

# Turf Weed and Brush Control

**Riverdale**

1333 Burr Ridge Parkway, Suite 125A  
 Burr Ridge, Illinois 60527-0866  
**Emergency Phone (Chemtec):** (800) 424-9300  
**Information Phone:** (800) 345-3330

**Date Issued:** 9/2/97

**Supersedes:** 3/14/96

**Product Code:** B167R

**MSDS Number:** 167-1

**MATERIAL SAFETY DATA SHEET: Turf Weed and Brush Control**

**1. INFORMATION ON INGREDIENTS**

Chemical Name	CAS #	Weight %	Common Name	OSHA PEL	ACGIH TLV
Isocetyl (2-ethylhexyl) Ester of 2,4-Dichlorophenoxyacetic Acid	1928-43-4	32.10%	2,4-D Ester	10 mg/m <sup>3</sup> (2,4-D acid)	N/A
Isocetyl (2-ethylhexyl) Ester of 2-(2,4-Dichlorophenoxy) propionic Acid	28631-35-8	32.20%	2,4-DP Ester	N/A	N/A
Kerosene and Surfactants	8008-20-6	35.70%	Inert Ingredients	N/A	N/A
<b>Total</b>		<b>100.00%</b>			

**2. HEALTH DATA**

**PRIMARY ROUTE OF ENTRY:**

**Dermal/Eye:** Yes

**Oral:** Yes

**Inhalation:** No

**SYMPTOMS OF OVEREXPOSURE:** Nonspecific: muscle weakness, lethargy, loss of appetite, abdominal pains, headache, or shortness of breath.

**ACUTE HEALTH EFFECTS**

**Inhalation:** This product contains petroleum distillates. Excessive inhalation may cause respiratory irritation, dizziness, weakness, nausea, headache, or possible unconsciousness.

**Eyes:** May cause moderate eye irritation.

**Skin:** May cause irritation. Harmful if absorbed through the skin. Prolonged or repeated dermal exposure may cause effects similar to ingestion.

**Ingestion:** May cause muscle weakness, nausea, diarrhea, and abdominal pain. Fall in blood pressure or myotonia (prolonged muscular spasm) may occur under extreme exposure conditions. Can be fatal.

**MEDICAL CONDITIONS POSSIBLY AGGRAVATED BY EXPOSURE:** Skin exposure may aggravate existing skin conditions. Exposure to mist may aggravate existing respiratory conditions.

**CHRONIC HEALTH EFFECTS:** Repeated or prolonged overexposure to phenoxy herbicides may cause liver, kidney, gastrointestinal or muscular system effects. The EPA's Science Advisory Panel has given 2,4-D a class D classification (not classifiable as to human carcinogenicity). Various epidemiological studies have yielded conflicting results with the majority being negative. The current scientific consensus is that there is no proven causal association between 2,4-D and cancer. Recent studies have not shown 2,4-D to be a mutagen or teratogen. Other chronic effects of 2,4-DP have not been determined.

Agency Listing Carcinogen		
NTP	IARC	OSHA
No	No	No

**3. FIRST AID MEASURES**

**EYE CONTACT:** Hold eyelids open and flush entire eye with a steady, gentle stream of water for 15 minutes. Get medical attention.

**INHALATION:** Remove victim to fresh air and apply respiration if indicated.

**INGESTION:** Call a physician or Poison Control Center. DO NOT induce vomiting. Drink promptly a large quantity of milk, egg whites, gelatin solution, or if these are not available, drink large quantities of water. Avoid alcohol. If vomiting occurs spontaneously, keep airway clean. Never give anything by mouth to an unconscious person.

**SKIN CONTACT:** Wash promptly with soap and water and rinse thoroughly.

**NOTE TO PHYSICIAN:** This product contains petroleum distillates. If large amounts have been ingested, empty the stomach by gastric intubation with the aid of a cuffed endotracheal tube to prevent aspiration and possible chemical pneumonitis.

**4. FIRE FIGHTING MEASURES**

**FLASH POINT ( F ): 146**

**FLASH POINT METHOD USED:** Tag Closed Cup  
 Use CO<sub>2</sub> or dry chemical for small fires and water fog or foam for large fires. Use water spray to cool closed containers.

**COMBUSTION PRODUCTS:** May include, but are not limited to: hydrogen chloride and nitrogen oxides.

**SPECIAL FIRE FIGHTING PROCEDURES:** May produce toxic and noxious fumes under extreme fire conditions. Use positive pressure self-contained breathing apparatus and acid resistant protective clothing. Any water used to extinguish the fire should be contained by diking to prevent contamination of the public water system.

**UNUSUAL FIRE & EXPLOSION HAZARDS:** When heated above the flash point this material emits flammable vapors which, when mixed with air, can burn or be explosive. Fine mist or spray may be flammable at temperatures below the flash point.

See Section 13, REGULATORY INFORMATION, for NFPA ratings.

**5. ACCIDENTAL RELEASE MEASURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS SPILLED OR RELEASED:**

Wear the suggested safety equipment when cleaning large spills (section 7). Surround with impervious material such as dirt to prevent run-off. Absorb product with an inert absorbent such as clay granules or wood shavings. Contain all affected material in a closed, marked container for proper disposal. Treat contaminated area with detergent and water. 2,4-D spills are subject to CERCLA (Superfund) reporting requirements. Reportable Quantity (RQ) = 55 gallons of Turf Weed and Brush Control.

**6. HANDLING AND STORAGE**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:**

Always use original container to store pesticides in a secured warehouse or storage building. Do not store seeds, fertilizers, insecticides or fungicides. Containers should be opened in well ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not contaminate water, food or feed by storage or disposal.

**WORK HYGIENIC PRACTICE:**

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

**7. EXPOSURE CONTROL/PERSONAL PROTECTION**

Wear a NIOSH/MSHA approved pesticide respirator when exposed to mist.

**VENTILATION:** Open ventilation. Reduce all mist with local exhaust.

Rubber or chemical-resistant gloves (See Precautionary Statements on product label for details)

**EYE PROTECTION:** Wear splash goggles, face shield, or safety glasses with front, brow, and temple protection.

**OTHER PROTECTIVE EQUIPMENT:** Long sleeved shirt, long pants, socks and shoes. Persons engaged

in open pouring must wear coveralls or a chemical resistant apron.

**8. PHYSICAL AND CHEMICAL PROPERTIES**

**APPEARANCE AND ODOR:** Liquid, amber color, aromatic (solvent) odor.

**SOLUBILITY IN WATER:** 100% emulsifiable (can be mixed) with water

**BOILING POINT ( F ): 350**

**VAPOR PRESSURE (mm Hg @ 20 C): N/D**

**SPECIFIC GRAVITY (H<sub>2</sub>O = 1): 1.014**

**pH: N/D**

**FREEZING POINT ( F ): N/D**

**POUNDS PER GALLON: 8.4**

**9. STABILITY AND REACTIVITY**

**STABILITY:** Stable

**CONDITIONS TO AVOID:** Avoid heat conditions

**INCOMPATIBILITY:** Strong oxidizers or acids

**HAZARDOUS BYPRODUCTS:** None

**Will Not Occur**

**10. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL FATE:**

2,4-D has a relatively short half-life (on average 6-9 days in soil, 6-7 in grass) Phenoxy herbicides are readily degraded into nontoxicological substances by soil microbes and aquatic microorganisms. This product does not bioaccumulate in mammals or in other organisms.

**ECOTOXICITY:**

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants.

**11. DISPOSAL CONSIDERATIONS**

**PRODUCT DISPOSAL:**

Pesticide wastes are toxic. Improper disposal of excess pesticide spray mixtures or rinsate is a violation of Federal law and may contaminate groundwater. If product cannot be disposed of by use according to the label, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:**

Triple rinse (or equivalent) and offer for recycling, or puncture and dispose of in a sanitary landfill. Plastic containers are also disposable by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

**12. TRANSPORTATION INFORMATION**

55 gal, 260 gal  
 (All smaller container sizes are not DOT regulated)

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**UN NUMBER:** NA1993

**PACKING GROUP:** III

**GUIDE NUMBER:** 128

**PROPER SHIPPING NAME:** RQ Combustible Liquid, N.O.S., (Kerosene, 2,4-D Ester)

**13. REGULATORY INFORMATION**

**SARA TITLE III; Section 311/312:**

An immediate and delayed health hazard. A fire hazard.

**REPORTABLE QUANTITY (RQ):**

100 lbs of 2,4-D acid equivalent or approximately 55 gallons of Turf Weed and Brush Control. For releases greater than the RQ, contact the National Response Center at (800) 424-8802.

HMIS INFORMATION	
HEALTH:	2
FLAMMABILITY:	2
REACTIVITY:	1
PROTECTIVE:	H

**SARA TITLE III; Section 313- This product contains the following substances subject to the reporting requirements of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:**  
 2,4-D 2-ethylhexyl ester  
**CAS #:** 1928-43-4

## Nufarm Turf &amp; Specialty

# Turf Weed & Brush Control

CONTAINS 2D + 2DP L. V. ESTER

A WOODY PLANT HERBICIDE FOR CONTROLLING MIXED BRUSH ON UTILITY RIGHTS-OF-WAY, HIGHWAYS, FIREBREAKS, FENCE ROWS, FORESTS, AND INDUSTRIAL SITES. SOLID STANDS OF OAK OR ELM. CONTROLS NOXIOUS PERENNIAL WEEDS ON BOTH CROP AND NON-CROPLANDS.

ALSO CONTROLS NOXIOUS PERENNIAL WEEDS ON UNCROPPED LAND, LAWNS, GOLF COURSES, ATHLETIC FIELDS, PARKS, OTHER ORNAMENTAL TURF GRASS AREAS, AND SOD FARMS.

## ACTIVE INGREDIENTS:

Isooctyl (2-ethylhexyl) Ester of 2,4-Dichlorophenoxyacetic Acid* . . . . .	32.1%
Isooctyl (2-ethylhexyl) Ester of 2-(2,4-Dichlorophenoxy) propionic Acid** . . . . .	32.2%
INERT INGREDIENTS: . . . . .	35.7%

Contains Petroleum Distillates	TOTAL	100.0%
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Isomer Specific AOAC Method, Equivalent to:

*2,4-Dichlorophenoxyacetic Acid . . . . .	21.3%, 1.83 lbs./gal.
**2-(2,4-Dichlorophenoxy) propionic Acid . . . . .	21.8%, 1.87 lbs./gal.

EPA REG. NO. 228-167

EPA EST.NO. 228-IL-1

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## KEEP OUT OF REACH OF CHILDREN CAUTION/CAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

SEE INSIDE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND STATEMENT OF PRACTICAL TREATMENT

Note: Spanish language is optional

## PRECAUTIONARY STATEMENT

### HAZARDS TO HUMANS AND DOMESTIC ANIMALS

#### CAUTION/CAUCION

Harmful if swallowed or absorbed through skin. Avoid inhalation of vapors or spray mist and contact with eyes, skin, or clothing. Remove saturated clothing as soon as possible and shower. If this container is over one gallon and less than five gallons, then persons engaged in open pouring of this product must also wear coveralls or a chemical resistant apron. If this container is five gallons or more in capacity, do not open pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal.

**NON-WPS TURF USES:** Applicators and other handlers who handle this pesticide for any use NOT covered by the Worker Protection Standard (40 CFR Part 170)—in general, only agricultural plant uses are covered by the WPS—must wear: long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. After using this product, rinse gloves before removing, remove clothing and launder separately before reuse, and promptly and thoroughly wash hands and exposed skin with soap and water. The maximum number of broadcast applications to turf per treatment site is 2 per year.

**NON-WPS INDUSTRIAL USES:** When mixing, loading or applying this product or repairing or cleaning equipment used with this product, wear face shield, goggles or safety glasses and chemical resistant gloves, long-sleeved shirt, long pants, socks and shoes. It is recommended that safety glasses include front, brow and temple protection. For aerial applicators in an enclosed cockpit and applicators applying this product from a tractor that has a completely enclosed cab, eye protection is not required. Wash hands, face and arms with soap and water as soon as possible after mixing, loading or applying this product. After work, remove all clothing and shower using soap and water. Do not reuse clothing worn during the previous day's mixing and loading or application of this product without cleaning first. Clothing must be kept and washed separately from other household laundry.

**WPS USES:** Personal Protective Equipment—Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category E on an EPA chemical resistance category selection chart. Applicators and other handlers who handle this pesticide for any use covered by the Worker Protection Standard (40 CFR Part 170)—in general, agricultural plant uses are covered—must wear: long-sleeved shirt and long pants; chemical-resistant gloves such as Barrier Laminated, Nitrile Rubber · 14 mils, Neoprene Rubber · 14 mils and Viton · 14 mils; shoes plus socks; and protective eyewear. Follow manufacturer's instructions for cleaning/maintaining Personal Protective Equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. After each day of use, clothing of PPE must not be reused until it has been cleaned. If this container is over one gallon and less than five gallons, mixers and loaders who do not use a mechanical system (such as a probe and pump or spigot) to transfer contents of Database and format copyright © by VPC Acquisition Corporation.

this container must wear coveralls or a chemical resistant apron in addition to the other required PPE.

**Engineering Controls Statements:** If this container is five gallons or more in capacity, do not open pour product from this container. A mechanical system (such as a probe and pump or spigot) must be used for transferring the contents of this container. If the contents of a non-refillable pesticide container are emptied, the probe must be rinsed before removal. If the mechanical system is used in a manner that meets the requirements listed in the 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. When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the 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. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### STATEMENT OF PRACTICAL TREATMENT

<b>IF SWALLOWED:</b>	Call a doctor or get medical attention. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Avoid Alcohol.
<b>IF IN EYES:</b>	Hold eyelids open and flush with a steady, gentle stream of water for 15 minutes. Get medical attention.
<b>IF ON SKIN:</b>	Wash with plenty of soap and water. Get medical attention if irritation persists. NOTE TO PHYSICIAN: May pose an aspiration pneumonia hazard.

### ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or run-off may adversely affect aquatic invertebrates and non-target plants. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. When cleaning equipment, do not pour washwaters on the ground; spray or drain over a large area away from wells and other water sources. Do not contaminate water when disposing of equipment washwaters. Do not apply this product through any type of irrigation system. Do not contaminate irrigation ditches or water used for domestic purposes. If spills occur, collect the material and dispose of by following disposal instructions on this label. Use care to avoid spray contact or drift to 2,4-D or 2,4-DP susceptible plants such as okra, cotton, tomatoes, flowers, grapes, fruit trees, vegetables and ornamentals. Do not permit spray mist containing this product to drift onto them since even very small quantities of the spray, which may not be visible, can cause severe injury during both growing and dormant periods. Do not spray when the wind is blowing towards susceptible crops or ornamental plants. Use coarse sprays to minimize drift. Spray drift can be lessened by keeping the spray boom as low as possible; by applying 20 gallons or more of spray per acre; by using 20 pounds spraying pressure with flat fan or flooding flat on nozzle tips; by spraying when wind velocity is low; and, by stopping all spraying when wind exceeds 6 to 7 miles per hour. Do not apply with hollow cone-type insecticide or other nozzles that produce a fine droplet spray. Do not use in greenhouses. Do not use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D and 2,4-DP have been associated with mixing/loading and disposal sites. Caution should be exercised when handling these pesticides at such sites to prevent contamination of groundwater supplies. Use of closed systems for mixing or transferring this pesticide will reduce the probability of spills. Placement of the mixing/loading equipment on an impervious pad to contain spills will help prevent groundwater contamination.

### DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. **READ ENTIRE LABEL BEFORE USING THIS PRODUCT. USE STRICTLY IN ACCORDANCE WITH LABEL PRECAUTIONARY STATEMENTS AND DIRECTIONS.**

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 regulation.

### 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 12 hours.

PPE is 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, All rights reserved.

NFPA INFORMATION	
TOXICITY:	2
FIRE:	2
REACTIVITY:	1
SPECIAL:	N

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such as plants, soil, or water, is: coveralls, chemical-resistant gloves such as Barrier Laminate, Nitrile Rubber · 14 mils, Neoprene Rubber · 14 mils, and Viton · 14 mils, shoes plus socks, and protective eyewear.

#### 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 for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

For Turf use, do not allow people (other than applicator) or pets on treatment area during application. Do not enter treatment areas until spray has dried.

#### BRUSH CONTROL

This product is specifically designed for utilities and other industrial users to control woody plants. This product also controls many noxious perennial weeds on uncropped land, such as along highways and fence rows. The following is a partial list of the weeds controlled: Alder, Ash\*, Aspen, Birch, Blackberry, Black cherry, Black jack oak, Black locust, Box elder, Brambles, Buckbrush, Ceanothus, Chamise, Coffeeberry, Currant, Dewberry, Dogwood, Elderberry, Elm, Fir, Gooseberry, Greenbrier, Gum, Hemlock, Honeysuckle, Kudzuvine, Locust, Manzanita, Maple\*, Multifloral rose, Oak, Osage orange, Palmetto, Persimmon\*, Pine, Poison ivy, Poison oak, Poplar, Raspberry, Red elder, Salmonberry, Sand sedgebrush, Sassafras, Serviceberry, Shinnery oak, Snowberry, Spicebush, Spruce, Sumac, Sweetgum, Sycamore, Tulip poplar, Virginia creeper, Wild cherry, Wild grape, Willow, Rose, Willow, Winged elm, Yerba santa, and many other species.

\*Best controlled by stump or basal treatment.

**TO PREPARE SPRAY:** Add one-half the required amount of oil (kerosene, diesel or fuel oil) or water to the spray tank, then add this product with agitation and finally the balance of the water or oil with continued agitation. This material forms an emulsion in water not a solution. This tends to separate on standing. Provide agitation to prevent such separation and ensure a uniform mixture. If this material is to be used in straight oil mixtures, do not let water get into it or the finished mixture.

**FOLIAGE STEM TREATMENT:** This is the standard method for high-volume sprays along fence rows, highways and rights-of-way. Use as a first spray on thick brush composed of mixed species. Apply to both stems and foliage from the time foliage is completely matured until the plants start to go dormant. All leaves, stems and suckers must be completely wet to the ground line for effective control. Some regrowth may be anticipated on the more resistant species, such as oak, maple, ash and persimmon. Add 1 to 1 1/2 gallons of this product to 100 gallons of water using 200 to 600 gallons of spray mixture per acre, depending upon the height and thickness of the brush. Mix thoroughly before spraying.

**SPOT TREATMENT:** For spot spraying with backpack sprayer, mix 1 cup (8 oz.) of this product with 5 gallons of water. Wet brush, stems and foliage thoroughly.

**BASAL BARK TREATMENT:** Thoroughly wet the base and root collar of all stems until the spray accumulates around the root collar at the ground line. This spray may be applied during any season. Use this product for basal bark treatment on scattered brush or as a second spray application on species resistant to first foliage application. Mix 3 to 4 gallons of this product in 100 gallons of oil. Apply with a low volume sprayer or power equipment. Application rate will depend on species present, season applied and volume of spray used. Use a coarse spray to avoid drift.

**MODIFIED BASAL TREATMENT:** Drench the base of plants, then wet the lower 1/3 of remaining stems and leaves thoroughly to runoff. Apply treatment when brush is in full foliage. This method can be applied where susceptible species have been controlled by prior sprays and more resistant species, such as maple and oak remain. Soaking the base of the plant and wetting all stems to runoff is absolutely necessary for complete control.

**EARLY SEASON SPRAYING:** Add 1 to 1 1/2 gallons of this product to 10 gallons of diesel oil and thoroughly mix. Add this mixture to 89 gallons of water.

**DURING DRY WEATHER OR THE LATTER PART OF SPRAYING SEASON:** Add 1 1/2 gallons of this product to 15 gallons of diesel oil and mix thoroughly. Add mixture to 83 1/2 gallons of water and agitate thoroughly before use to ensure uniform mixing. DO NOT allow mixture to stand more than 1 hour after mixing.

**CUT SURFACE TREATMENT—STUMPS:** This treatment may be used any time of the year; however, it is more effective when applied as quickly as possible after trees are cut. Spray the entire stump, especially exposed roots and bark. A complete soaking is essential for effective control. Use this procedure after original or capital removal. It is the first step towards a chemical brush control program on newly cleared highways and rights-of-way. The spray is most effective and profitable on stumps 3 to 4 inches and larger. Mix 3 to 4 gallons of this product in 100 gallons of oil. Application should be made with a low volume knapsack sprayer using a solid cone-shaped nozzle medium orifice.

**CONCENTRATE STUMP TREATMENT:** For small (up to 3 inch diameter) stems, cut them as close to the ground as possible and apply undiluted product directly from the can to the surface of the freshly cut stump.

**FRILL:** Make a frill using an axe to cut overlapping V-shaped notches in a continuous ring, and cut around the trunk near its base. Cut through the bark, but do not remove the chips. This method is recommended for all trees 5 to 6 inches in diameter and larger. Freshly cut frills can be treated any time of the year. Mix 3 to 4 gallons of this product in 100 gallons of oil. Pour in as much of the mixture as the frills will hold without wasting the chemical.

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**POWERED KNAPSACK BASAL SPRAY:** Mix 8 to 14 gallons of this product with fuel oil or kerosene to make 100 gallons of spray solution. Apply with a portable knapsack mistblower to lower brush stems. Apply spray to all sides of stems; good root collar coverage is essential. Run knapsack mistblower at 1/4 to 1/2 throttle for best spray delivery and coverage. For maximum drift control, use a basal nozzle attachment. Do not raise spray nozzle above horizontal position.

**FENCE ROW APPLICATION:** To control mixed brush, perennial and annual broadleaf weeds, use one of the application methods such as the foliage stem method described on this label. Some regrowth may be expected on resistant species such as ash, maple, oak and persimmon.

**LOW VOLUME STEM FOLIAGE SPRAY—AERIAL OR GROUND:** Apply the spray only through equipment designed to provide effective drift control.

**MIXED BRUSH—UTILITY RIGHTS-OF-WAY:** For aerial application to solid stands of brush, use 2 to 4 quarts in 3 to 12 gallons volume per acre. 1 to 4 quarts of fuel oil may be included in this mixture.

**SOLID STANDS OF OAK OR ELM:** Apply with fixed-wing or helicopter aircraft. Apply in the Spring after hardwoods have just developed full sized leaves. The spray season normally runs from early May to mid-June in Texas and California, and from early May to early July in Oklahoma and Northward. Spray when wind velocities are less than 5 miles per hour.

Brush	2D + 2DP	Oil	Add Water to Make Total
post, blackjack oak and winged elm	2/3 gallon	1 gallon	5 gallons
sand shinnery oak	1/2 to 1 quart	1 gallon	3 gallons

For maximum control, use higher rate and repeat spray the second year using 1 quart of this product per acre.

**FORESTRY SITE PREPARATION:** To reduce competition from mixed trees and brush before planting forest trees, apply one gallon of this product for easy-to-control species such as alder, aspen, hazel, sassafras, sumac, black locust, willow, and other similar species. Apply two gallons of this product to control more difficult species such as oak, sweet gum, black gum, hickory and tulip-poplar.

Mix with water to make 10 gallons total solution when applying as a aerial spray or 20 gallons total solution when applying as a ground spray. Do not apply to established plantations as this spray mix will injure planted conifers.

**PINE RELEASE:** To control hardwood brush and release Northern conifers such as red pine, Jack pine, white pine, and white spruce.

Apply 2 to 4 quarts of this product as a broadcast spray in 10 gallons of water per acre. Make applications in midsummer after pine height growth is complete and the conifer buds are set. This product will control aspen, birch, cherry, alder, hazel, oak, and similar species. This product will not, at these rates, provide satisfactory control of red maple, sugar maple or ash.

#### RIVERDALE TURF WEED & BRUSH CONTROL and BANVEL HERBICIDE® MIXTURES

**HIGH VOLUME STEM FOLIAGE SPRAY—**Mix 1 gallon to 1 1/2 gallons of this product with 1 to 2 quarts Banvel 4WS per 100 gallons total spray mix. Use the low rate for easy to kill brush such as alder, aspen, cherry, sycamore, tulip-poplar, and willow. Use the high rate to control species such as oak, ash, elm, pine, spruce, and fir.

**LOW VOLUME STEM FOLIAGE SPRAY:** Aerial or Ground—Mix 2 to 3 gallons of this product with 1 to 1 1/2 gallons Banvel herbicide in 15 to 50 gallons of water per acre to control mixed brush including conifers and ash.

Observe all restrictions, precautions and limitations on the labeling of each product used in tank mixture.

#### TURF CONTROL

**LAWNS AND OTHER ORNAMENTAL TURF GRASS AREAS—**This product is recommended for professional weed control of broadleaf weeds in ornamental turf, such as lawns, Golf Courses (fairways, aprons, tees and roughs), Parks, Cemeteries, other similar non-crop areas, and sod farms. This treatment may injure bentgrass, St. Augustinegrass, centipedegrass, carpetgrass and newly seeded lawns. If necessary to control weeds in such turf, use half the recommended rate in chart and repeat application in 2 to 3 weeks. Do not apply to Lippia, Dichondra and where desirable Clovers are present nor on bentgrass greens and tees as severe turf injury may result. Do not use this product to control weeds in flower and vegetable beds, shrubs and ornamental plantings. Spray when air is calm to avoid spray drift that might injure nearby desirable plants. A separate sprayer should be kept for killing weeds as 2,4-D and related chemicals are difficult to clean from equipment.

The following is a partial list of weeds controlled by this product:

Bindweed, Black medic, Brambles, Buckhorn plantain, Bull thistle, Burdock, Buttercup, Canada thistle, Carolina geranium, Chickweed (common and mouseear), Chicory, Clover, Cocklebur, Cudweed, Dandelion, Dock, Evening primrose, False dandelion, Fleabane, Florida pusley, Frenchweed, Ground ivy, Hawkweed, Healall, Henbit, Honeysuckle, Jimsonweed, Knotweed, Kochia, Kudzu, Lambsquarter, Little starwort, Mallow, Momingglory, Mustard, Oxalis (yellow woodsorrel), Pennywort, Peppergrass, Pigweed, Plantain (narrow or buckhorn; broadleaf), Poison ivy, Poison oak, Poorjoe, Povertyweed, Purslane, Ragweed, Sheep sorrel, Shepherdspurse, Smartweed, Soliva, Sowthistle, Speedwell (annual), Spurge, Sumac, Vervain, Vetch, Violet, Wild aster, Wild blackberry, Wild carrot, Wild garlic, Wild geranium, Wild lettuce, Wild onion, Wild radish, Wild raspberry, Yarrow.

This product is not effective on perennial Veronica or on weed grasses. Resistant weeds such as Oxalis (yellow woodsorrel), Bindweed and Yarrow should be All rights reserved.

retreated whenever new growth appears. Control of difficult weeds such as Sheep (red) sorrel, Soliva, and Violet may be only partial.

**PREPARATION OF THE SPRAY:** Fill the spray tank with half of the required amount of water, then add the recommended amount of this product with agitation and finally the balance of water with agitation. Apply any time broadleaf weeds are growing actively. Dandelion, Plantain, Wood sorrel and Clover are best treated in the Fall or in Spring before flower heads develop. Winter weeds such as Chickweed and Henbit should be treated in early Spring.

Summer weeds such as Oxalis, Knotweed and Spurge should be sprayed when they are small. Resistant weeds such as Bindweed and Violet may require 3 quarts per 40,000 square feet and should be retreated whenever new growth appears. In areas with extended growing seasons, such as California, treatment in both Spring and Fall may be needed to control more resistant species.

On turf to be over-seeded in the Fall, treatment should be scheduled at least 4 weeks before the planned seeding date. Rainfall ( $\frac{1}{4}$  inch or more) or irrigation should occur prior to seeding. Fall-seeded lawns may be treated the following Spring. Spring-seeded lawns may be treated after the grasses have sprouted and been cut at least twice, generally 6 to 10 weeks after seeding, depending on germination and growth rate.

For established lawns, Fall treatment fits into a good turf management program. Proper fertilization and mowing should be combined with chemical weed control to thicken the turf after the weeds have died and to discourage more weeds from invading.

**HOSE ATTACHED SPRAYERS (LAWN MODELS):** Use  $1\frac{1}{2}$  tablespoons of this product diluted with water to the 3 to 5 gallon mark on the sprayer jar for each 500 square feet (25' x 20') of lawn area to be sprayed. Adjust water pressure so that spray streams about 10 to 15 feet with no misting.

2D + 2DP	AMOUNTS TO USE AREA COVERED	WATER VOLUME
1½ ounces	1,000 square feet	1 gallon
8 ounces	5,000 square feet	5 gallons
1 pint	10,000 square feet	10 gallons
2 quarts	40,000 square feet	40 gallons
3 quarts (resistant weeds)	40,000 square feet	40 gallons

#### STORAGE AND DISPOSAL

**STORAGE:** Always use original container to store pesticides in a secured warehouse or storage building. Do not store near seeds, fertilizers, insecticides or fungicides. Containers should be opened in well-ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not contaminate water, food or feed by storage or disposal.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed labeled container for proper disposal. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law and may contaminate groundwater. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or if allowed by State and local authorities by burning. If burned, stay out of smoke.

**NOTE:** Local conditions and application regulations vary and may affect use of this herbicide. Consult local Agricultural Experiment Station or Extension Service weed specialist and State regulatory agencies for recommendations in your area.

®Banvel Herbicide—Registered Trademark of Novartis Crop Protection.

#### WARRANTY

Riverdale warrants that this herbicide conforms to the chemical description on its label. When used in accordance with label directions under normal conditions, this herbicide is reasonably fit for its intended purposes. Since timing, method of application, weather, plant and soil conditions, mixtures with other chemicals, and factors affecting the use of this product are beyond our control, no warranty is given concerning the use of this product contrary to label directions or under conditions which are abnormal or not reasonably foreseeable. The user assumes all risks of any such use.

(GDE 060396/RV 040201)