaced around the tree below all branches. As tree diameter increases in size, better results are achieved by applying diluted material to a continuous frill or more closely spaced cuttings. Avoid application techniques that allow runoff to occur from frilled or cut areas in species that exude sap freely. In these species, make the frill or cuts at an oblique angle to produce a cupping effect and use a 100 percent concentration of this product. For best results, make application during periods of active growth and after full leaf expansion.

## **8.6 Ornamentals, Plant Nurseries, and Christmas Trees**

#### **Post-Directed and Trim-and-Edge**

This product may be used prior to the planting of and as a post-directed spray around established woody ornamental species, arborvitae, azalea, boxwood, crabapple, eucalyptus, euonymus, fir, Douglas fir, jojoba, hollies, lilac, magnolia, maple, oak, poplar, privet, pine, spruce and yew, growing in plant nurseries, on Christmas tree farms, or on other non-food tree production sites. This product may also be used to trim and edge around trees, buildings, sidewalks and roads, potted plants and other objects in a nursery setting.

Desirable plants may be protected from the spray solution by using shields or coverings made of cardboard or other impermeable material. THIS PRODUCT IS NOT LABELED FOR USE AS AN OVER-THE-TOP BROADCAST SPRAY IN ORNAMENTALS AND CHRISTMAS TREES. Care must be exercised to avoid contact of spray, drift or mist with foliage or bark of established ornamental species.

#### **Site Preparation**

This product may be used prior to planting any ornamental, nursery or Christmas tree species.

#### **Wiper Applications**

This product may be used through wick or other suitable wiper applicators to control or partially control undesirable vegetation around established eucalyptus or poplar trees. See the "Selective Equipment" section of this label for further information about the proper use of wiper applicators.

#### **Greenhouse/Shadehouse**

This product may be used to control weeds growing in and around greenhouses and shadehouses. Desirable vegetation must not be present during application and air circulation fans must be turned off.

## **8.7 Parks, Recreational and Residential Areas**

This product may be used in parks, recreational and residential areas. It may be applied with any application equipment described in this label. This product may be used to trim-and-edge around trees, fences, and paths, around buildings, sidewalks, and other objects in these areas. This product may be used for spot treatment of unwanted vegetation. This product may be used to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting an area to ornamentals, flowers, turfgrass (sod or seed), or prior to laying asphalt or beginning construction projects.

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to park and recreational areas.

## **8.8 Railroads**

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to railroads.

#### **Bare Ground, Ballast and Shoulders, Crossings, and Spot Treatment**

This product may be used to maintain bare ground on railroad ballast and shoulders. Repeat applications of this product may be used, as weeds emerge, to maintain bare ground. This product may be used to control tall-growing weeds to improve line-of-sight at railroad crossings and reduce the need for mowing along rights-of-way. For crossing applications, up to 80 gallons of spray solution per acre may be used.

This product may be tank mixed with the following products provided that the specific product is registered for ballast, shoulder, spot, bare ground and crossing treatments:

Arsenal	Krovar I DF
Clarity	Oust XP
diuron	Sahara
Escort	Spike
Garlon 3A	Telar
Garlon 4	Vanquish
Hyvar X	2,4-D

#### **Brush Control**

This product may be used to control woody brush and trees on railroad rights-of-way. Apply 4 to 10 quarts of this product per acre as a broadcast spray, using boom-type or boomless nozzles. Up to 80 gallons of spray solution per acre may be used. Apply a 3/4- to 2-percent solution of this product when using high-volume spray-to-wet applications. Apply a 5- to 10-percent solution of this product when using low-volume directed sprays



for spot treatment. This product may be mixed with the following products for enhanced control of woody brush and trees:

Arsenal	Garlon 4
Escort	Tordon K
Garlon 3A	

#### Bermudagrass Release

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Apply 1 to 3 pints of this product in up to 80 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or runner length). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Johnsongrass
Bluestem, silver	Trumpet creeper
Fescue, tall	Vaseygrass

This product may be tank-mixed with Oust XP. If tank-mixed, use no more than 1 to 3 pints of this product with 1 to 2 ounces of Oust XP per acre. Use the lower rates of each product to control annual weeds less than 6 inches in height (or runner length) that are listed in this label and the Oust XP label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages. These rates will also provide partial control of the following perennial weeds:

Bahiagrass	Fescue, tall
Blackberry	Johnsongrass
Bluestem, silver	Poorjoe
Broomsedge	Raspberry
Dallisgrass	Trumpet creeper
Dewberry	Vaseygrass
Dock, curly	Vervain, blue
Dogfennel	

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Do not make repeat applications in the same season since severe injury may occur.

## 8.9 Roadsides

All of the instructions in the "Non-Crop Areas and Industrial Sites" section apply to roadsides.

#### Shoulder Treatments

This product may be used on road shoulders. It may be applied with boom sprayers, shielded boom sprayers, high-volume off-center nozzles, hand-held equipment, and similar equipment.

#### Guardrails and Other Obstacles to Mowing

This product may be used to control weeds growing under guardrails and around signposts and other objects along the roadside.

#### Spot Treatment

This product may be used as a spot treatment to control unwanted vegetation growing along roadsides.

#### Tank Mixtures

This product may be tank-mixed with the following products for shoulder, guardrail, spot and bare ground treatments provided that the specific product is registered for use on such sites. Read and carefully observe label directions, cautionary statements and all information on the labels of all products used.

Clarity	Princep DF
diuron	Princep Liquid
Endurance	Ronstar 50 WSP
Escort	Sahara
Krovar I DF	simazine
Oust XP	Surflan
Outrider®	Telar
Pendulum 3.3 EC	Vanquish
Pendulum WDG	2,4-D

See the "Tank Mixtures" section of this label for tank-mixing instructions.

#### Release of Bermudagrass or Bahiagrass

#### Dormant Applications

This product may be used to control or partially control many winter annual weeds and tall fescue for effective release of dormant bermudagrass or bahiagrass. Treat only when turf is dormant and prior to spring green-up. This product may also be tank-mixed with Outrider or Oust XP for residual control. Tank mixtures of this product with Oust XP may delay green-up.

For best results on winter annuals, treat when plants are in an early growth stage (below 6 inches in height) after most have germinated. For best results on tall fescue, treat when fescue is at or beyond the 4- to 6-leaf stage.

Apply 8 to 64 fluid ounces of this product in a tank mixture with 3/4 to 1-1/3 ounces Outrider herbicide per acre. Read and follow all label directions for Outrider herbicide.

Apply 8 to 64 fluid ounces of this product per acre alone or in a tank mixture with 1/4 to 1 ounce per acre of Oust XP. Apply the labeled rates in 10 to 40 gallons of water per acre. Use only in areas where bermudagrass or bahiagrass are desirable ground covers and where some temporary injury or discoloration can be tolerated. To avoid delays in green-up and minimize injury, add no more than 1 ounce of Oust XP per acre on bermudagrass and no more than 1/2 ounce of Oust XP per acre on bahiagrass and avoid treatments when these grasses are in a semi-dormant condition.

#### Actively Growing Bermudagrass

This product may be used to control or partially control many annual and perennial weeds for effective release of actively growing bermudagrass. Apply 1 to 3 pints of this product in 10 to 40 gallons of spray solution per acre. Use the lower rate when treating annual weeds below 6 inches in height (or runner length). Use the higher rate as weeds increase in size or as they approach flower or seedhead formation. These rates will also provide partial control of the following perennial species:

Bahiagrass	Johnsongrass
Bluestem, silver	Trumpet creeper
Fescue, tall	Vaseygrass

This product may be tank mixed with Outrider for control or partial control of Johnsongrass and other weeds listed in the Outrider label. Use 8 to 32 fluid ounces of this product with 3/4 to 1-1/3 ounces of Outrider. Use the higher rates of both products for control of perennial weeds or annual weeds greater than 6 inches in height.

This product may be tank mixed with Oust XP. If tank-mixed, use no more than 1 to 2 pints of this product with 1 to 2 ounces of Oust XP per acre. Use the lower rates of each product to control annual weeds less than 6 inches in height (or runner length) that are listed in this label and the Oust XP label. Use the higher rates as annual weeds increase in size and approach the flower or seedhead stages. These rates will also provide partial control of the following perennial weeds:

Bahiagrass	Fescue, tall
Bluestem, silver	Johnsongrass
Broomsedge	Poorjoe
Dallisgrass	Trumpet creeper
Dock, curly	Vaseygrass
Dogfennel	Vervain, blue

Use only on well-established bermudagrass. Bermudagrass injury may result from the treatment, but regrowth will occur under moist conditions. Repeat applications of the tank mix in the same season causes severe injury.

#### Actively Growing Bahiagrass

For suppression of vegetative growth and seedhead inhibition of bahiagrass for approximately 45 days, apply 6 fluid ounces of this product in 10 to 40 gallons of water per acre. Apply 1 to 2 weeks after full green-up or after mowing to a uniform height of 3 to 4 inches. This application must be made prior to seedhead emergence.

For suppression up to 120 days, apply 4 fluid ounces of this product per acre, followed by an application of 2 to 4 fluid ounces per acre about 45 days later. Make no more than 2 applications per year.

This product may be used for control or partial control of Johnsongrass and other weeds listed on the Outrider label in actively growing bahiagrass. Apply 1-1/2 to 4-3/4 ounces of this product with 0.75 to 1.33 ounces of Outrider per acre. Use the higher rates for control of perennial weeds or annual weeds greater than 6 inches in height. Use only on well-established bahiagrass.

A tank mixture of this product plus Oust XP may be used. Apply 6 fluid ounces of this product plus 1/4 ounce of Oust XP per acre 1 to 2 weeks following an initial spring mowing. Make only one application per year.

## 8.10 Utility Sites

This product is labeled for use along electrical power, pipeline and telephone rights-of-way, and in other sites associated with these rights-of-way, substations, roadsides, railroads or similar rights-of-way that run in conjunction with utilities.

This product may be used in utility sites and substations for bare ground, trim-and-edge, spot treatment of unwanted vegetation and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting a utility site to ornamentals, flowers, turfgrass (sod or seed), or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

This product is also labeled for use in preparing or establishing wildlife openings within these sites, maintaining access roads and for side trimming along utility rights-of-way.

#### Tank Mixtures

Tank mixtures of this product may be used to increase the spectrum of control for herbaceous weeds, woody brush and trees provided that the specific product is registered for application to the desired site. When tank mixing, read and carefully observe the label claims, cautionary statements and all information on the labels of all products used. Use according to the most restrictive precautionary statements for each product in the mixture. Any labeled rate of this product may be used in a tank mix.

For control of herbaceous weeds, use the lower labeled tank mixture rates. For control of dense stands or tough-to-control woody brush and trees, use the higher labeled rates.



**TANK MIXTURES:** This product may be tank mixed with the following products for use in utility sites, provided that the specific product used is labeled for use on these sites. Refer to the individual product labels for approved sites and application rates.

Arsenal	Outrider
atrazine <sup>1</sup>	pendimethalin <sup>1</sup>
Barricade 65WG	Plateau
dicamba <sup>1</sup>	Ronstar 50 WP
diuron <sup>1</sup>	Sahara
Endurance	simazine <sup>1</sup>
Escort	Surflan AS
Escort XP	Surflan WDG
Garlon 3A <sup>2</sup>	Telar DF
Garlon 4 <sup>3</sup>	Transline
Krenite	Vanquish
Krovar I DF	Velpar DF
Oust	Velpar L
Oust XP	2,4-D <sup>1</sup>

<sup>1</sup> Tank mixtures with product containing this generic active ingredient may be made provided the specific product is labeled for application at the use site.

<sup>2</sup> Ensure that Garlon 3A is thoroughly mixed with water according to label directions before adding this product. Have spray mixture agitating at the time this product is added to avoid spray incompatibility problems.

<sup>3</sup> For side trimming treatments, use this product alone or in a tank mixture with Garlon 4.

#### Bare Ground and Trim-and-Edge

This product may be used in utility sites and substations for bare ground, trim-and-edge around objects, spot treatment of unwanted vegetation and to eliminate unwanted weeds growing in established shrub beds or ornamental plantings. This product may be used prior to planting a utility site to ornamentals, flowers, turfgrass (sod or seed), or beginning construction projects.

Repeated applications of this product may be used, as weeds emerge, to maintain bare ground.

This product may be tank mixed with the following products. Refer to these products' labels for approved non-crop sites and application rates.

Arsenal	Plateau
Banvel	Princep DF
Barricade 65WG	Princep Liquid
diuron	Ronstar 50 WP
Endurance	Sahara
Escort	simazine
Garlon 3A	Surflan

## 9.0 WEEDS CONTROLLED

Always use the higher rate of this product per acre within the labeled range when weed growth is heavy or dense or weeds are growing in an undisturbed (non-cultivated) area.

Reduced results may occur when treating weeds heavily covered with dust. For weeds that have been mowed, grazed or cut, allow regrowth to occur prior to treatment.

For low-volume directed spray applications, use a 5- to 10-percent solution of this product for control or partial control of annual weeds, perennial weeds, or woody brush and trees. Spray coverage must be uniform with at least 50 percent of the foliage contacted. Coverage of the top one-half of the plant is important for best results. To ensure adequate spray coverage, spray both sides of large or tall woody brush and trees, when foliage is thick and dense, or where there are multiple resprouts.

Refer to the following label sections for labeled rates for the control of annual and perennial weeds and woody brush and trees. For difficult to control perennial weeds and woody brush and trees, where plants are growing under stressed conditions, or where infestations are dense, this product may be used at 5 to 10 quarts per acre for enhanced results.

### 9.1 Annual Weeds

Use 1 quart per acre if weeds are less than 6 inches in height or runner length and 1.5 quarts to 4 quarts per acre if weeds are over 6 inches in height or runner length or when weeds are growing under stressed conditions.

For spray-to-wet applications, apply a 1/2-percent solution of this product to weeds less than 6 inches in height or runner length. Apply prior to seedhead formation in grass or bud formation in broadleaf weeds. For annual weeds over 6 inches tall, or for smaller weeds growing under stressed conditions, use a 1- to 2-percent solution. Use the higher rate for tough-to-control species or for weeds over 24 inches tall.

#### WEED SPECIES

Anoda, spurred	Medusahead*
Barley*	Morningglory ( <i>Ipomoea</i> spp)
Barley, little*	Mustard, blue*
Barnyardgrass*	Mustard, tansy*
Bassia, fivehook	Mustard, tumble*
Bittercress*	Mustard, wild*
Bluegrass, annual*	Nightshade, black*
Bluegrass, bulbous*	Oats
Brome, downy*	Pancium, browntop*
Brome, Japanese*	Pancium, fall*
Buttercup*	Pancium, Texas*
Castorbean	Pennycress, field*
Cheatgrass*	Pepperweed, Virginia*
Cheeseweed ( <i>Malva parviflora</i> )	Pigweed*
Chervil*	Puncturevine
Chickweed*	Purslane, common
Cocklebur*	Pusley, Florida
Copperleaf, hophornbeam	Ragweed, common*
Copperleaf, Virginia	Ragweed, giant
Coreopsis, plains/tickseed*	Rice, red
Corn*	Rocket, London*
Crabgrass*	Rocket, yellow
Cupgrass, woolly*	Rye*
Dwarf dandelion*	Ryegrass*
Eclipta*	Sandbur, field*
Falsedandelion*	Sesbania, hemp
Falseflax, smallseed*	Shattercane*
Fiddleneck	Shepherd's-purse*
Filaree	Sicklepod
Fleabane, annual*	Signalgrass, broadleaf*
Fleabane, hairy	Smartweed, ladythumb*
( <i>Conyza bonariensis</i> )*	Smartweed, Pennsylvania*
Fleabane, rough*	Sorghum, grain (milo)*
Foxtail*	Sowthistle, annual
Foxtail, Carolina*	Spanishneedles
Geranium, Carolina	Speedwell, corn*
Goatgrass, jointed*	Speedwell, purslane*
Goosegrass	Sprangletop*
Groundsel, common*	Spurge, annual
Henbit	Spurge, prostrate*
Horseweed/Marestail	Spurge, spotted*
( <i>Conyza canadensis</i> )	Spurry, umbrella*
Itchgrass*	Starthistle, yellow
Johnsongrass, seedling	Stinkgrass*
Junglerice	Sunflower*
Knotweed	Teaweed/Prickly sida
Kochia	Thistle, Russian
Lamb's-quarters*	Velvetleaf
Lettuce, prickly*	Wheat*
Mannagrass, eastern*	Wild oats*
Mayweed	Witchgrass*

\*When using field broadcast equipment (aerial applications or boom sprayers using flat-fan nozzles) these species will be controlled or partially controlled using 1 pint of this product per acre. Applications must be made using 3 to 10 gallons of carrier volume per acre. Use nozzles that ensure thorough coverage of foliage and treat when weeds are in an early growth stage.

### 9.2 Perennial Weeds

Best results are obtained when perennial weeds are treated after they reach the reproductive stage of growth (seedhead initiation in grasses and bud formation in broadleaves). For non-flowering plants, best results are obtained when the plants reach a mature stage of growth. In many situations, treatments are required prior to these growth stages. Under these conditions, use the higher application rate within the labeled range.

Use a 2-percent solution on tough-to-control perennials like bermudagrass, dock, field bindweed, hemp dogbane, milkweed and Canada thistle.

Ensure thorough coverage when using spray-to-wet treatments using hand-held equipment. When using hand-held equipment for low-volume directed spot treatments, apply a 5- to 10-percent solution of this product.

Allow 7 or more days after application before tillage.

Weed Species	Rate (QT/A)	Hand-Held % Solution
Alfalfa*	1	2
Alligatorweed*	4	1.5
Anise (fennel)	2 - 4	1 - 2
Artichoke, Jerusalem	3 - 5	2
Bahiagrass	3 - 5	2



Weed Species	Rate (QT/A)	Hand-Held % Solution
Beachgrass, European ( <i>Ammophila arenaria</i> )	—	5
Bentgrass*	1.5	2
Bermudagrass	5	2
Bermudagrass, water (knotgrass)	1.5	2
Bindweed, field	4 - 5	2
Bluegrass, Kentucky	2	2
Blueweed, Texas	4 - 5	2
Brackenfern	3 - 4	1 - 1.5
Bromegrass, smooth	2	2
Bursage, woolly-leaf	—	2
Canarygrass, reed	2 - 3	2
Cattail	3 - 5	2
Clover; red, white	3 - 5	2
Cogongrass	3 - 5	2
Dallisgrass	3 - 5	2
Dandelion	3 - 5	2
Dock, curly	3 - 5	2
Dogbane, hemp	4	2
Fescue (except tall)	3 - 5	2
Fescue, tall	1 - 3	2
Guineagrass	3	1
Hemlock, poison	2 - 4	1 - 2
Horsenettle	3 - 5	2
Horseradish	4	2
Iceplant	2	1.5 - 2
Ivy, German	2 - 4	1 - 2
Johnsongrass	2 - 3	1
Kikuyugrass	2 - 3	2
Knapweed	4	2
Lantana	—	1 - 1.25
Lespedeza	3 - 5	2
Milkweed, common	3	2
Muhly, wirestem	2	2
Mullein, common	3 - 5	2
Napiergrass	3 - 5	2
Nightshade, silverleaf	2	2
Nutsedge; purple, yellow	3	1 - 2
Orchardgrass	2	2
Pampasgrass	3 - 5	1.5 - 2
Paragrass	3 - 5	2
Pepperweed, perennial	4	2
Phragmites*	3 - 5	1 - 2
Quackgrass	2 - 3	2
Redvine*	2	2
Reed, giant	4 - 5	2
Ryegrass, perennial	2 - 3	1
Smartweed, swamp	3 - 5	2
Spurge, leafy*	—	2
Sweet potato, wild*	—	2
Thistle, artichoke	2 - 3	1 - 2
Thistle, Canada	2 - 3	2
Timothy	2 - 3	2
Torpedograss*	4 - 5	2
Trumpet creeper*	2 - 3	2
Vaseygrass	3 - 5	2
Velvetgrass	3 - 5	2
Wheatgrass, western	2 - 3	2

\*Partial control

## 9.3 Woody Brush and Trees

Apply this product after full leaf expansion, unless otherwise directed in this label or separate supplemental label or Fact Sheet published by Monsanto. Use the higher rate for larger plants and/or dense areas of growth. On vines, use the higher rate for plants

that have reached the woody stage of growth. Best results are obtained when application is made in late summer or fall after fruit formation.

In arid areas, best results are obtained when applications are made in the spring to early summer when brush species are at high moisture content and are flowering.

Ensure thorough coverage when using spray-to-wet treatments using hand-held equipment. When using hand-held equipment for low-volume directed-spray spot treatments, apply a 5- to 10-percent solution of this product.

Symptoms may not appear prior to frost or senescence with fall treatments.

Allow 7 or more days after application before tillage, mowing or removal. Repeat treatments may be necessary to control plants regenerating from underground parts or seed. Some autumn colors on undesirable deciduous species are acceptable provided no major leaf drop has occurred. Reduced performance may result if fall treatments are made following a frost.

Weed Species	Broadcast Rate (QT/A)	Hand-Held Spray-to-Wet % Solution
Alder	3 - 4	1 - 1.5
Ash*	2 - 5	1 - 2
Aspen, quaking	2 - 3	1 - 1.5
Bearclover (Bearmat)*	2 - 5	1 - 2
Beech*	2 - 5	1 - 2
Birch	2	1
Blackberry	3 - 4	1 - 1.5
Blackgum*	2 - 5	1 - 2
Bracken	2 - 5	1 - 2
Broom; French, Scotch	2 - 5	1.5 - 2
Buckwheat, California*	2 - 4	1 - 2
Cascara*	2 - 5	1 - 2
Catsclaw*	—	1 - 1.5
Ceanothus*	2 - 5	1 - 2
Chamise*	2 - 5	1
Cherry; bitter, black, pin	2 - 3	1 - 1.5
Coyotebrush	3 - 4	1.5 - 2
Creeper, Virginia	2 - 5	1 - 2
Deerweed	2 - 5	1
Dogwood*	2 - 5	1 - 2
Elderberry	2	1
Elm*	2 - 5	1 - 2
Eucalyptus	—	2
Flower, monkey flower*	2 - 4	1 - 2
Gorse*	2 - 5	1 - 2
Hasardia*	2 - 4	1 - 2
Hawthorn	2 - 3	1 - 1.5
Hazel	2	1
Hickory*	2 - 5	1 - 2
Honeysuckle	3 - 4	1 - 1.5
Hornbeam, American*	2 - 5	1 - 2
Ivy, poison	4 - 5	2
Kudzu	4	2
Locust, black*	2 - 4	1 - 2
Madrone resprouts*	—	2
Manzanita*	2 - 5	1 - 2
Maple, red*	2 - 4	1 - 1.5
Maple, sugar	—	1 - 1.5
Maple, vine*	2 - 5	1 - 2
Oak; black, white*	2 - 4	1 - 2
Oak, post	3 - 4	1 - 1.5
Oak; northern pin	2 - 4	1 - 1.5
Oak, poison	4 - 5	2
Oak, scrub*	2 - 4	1 - 1.5
Oak, southern red	2 - 3	1 - 1.5
Olive, Russian*	2 - 5	1 - 2
Peppertree, Brazilian (Florida holly)*	2 - 5	1 - 2
Persimmon*	2 - 5	1 - 2
Pine	2 - 5	1 - 2
Poplar, yellow*	2 - 5	1 - 2
Redbud, eastern	2 - 5	1 - 2
Rose, multiflora	2	1
Sage, black	2 - 4	1
Sage, white*	2 - 4	1 - 2



Weed Species	Broadcast Rate (QT/A)	Hand-Held Spray-to-Wet % Solution
Sage brush, California	2 - 4	1
Salmonberry	2	1
Saltcedar*	2 - 5	1 - 2
Sassafras*	2 - 5	1 - 2
Sourwood*	2 - 5	1 - 2
Sumac; laurel, poison, smooth, sugarbush, winged *	2 - 4	1 - 2
Sweetgum	2 - 3	1 - 1.5
Swordfern*	2 - 5	1 - 2
Tallowtree, Chinese	—	1
Tanoak resprouts*	—	2
Thimbleberry	2	1
Tobacco, tree*	2 - 4	1 - 2
Toyon*	-	2
Trumpet creeper	2 - 3	1 - 1.5
Waxmyrtle, southern*	2 - 5	1 - 2
Willow	3	1
Yerba Santa, California*	—	2

\*Partial control

## 10.0 LIMIT OF WARRANTY AND LIABILITY

Monsanto Company warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes set forth in the Complete Directions for Use label booklet ("Directions") when used in accordance with those Directions under the conditions described therein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE. This warranty is also subject to the conditions and limitations stated herein.

Buyer and all users shall promptly notify this Company of any claims whether based in contract, negligence, strict liability, other tort or otherwise.

To the extent consistent with applicable law, buyer and all users are responsible for all loss or damage from use or handling which results from conditions beyond the control of this Company, including, but not limited to, incompatibility with products other than those set forth in the Directions, application to or contact with desirable vegetation, unusual weather, weather conditions which are outside the range considered normal at the application site and for the time period when the product is applied, as well as weather conditions which are outside the application ranges set forth in the Directions, application in any manner not explicitly set forth in the Directions, moisture conditions outside the moisture range specified in the Directions, or the presence of products other than those set forth in the Directions in or on the soil, crop or treated vegetation.

This Company does not warrant any product reformulated or repackaged from this product except in accordance with this Company's stewardship requirements and with express written permission from this Company.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE LIABILITY OF THIS COMPANY OR ANY OTHER SELLER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT (INCLUDING CLAIMS BASED IN CONTRACT, NEGLIGENCE, STRICT LIABILITY, OTHER TORT OR OTHERWISE) SHALL BE THE PURCHASE PRICE PAID BY THE USER OR BUYER FOR THE QUANTITY OF THIS PRODUCT INVOLVED, OR, AT THE ELECTION OF THIS COMPANY OR ANY OTHER SELLER, THE REPLACEMENT OF SUCH QUANTITY, OR, IF NOT ACQUIRED BY PURCHASE, REPLACEMENT OF SUCH QUANTITY. IN NO EVENT SHALL THIS COMPANY OR ANY OTHER SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES.

Upon opening and using this product, buyer and all users are deemed to have accepted the terms of this LIMIT OF WARRANTY AND LIABILITY which may not be varied by any verbal or written agreement. If terms are not acceptable, return at once unopened.

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This product is protected by U.S. Patent Nos. 5,683,958; 5,703,015; 6,063,733; 6,121,199; 6,121,200. No license granted under any non-U.S. patent(s).

EPA Reg. No. 524-517

In case of an emergency involving this product, or for medical assistance, Call Collect, day or night, (314) 694-4000.

Packed For:  
MONSANTO COMPANY  
800 N. LINDBERGH BLVD.  
ST. LOUIS, MISSOURI, 63167 U.S.A.  
©2010  
012510





# MONSANTO COMPANY

## Safety Data Sheet Commercial Product

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1. Product identifier

##### Ranger PRO® Herbicide

##### 1.1.1. Chemical name

Not applicable.

##### 1.1.2. Synonyms

None.

##### 1.1.3. EPA Reg. No.

524-517

#### 1.2. Product use

Herbicide

#### 1.3. Company

MONSANTO COMPANY, 800 N. Lindbergh Blvd., St. Louis, MO, 63167

Telephone: 800-332-3111, Fax: 314-694-5557

E-mail: safety.datasheet@monsanto.com

#### 1.4. Emergency numbers

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., Puerto Rico, Canada, or  
Virgin Islands. For calls originating elsewhere: 703-527-3887 (collect calls accepted).  
FOR MEDICAL EMERGENCY - Day or Night: +1 (314) 694-4000 (collect calls accepted).

### 2. HAZARDS IDENTIFICATION

#### 2.1. Classification

OSHA Hazard Communication Standard, 29 CFR 1910.1200 (2012)

Acute toxicity, inhalation - Category 4

#### 2.2. Label elements

##### 2.2.1. Signal word

WARNING!

##### 2.2.2. Hazard pictogram/pictograms



##### 2.2.3. Hazard statement/statements

Harmful if inhaled.

##### 2.2.4. Precautionary statement/statements

Avoid breathing dust/fume/gas/mist/vapours/spray.

Use only outdoors or in a well-ventilated area.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER or doctor/physician if you feel unwell.



### 2.3. Appearance and odour (colour/form/odour)

Amber /Liquid / Sweet

### 2.4. OSHA Status

This product is hazardous according to the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Refer to section 11 for toxicological and section 12 for environmental information.

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Active ingredient

Isopropylamine salt of N-(phosphonomethyl)glycine; {Isopropylamine salt of glyphosate}

### Composition

COMPONENT	CAS No.	% by weight (approximate)
Isopropylamine salt of glyphosate	38641-94-0	41
Other ingredients		59

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

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## 4. FIRST AID MEASURES

Use personal protection recommended in section 8.

### 4.1. Description of first aid measures

- 4.1.1. Eye contact:** If in eyes, hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing. Call a poison control center or doctor for treatment advice. Immediately flush with plenty of water.
- 4.1.2. Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- 4.1.3. Inhalation:** If inhaled, move person to fresh air. If person is not breathing, call emergency number or ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
- 4.1.4. Ingestion:** Call 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 center or doctor. Do not give anything by mouth to an unconscious person.

### 4.2. Most important symptoms and effects, both acute and delayed

- 4.2.1. Eye contact, short term:** May cause temporary eye irritation.
- 4.2.2. Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.3. Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.
- 4.2.4. Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

### 4.3. Indication of any immediate medical attention and special treatment needed

- 4.3.1. Advice to doctors:** This product is not an inhibitor of cholinesterase.
- 4.3.2. Antidote:** Treatment with atropine and oximes is not indicated.

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## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media



**5.1.1. Recommended:** Water, foam, dry chemical, carbon dioxide (CO<sub>2</sub>)

**5.2. Special hazards**

**5.2.1. Unusual fire and explosion hazards**

Minimise use of water to prevent environmental contamination.

Environmental precautions: see section 6.

**5.2.2. Hazardous products of combustion**

Carbon monoxide (CO), phosphorus oxides (PxOy), nitrogen oxides (NOx)

**5.3. Fire fighting equipment:** Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

**5.4. Flash point**

Does not flash.

---

**6. ACCIDENTAL RELEASE MEASURES**

**6.1. Personal precautions**

Use personal protection recommended in section 8.

**6.2. Environmental precautions**

SMALL QUANTITIES:

Low environmental hazard.

LARGE QUANTITIES:

Minimise spread.

Keep out of drains, sewers, ditches and water ways.

Notify authorities.

**6.3. Methods for cleaning up**

SMALL QUANTITIES:

Flush spill area with water.

LARGE QUANTITIES:

Absorb in earth, sand or absorbent material.

Dig up heavily contaminated soil.

Collect in containers for disposal.

Refer to section 7 for types of containers.

Flush residues with small quantities of water.

Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

**7. HANDLING AND STORAGE**

Good industrial practice in housekeeping and personal hygiene should be followed.

**7.1. Precautions for safe handling**

When using do not eat, drink or smoke. Wash hands thoroughly after handling or contact. Thoroughly clean equipment after use. Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Refer to section 13 of the safety data sheet for disposal of rinse water.

**7.2. Conditions for safe storage**

Minimum storage temperature: -15 °C

Maximum storage temperature: 50 °C

**Compatible materials for storage:** stainless steel, fibreglass, plastic, glass lining



**Incompatible materials for storage:** galvanised steel, unlined mild steel, see section 10.  
Keep out of reach of children.  
Keep away from food, drink and animal feed.  
Keep only in the original container.  
Partial crystallization may occur on prolonged storage below the minimum storage temperature.  
If frozen, place in warm room and shake frequently to put back into solution.  
Minimum shelf life: 5 years.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Airborne exposure limits

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Other ingredients	No specific occupational exposure limit has been established.

**8.2. Engineering controls:** No special requirement when used as recommended.

### 8.3. Recommendations for personal protective equipment

**8.3.1. Eye protection:** If there is significant potential for contact: Wear chemical goggles.

**8.3.2. Skin protection:** No special requirement when used as recommended. If repeated or prolonged contact: Wear chemical resistant gloves.

**8.3.3. Respiratory protection:** No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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.

Colour/colour range:	Amber
Odour:	Sweet
Form:	Liquid
Physical form changes (melting, boiling, etc.):	
Melting point:	Not applicable.
Boiling point:	No data.
Flash point:	Does not flash.
Explosive properties:	No data.
Auto ignition temperature:	No data.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	No data.
Specific gravity:	1.162 @ 20 °C / 15.6 °C
Vapour pressure:	No significant volatility.
Vapour density:	Not applicable.
Evaporation rate:	No data.
Dynamic viscosity:	No data.
Kinematic viscosity:	No data.
Density:	1.162 g/cm3 @ 20 °C
Solubility:	Water: Completely miscible.



pH:	4.4 - 5.0
Partition coefficient:	log Pow: < 0.00

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### 10.2. Stability

Stable under normal conditions of handling and storage.

### 10.3. Possibility of hazardous reactions

Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

### 10.4. Incompatible materials

galvanised steel; unlined mild steel; see section 10.;  
Compatible materials for storage: see section 7.2.

### 10.5. Hazardous decomposition

Thermal decomposition: Hazardous products of combustion: see section 5.

## 11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

**Likely routes of exposure:** Skin contact, eye contact

### Potential health effects

**Eye contact, short term:** May cause temporary eye irritation.

**Skin contact, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Inhalation, short term:** Not expected to produce significant adverse effects when recommended use instructions are followed.

**Single ingestion:** Not expected to produce significant adverse effects when recommended use instructions are followed.

Data obtained on similar products and on components are summarized below.

### Similar formulation

#### Acute oral toxicity

**Rat, LD50:** 5,108 mg/kg body weight  
Practically non-toxic.

#### Acute dermal toxicity

**Rat, LD50 (limit test):** > 5,000 mg/kg body weight  
Practically non-toxic. No mortality.

#### Skin irritation

**Rabbit, 6 animals, OECD 404 test:**  
Days to heal: 3  
Primary Irritation Index (PII): 0.5/8.0  
Essentially non irritating.



**Eye irritation**

**Rabbit, 6 animals, OECD 405 test:**

Days to heal: 3

Slight irritation.

**Acute inhalation toxicity**

**Rat, LC50, 4 hours, aerosol: 2.9 mg/L**

Other effects: weight loss, breathing difficulty

Practically non-toxic.

**Skin sensitization**

**Guinea pig, 3-induction Buehler test:**

Positive incidence: 0 %

**N-(phosphonomethyl)glycine; { glyphosate acid}**

**Genotoxicity**

Not genotoxic.

**Carcinogenicity**

Not carcinogenic in rats or mice.

**Reproductive/Developmental Toxicity**

Developmental effects in rats and rabbits only in the presence of significant maternal toxicity.

Reproductive effects in rats only in the presence of significant maternal toxicity.

---

## **12. ECOLOGICAL INFORMATION**

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on similar products and on components are summarized below.

**Similar formulation**

**Aquatic toxicity, fish**

**Rainbow trout (*Oncorhynchus mykiss*):**

Acute toxicity, 96 hours, static, LC50: 5.4 mg/L

Moderately toxic.

**Bluegill sunfish (*Lepomis macrochirus*):**

Acute toxicity, 96 hours, static, LC50: 7.3 mg/L

Moderately toxic.

**Aquatic toxicity, invertebrates**

**Water flea (*Daphnia magna*):**

Acute toxicity, 48 hours, static, EC50: 11 mg/L

Slightly toxic.

**Avian toxicity**

**Mallard duck (*Anas platyrhynchos*):**

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Practically non-toxic.

**Bobwhite quail (*Colinus virginianus*):**

Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Practically non-toxic.

**Arthropod toxicity**

**Honey bee (*Apis mellifera*):**

Oral/contact, 48 hours, LD50: > 100 µg/bee

Practically non-toxic.

**Soil organism toxicity, invertebrates**

**Earthworm (*Eisenia foetida*):**

Acute toxicity, 14 days, LC50: > 1,250 mg/kg soil  
Practically non-toxic.

#### Similar formulation

#### Aquatic toxicity, algae/aquatic plants

##### **Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, static, EbC50 (biomass): 12.4 mg/L

Slightly toxic.

##### **Green algae (*Selenastrum capricornutum*):**

Acute toxicity, 72 hours, static, NOEC: 6.3 mg/L

#### N-(phosphonomethyl)glycine; { glyphosate acid}

#### Bioaccumulation

##### **Bluegill sunfish (*Lepomis macrochirus*):**

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

#### Dissipation

##### **Soil, field:**

Half life: 2 - 174 days

Koc: 884 - 60,000 L/kg

Adsorbs strongly to soil.

##### **Water, aerobic:**

Half life: < 7 days

---

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

#### 13.1.1. Product

Excess product may be disposed of by agricultural use according to label instructions. Keep out of drains, sewers, ditches and water ways. Recycle if appropriate facilities/equipment available. Burn in proper incinerator. Follow all local/regional/national/international regulations.

#### 13.1.2. Container

See the individual container label for disposal information. Emptied containers retain vapour and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. Empty packaging completely. Triple or pressure rinse empty containers. Do NOT contaminate water when disposing of rinse waters. Ensure packaging cannot be reused. Do NOT re-use containers. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Follow all local/regional/national/international regulations.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

---

## 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.

### 14.1. US Dept. of Transportation (DOT) Hazardous Materials Regulations (49 CFR Parts 105-180)

Proper Shipping Name (Technical Name if required):	Not regulated for domestic ground transportation. ()
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### 14.2. IMDG Code

Proper Shipping Name	Not regulated for transport under IMO Regulations ()
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(Technical Name if required):	
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#### 14.3. IATA/ICAO

Proper Shipping Name (Technical Name if required):	Not regulated for transport under IATA/ICAO Regulations ()
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### 15. REGULATORY INFORMATION

#### 15.1. Environmental Protection Agency

##### 15.1.1. TSCA Inventory

All components are on the US EPA's TSCA Inventory

##### 15.1.2. SARA Title III Rules

Section 311/312 Hazard Categories: Immediate

Section 302 Extremely Hazardous Substances: Not applicable.

Section 313 Toxic Chemical(s): Not applicable.

##### 15.1.3. CERCLA Reportable quantity

Not applicable.

##### 15.1.4. Federal Insecticide, Fungicide, Rodenticide Act (FIFRA)

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

#### CAUTION!

#### CAUSES EYE IRRITATION

Acute oral toxicity: FIFRA category IV.

Acute dermal toxicity: FIFRA category IV.

Acute inhalation toxicity: FIFRA category IV.

Skin irritation: FIFRA category IV.

Eye irritation: FIFRA category III.

### 16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

In this document the British spelling was applied.

	Health	Flammability	Instability	Additional Markings
NFPA	1	1	1	
0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard				

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest

Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

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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