

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

20 OCT 1992

Russell F. Sawyer
Riverdale Chemical Company
425 West 194th Street
Glenwood, IL 60425-1584

Dear Mr. Sawyer:

Subject: Registration Change from Manufacturing Use to End Use
Riverdale Solution Emulsible
EPA Registration No. 228-126
Your Submission Dated August 21, 1992

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable with the following provisions:

- 1) Add the statement "When handling this product, wear chemical resistant gloves" to the Precautionary Statements.
- 2) Revise the third sentence in the Environmental Hazards section to read "Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark."
- 3) The end of the third paragraph under General Information describes obtaining a state permit prior to treating public waters. Since the aquatic uses for this product have been withdrawn, this information should be deleted.
- 4) Under the directions for emergency weed control in wheat, change the recommended amount of water for aerial application to 2 - 10 gallons per acre.
- 5) Assuming that this product is still packaged in a metal container, delete "by burning. If burned, stay out of smoke" from the end of the Container Disposal statement. If it is packaged in something other than metal, please advise the Agency.

CONCURRENCES

SYMBOL	H7505C						
SURNAME	D. KENNY						
DATE	10/20/92						

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

A stamped copy is enclosed for your records. Please submit five (5) final printed copies for the referenced label, incorporating the above changes, before releasing the product for shipment.

Sincerely yours,

Joanne I. Miller
Product Manager (23)
Fungicide-Herbicide Branch
Registration Division (H7505C)

Enclosure

CONCURRENCES

SYMBOL	H7505C							
SURNAME	D. KENNY							
DATE	10/20/92							

3 of 16

RIVERDALE
SOLUTION™ EMULSIBLE
A SELECTIVE WEED KILLER

FOR CONTROL OF MANY BROADLEAF WEEDS AND BRUSH CONTROL IN NON-CROP
AREAS SUCH AS LAWNS, DRAINAGE DITCHBANKS, PASTURES,
RANGELANDS, FENCE ROWS, RIGHTS-OF-WAY AND IN CORN AND
SMALL GRAINS. ALSO FOR AQUATIC WEED CONTROL.

ACTIVE INGREDIENT:

Isocetyl (2-ethylhexyl) Ester of 2,4-Dichlorophenoxyacetic Acid*	94.0%
INERT INGREDIENTS:	6.0%
TOTAL	100.0%

Isomer Specific AOAC Method, Equivalent to:

*2,4-Dichlorophenoxyacetic Acid 62.4%, 5.9 lbs./gal.

KEEP OUT OF REACH OF CHILDREN

CAUTION - CAUCION

PRECAUCION AL USUARIO: Si usted no lee ingles, no use este producto hasta que la
etiqueta le haya sido explicada ampliamente.

SEE SIDE PANELS FOR ADDITIONAL PRECAUTIONARY STATEMENTS
AND STATEMENT OF PRACTICAL TREATMENT

NET CONTENTS GAL.

EPA REG. NO. 228-126

EPA EST. NO. 228-IL-1

MANUFACTURED BY

RIVERDALE CHEMICAL COMPANY

GLENWOOD, ILLINOIS 60425-1584

NOTE: Spanish Language is optional.

20 OCT 1992

Revised 8/21/92

228-126

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION - CAUCION

Harmful if swallowed, inhaled or absorbed through skin. Avoid inhalation of vapors or spray mist, and contact with skin, eyes and clothing. Do not apply this product in such a manner as to directly or through drift expose workers or other persons. The area being treated must be vacated by unprotected persons.

STATEMENT OF PRACTICAL TREATMENT

- IF SWALLOWED: Get medical attention immediately. This product contains petroleum distillates. DO NOT induce vomiting or give anything by mouth to an unconscious person.
- IF ON SKIN: Wash thoroughly with plenty of soap and water. Get Medical Attention if irritation persists.
- IF IN EYES: Flush Eyes with Water for 15 Minutes and Get Medical Attention.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift or runoff may adversely affect aquatic invertebrates and nontarget plants. Do not apply directly to water except as specified on this label. Vapors from this product may injure susceptible plants in the immediate vicinity. Use care to avoid spray contact or drift to 2,4-D susceptible plants such as cotton, tomatoes, flowers, okra, grapes, fruit trees and ornamentals. Do not permit spray mist containing this product to drift onto them. Do not spray when the wind is blowing towards susceptible crops or ornamental plants. Use coarse sprays and/or low spray pressure to minimize drift. Do not apply with hollow cone type insecticide or other nozzles that produce fine spray droplets. Spray drift can be lessened by keeping the spray boom as low as possible by spraying when wind velocity is low, by decreasing the pounds of pressure of the nozzle tips, and by stopping all spraying when wind exceeds 6 to 7 miles per hour. On cropland and along roadsides, do not exceed 20 psi pressure. Do not apply when a temperature air inversion exists. If questions exist pertaining to the existence of an inversion, consult with local weather services before making an application. Do not use the same spray equipment for applying other materials to 2,4-D susceptible crops as injury may result. It is best to use a separate sprayer for application of insecticides and fungicides. Clean and rinse spray equipment using soap or detergent and water or suitable chemical cleaner, and rinse thoroughly before reuse for other spraying. Do not contaminate water when disposing of equipment washwaters. Do not apply this product through any type of irrigation system. Do not contaminate domestic or irrigation waters. However, treated water may be used for watering turf grasses immediately after application. Do not use in or near a greenhouse. Excessive amounts of this product in the soil may temporarily inhibit seed germination and plant growth.

Most cases of groundwater contamination involving phenoxy herbicides such as 2,4-D have been associated with mixing/loading and disposal sites. Caution should be exercised when handling 2,4-D 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.

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When using on Pastures and Rangeland Grasses there is a (1) 7 day pre-grazing interval for dairy cattle; (2) 30 day preharvest interval for grass cut for hay; and (3) 3 day pre-slaughter interval for meat animals.

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.

RE-ENTRY STATEMENT

Do not enter treated areas without protective clothing until sprays have dried.

Because certain states may require more restrictive re-entry intervals for various crops treated with this product, consult your State Department of Agriculture for further information.

Written or oral warnings must be given to workers who are expected to be in a treated area or in an area about to be treated with this product. Warnings should state "Do not enter treated areas unless wearing chemical resistant full body clothing, including NIOSH approved respirator, goggles, and gloves until sprays have dried". When oral warnings are given, warnings shall be given in language customarily understood by workers. Oral warnings must be given if there is reason to believe that written warnings cannot be understood by workers. Written warnings must include the following information: "CAUTION: Area treated with 2,4-D Low Vol Ester on date of application. Do not enter without appropriate protective clothing until sprays have dried. In case of accidental exposure follow precautionary statements on label."

GENERAL INFORMATION

This product is a low volatile ester especially prepared for use on crops and weeds where a susceptible crop in the near vicinity may be injured by a more volatile product. It is recommended for control of numerous broadleaf weeds and certain 2,4-D susceptible woody plants without injury to most established grasses. In cropland, 2,4-D ester is more effective than amines for controlling hard-to-kill weeds such as bindweed, thistle, smartweeds, wild garlic, curly dock, tansy ragwort, and wild onions. For best results apply this product as a water or oil spray during warm weather when young succulent weeds or brush are actively growing. Application under drought conditions often will give poor results. The lower recommended rates will be satisfactory on susceptible annual weeds. For perennial weeds and conditions such as the very dry areas of the western states, where control is difficult, the higher recommended rates should be used. Deep-rooted perennial weeds such as Canada thistle and field bindweed and many woody plants usually require repeated applications for maximum control.

Unless otherwise recommended, suggested application rates may be up to 10 gallons of total spray by air or 5 to 25 gallons by ground application equipment. If hand treatment is used, base the dosage rate on the actual area to be sprayed. Although water quantities may vary due to different types of application equipment, sufficient water must be used to provide for complete and uniform coverage. Higher water-gallage may be used if desired to improve spray coverage. In all cases, use the same recommended amount of 2,4-D per acre. When product is used for weed control in crops, the growth stage of the crop must be considered. For crop uses, do not mix with oil, surfactants,

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or other adjuvants unless specifically recommended on label. To do so may reduce herbicide's selectivity and could result in crop damage. If you are not prepared to accept some degree of crop injury, do not use this product.

Crop varieties vary in response to 2,4-D and some are easily injured. Apply this product to varieties known to be tolerant to 2,4-D. If you are uncertain concerning tolerant varieties of local use situations that may affect crop tolerance to 2,4-D, consult your seed company, State Agricultural Extension Service or qualified crop consultant for advice.

Aerial application should be used only when there is no danger of drift to susceptible crops. Many states have regulations concerning aerial application of 2,4-D formulations. Consult local regulatory authorities before making applications. Although this product is a low volatile formulation, at temperatures above 90°F vapors may damage susceptible crops growing nearby.

Users should note that herbicide treatment of public water requires a permit from appropriate state agencies in most states. Your state conservation Department, or Game and Fish Commission will aid you in securing a permit in your state.

TO PREPARE THE SPRAY: (1) Fill the spray tank about half full with water, then add the required amount of this product with agitation, and finally the rest of the water. NOTE: this product in water forms an emulsion which tends to separate unless the mixture is kept agitated. Continue agitation during application until spray tank is empty. (2) If oil is added, first mix this product and the oil and then add this mixture to the water. However, with adequate agitation, the oil can be added after the product is mixed in water. (3) If straight oil is used, a solution is formed and separation does not occur. Do not allow any water to get into the oil-herbicide mixture to avoid formation of an invert emulsion.

Riverdale Solution™ Emulsible will kill or control the following weeds in addition to many other noxious plants susceptible to 2,4-D.

Alders, Alfalfa, Alligatorweed, American lotus, Arrowhead, Artichoke, Aster, Austrian fieldcress, Beggarticks, Bidden, Bindweed, Bitterweed, Bitter wintercress, Blackeyed Susan, Blessed thistle, Blue lettuce, Box elder, Broomweed, Buckbrush, Buckhorn, Bull thistle, Bulrush, Bur ragweed, Burdock, Burhead, Buttercup, Canada thistle, Carpetweed, Catnip, Chamise, Cherokee rose, Chickweed, Chicory, Cinquefoil, Coastal redstem sage, Cockle, Cocklebur, Coffee bean, Coffeeweed, Common sowthistle, Cornflower, Coyotebrush, Creeping jenny, Crabon, Curly Indigo, Dandelion, Devil's claw, Dock, Dogbane, Dogfennel, Duckweed, Elderberry, Fanweed, Fiddle neck, Flea bane (daisy), Flixweed, Florida pusley, Frenchweed, Galinsoga, Goatsbeard, Goldenrod, Goosefoot, Ground ivy, Gumweed, Halogeton, Hawkweed, Healall, Hemp, Henbit, Hoary cress, Honeysuckle, Horsetail, Indiana mallow, Indigo, Ironweed, Jerusalem artichoke, Jewelweed, Jimsonweed, Klamathweed, Knotweed, Kochia, Lambsquarters, Locoweed, Lupines, Mallow, Manzanita, Marijuana, Many flowered aster, Marshelder, Mexican weed, Milkvetch, Morningglory, Musk thistle, Mustards, Nettles, Nutgrass, Orange hawkweed, Parrotfeather, Parsnip, Pennycress, Pennywort, Peppergrass, Pepperweed, Pigweed, Plantain, Poison hemlock, Poison ivy, Pokeweed, Poorjoe, Povertyweed, Prickly lettuce, Primrose, Puncture vine, Purslane, Rabbitbrush, Ragweed, Redstem, Rush, Russian thistle, Sagebrush, Salsify, Sand shinnery oak, Shepherdspurse, Sicklepod, Smartweed, Sneezeweed, Southern wild rose, Sowthistle, Spanishneedles, Spatterdock, St. Johnswort, Starthistle, Stinging nettles, Stinkweed, Sumac, Sunflower, Sweet clover, Tansymustard, Tansyragwort, Tanweed, Tarweed, Texas blueweed, Thistles, Toadflax, Tumbleweed, Velvetleaf, Vervain, Vetch, Virginia creeper, Water hemlock, Waterhyacinth, Waterlily.

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strawberry, Wild sweet potato, Willow, Witchweed, Wormseed, Wormwood, Yellow rocket, Yellow starthistle and other broadleaf weeds which may be listed elsewhere on this label.

Some of these species may require repeat applications and/or use of higher rate recommended on this product label even under ideal conditions for applications. Control of pigweeds in the High Plains area of Texas and Oklahoma may not be satisfactory with this product.

SELECTIVE WEEDING IN CROPS

USE IN LIQUID NITROGEN FERTILIZER: This product may be combined with liquid nitrogen fertilizer suitable for foliage application on corn, grass, pastures, or small gains in one operation. Use product according to directions on this label for those crops. Use liquid nitrogen fertilizer at rates recommended by supplier or Extension Service Specialist. Mix the product and fertilizer according to the following instructions: Fill the spray tank approximately half full with the liquid nitrogen fertilizer. Add the product while agitating the tank. Add the remainder of the fertilizer while continuing to agitate. Apply immediately maintaining agitation during application until tank is empty. Do not apply during cold (near freezing) weather. Spray mixture must be used immediately and may not be stored. Do not allow mixture to stand overnight.

NOTE: If good, continuous agitation is not maintained, separation of the spray mixture and/or clogging of the nozzles is likely to occur. Fertilizers can increase foliage contact burn of herbicides. Reducing the fertilizer rate and concentrate will reduce the hazard of leaf burn.

CORN (Field, Sweet and Popcorn):

- Pre-plant - 2/3 to 1-1/3 pints
- Pre-emergent - Average Condition - 1-1/4 to 2-1/4 pints
- Emergent - 2/3 pint
- Post-emergent - Average Condition - 1/4 pint
- Dry Condition* - 1/4 to 1/2 pint
- Pre-harvest - 1/2 to 1-1/3 pints

*For western states - Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington and Wyoming

All with recommended amounts of water to make per acre applications. Use lower rates of product for easily-killed weeds, on inbreds, and when corn is growing rapidly. Do not cultivate for about 2 weeks after treatment while corn is brittle.

Pre-plant: To control emerged broadleaf weed seedlings or existing cover crops prior to planting corn. Apply 7 to 14 days before planting. Do not use on light, sandy soil, or where soil moisture is inadequate for normal weed growth. Use high rate for control of less susceptible weeds or cover crops such as alfalfa.

Pre-emergent: Apply product to emerged weeds from 3 to 5 days after planting but before corn emerges. Do not use on very light, sandy soils. Use the higher rates on heavy soils. Plant corn as deep as practical. Product will not control weeds which have not emerged.

Emergent: Apply in 10 to 30 gallons of water per acre just as corn plants are breaking ground.

Post-emergent: Best results are usually obtained when weeds are small and corn is 4 to 18 inches tall. As soon as corn is over 8 inches tall, use drop nozzles to keep spray off corn foliage as much as possible; direct spray over tops of weeds, but not over the corn. Do not apply from tasseling to dough stage. If corn is growing rapidly and temperature and soil moisture is high, use 1/4 pint per acre to reduce possibility of crop damage. Delay cultivation for 8 to 10 days to prevent stalk breakage due to

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temporary brittleness caused by 2,4-D. Application rates of up to 1/2 pint per acre may be used to control some hard-to-control weeds. However, the possibility of injury to the corn is increased.

Do not use with atrazine, oil or other adjuvants. Since the tolerance to 2,4-D of individual hybrids varies, consult your seed supplier, local Extension Service, Agricultural Experiment Station, or University Weed Specialist for information.

Pre-harvest: After the hard dough or de. ling stage, apply 1/2 - 1-1/3 pints in 20-50 gallons of water per acre by air or ground equipment to suppress perennial weeds, decrease weed seed production, and control tall weeds such as bindweed, cocklebur, dogbane, jimsonweed, ragweed, sunflower, velvetleaf and vines that interfere with harvesting. The high rate will be needed for tough weeds under stress.

SMALL GRAINS (barley, oats, wheat, rye), not underseeded with a legumes:

Wheat, Barley, Rye - Annual weeds - Average Condition - 1/4 to 1/2 pint;

Dry Conditions (Western States) - 1/2 to 1-1/4 pints

Perennial Weeds - Average Condition - 1/2 pint

Dry Conditions (Western States) - 3/4 to 1-1/4 pints

Pre-harvest - Average Condition - 1/2 to 1-1/4 pints

Oats --- Spring - 1/4 pint and Fall - 1/4 to 1/3 pint

For aerial application on grain, it is suggested to use this product in 2 or more gallons of water per acre and for ground application use a minimum of 10 gallons of water per acre.

Make application in the Spring when the grain is fully tillered or stooled (usually about 4 to 8 inches high), but before jointing. Do not spray before the tiller stage nor from early boot to dough stage.

Use lower rate of product for easily-killed seedling weeds, and higher rate for older and more tolerant weeds. Do not treat grains under-seeded with legumes, and do not spray winter grains in the Fall. To control large weeds that will interfere with harvest or to suppress perennial weeds, pre-harvest treatment can be applied when grain is in the dough stage. Higher rates may be needed to handle difficult weed problems in certain areas such as under dry conditions especially in western areas. However, do not use unless possible crop injury will be acceptable. For the high rates on Spring wheat and barley as well as winter wheat and rye, consult State Agricultural Experiment Station or Extension Service weed specialists for recommendations or suggestions to fit local conditions.

For emergency weed control in wheat: Perennial broadleaf weeds - apply 1-3/4 pints per acre when weeds are approaching bud stage. Do not spray grain in the boot to dough stage. The 1-3/4 pint per acre application can produce injury to wheat. Balance the severity of your weed problem against the possibility of crop damage. Where perennial weeds are scattered, spot treatment is suggested to minimize the extent of crop injury. Use lower rate if small annual and biennial weeds are the major problem. Use the higher rate if perennial weeds or annual and biennial weeds are present which are in the hard-to-kill categories as determined by local experience. The higher rates increase the risk of grain injury and should be used only where the weed control problem justifies the grain damage risk. Do not apply Solution Emulsible to grain in the seedling stage. For aerial application on grain, apply this product in 1-10 gallons of water per acre. For ground application use a minimum of 10 gallons of water per acre.

Spring Seeded Oats: Use 1/4 pint per acre with recommended amount of water to give good coverage. Apply after the fully tillered stage, except during the boot to dough stage.

Fall Seeded Oats (Southern): Apply 1/6 to 3/4 pint per acre with recommended amount of water after full tillering but before early boot stage. Some difficult weeds may require the higher rates of 1/3 to 3/4 pint per acre for maximum control but injury may result. Do not spray during or immediately following cold weather.

Pre-harvest Treatment: Apply 2/3 to 1-1/3 pints with recommended amount of water per acre when grains are in the hard dough stage to control large weeds that may interfere with harvest. Best results will be obtained when soil moisture is sufficient to cause succulent weed growth.

Note: Oats are less tolerant to 2,4-D than wheat or barley and more likely to be injured.

Wheat and Barley: Control of Wild Garlic and Wild Onion.

For improved control of difficult weeds including Wild Garlic and Wild Onion, apply 1/2 to 1-1/4 pints of product per acre. Since these rates may injure the crop do not use unless possible crop damage is acceptable. For the higher rates on Spring wheat and barley, consult your local State Agricultural Experiment Station or Extension Service Weed Specialist for recommendations or suggestions to fit local conditions.

Control of Wild Garlic in Stubble Grain and Corn Fields:

Following the harvest of small grains, and corn, Wild Garlic often produces new Fall growth. This should be sprayed with 2-1/2 to 3-3/4 pints of product in 20 to 40 gallons of water per acre. This is a useful practice as one part of Wild Garlic control program. Do not plant any crop for three months after treatment.

SORGHUM (Milo): For Post-emergent control in average conditions, use 1/4 pint; dry conditions (we tern states) use 1/4 to 1/3 pint with suggested volume of 5 gallons of water by air or 6 to 20 gallons with ground equipment to make per acre applications.

Apply to sorghum when crop is 5 to 15 inches high to top of canopy with secondary roots well established. If sorghum is taller than 8 inches, use drop nozzles to keep the spray off the foliage as much as possible. Do not apply during boot, flowering or early dough stage. Rates of up to 1/2 pint per acre may be used to control some hard-to-control weeds. However, the chance of crop injury is increased with the higher rates. Do not use with oil. Because temporary injury may occur if conditions of high temperature and high soil moisture exist, use lower rate. Varieties vary in tolerance to 2,4-D and some hybrids are quite sensitive. Spray only varieties known to be tolerant to 2,4-D. Contact seed company or your Agricultural Experiment Station or Extension Service weed specialists for this information.

SUGARCANE: Use 1-1/4 pints per acre as a pre-emergent application to control already emerged weeds before canes appear or 2-1/2 pints per acre as a blanket spray after cane emerges and through layby. Consult local Agricultural Experiment or Extension Service Weed Specialists on specific use of this product or in combination with Dalapon to control broadleaved and grass weeds.

GRASS SEED CROPS: Apply 1/2 to 2-1/2 pints of product in up to 30 gallons of water per acre by air or ground equipment in the Spring or Fall to control broadleaf weeds in grass being grown for seed. Do not apply from early boot to milk stage. Spray seedling grass only after the five leaf stage, using 1/3 to 1/2 pint per acre to control small seedling weeds. After the grass is well established, higher rates of up to 2-1/2 pints per acre can be used to control hard-to-control annual or perennial weeds. For best results, apply when soil moisture is adequate for good growth. Do not use on Bent unless injury can be tolerated.

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NO-TILL APPLICATION: Solution™ Emulsible may be used in the broadcast method with a normal boom or with direct pipes set 12" apart in 36" rows. When using LV 6, apply at a rate of 9 oz. in 10 gallons of water per acre. Maintain uniform pressure and speed when applying.

SELECTIVE WEEDING IN NON-CROP AREAS

ORNAMENTAL TURF such as Lawns, Golf Courses (Fairways, Aprons, Tees and Roughs), Sod Farms, Cemeteries, and Parks:

Use 1-1/4 to 4-1/3 pints of product in 40 to 180 gallons of water to give good coverage to one acre on established stands of perennial grasses. Usually 2-1/2 pints per acre provides good weed control under average conditions. Treat when weeds are young and actively growing. Do not apply to newly seeded grasses until well established. Use higher rate for hard-to-kill weeds. Use higher rate when using higher volume of water per acre. Do not exceed specified application dosages for any area. Deep-rooted perennial weeds may require repeated treatments in the same season or in subsequent years. Spray when air temperature is between 50° and 85°F. Avoid applying during excessively dry or hot periods unless irrigation (watering) is used before treatment. Do not apply if rainfall is expected within 48 hours, nor should lawns be irrigated for 48 hours following application. For optimum results, turf should not be mowed for 1 to 2 days before and after application. Reseed no sooner than 3 to 4 weeks after application of this product. Adding oil, wetting agent, or other surfactant to the spray may be used to increase effectiveness on weeds but doing so may reduce selectivity to turf resulting in turf damage. Maximum kill of weeds will be obtained by applying in Spring and early Fall when weeds are actively growing. Do not use on golf greens nor on dichondra or other broadleaf herbaceous ground covers. Do not use on creeping grasses such as bent and St. Augustine except for spot treating, nor on newly seeded turf until grass is well established.

FALLOW LAND: Use 1-1/4 to 3-3/4 pints of this product in a recommended minimum of 10 gallons water per acre for ground application and recommended minimum of 2 gallons for aerial application of water per acre on annual broadleaf weeds and up to 4 pints per acre on established perennial species such as Canada thistle and Field bindweed. Use lower rate when annual weeds are small (2 to 3" tall) and growing actively. Use the higher rate on older and drought-stressed plants. Spray musk thistles and other biennial species while in seedling to rosette stage, and before flower stalks are initiated. The lower rate can be used in Spring during rosette stage. In Fall or after flower stalks have developed, use highest rate. Spray perennial weed in bud to bloom stage, or in good vegetative growth. Do not disturb treated area for at least 2 weeks after treatment, or until weed tops are dead. Do not plant any crop for 3 months after treatment or until chemical has disappeared from soil.

ESTABLISHED PASTURES AND RANGELANDS: Use 1/3 to 2-1/2 pints of product in sufficient water to give good coverage to one acre depending on type of weeds and stage of growth. Use only on established stands of perennial grasses. Do not use on bentgrass, alfalfa, clover, or other legumes. Do not use on newly seeded areas until grass is well established. Do not use from early boot to milk stage when grass seed productions is desired.

Bitterweed, Broomweed, Croton, Docks, Kochia, Marshelder, Musk thistle and Other Broadleaf Weeds: Use 2-1/2 to 3 pints of this product in 10 to 30 gallons of water per acre. If weeds are young and growing actively, 1-1/4 pints per acre will provide control of some species. Deep-rooted perennial weeds may require repeated treatments in the same year or in subsequent years.

Weed control in Newly Sprigged Coastal Bermudagrass: Apply 1-1/4 to 3 pints of this product in 20 to 100 gallons of water per acre pre-emergence and/or post-emergence.

WILD GARLIC AND WILD ONION CONTROL: Apply 2-1/2 to 3-3/4 pints of product per acre making three applications, Fall-Spring-Fall or Spring-Fall-Spring, starting in the late Fall or early Spring.

GENERAL WEED CONTROL (Airfields, Roadsides, Vacant Lots, Drainage Ditchbanks, Fencerows, Industrial Sites, Rights-of-Way, and similar areas):

Use 1-1/4 to 3-3/4 pints of product per acre. Apply when most annual broadleaf weeds are still young and growing vigorously. Apply when perennial and biennial weeds are actively growing and near the bud stage, but before flowering. For best results on tansy ragwort and musk thistle, treat in rosette stage, before bolting. A second application is usually needed for best results on thistle, nettle, and bindweed. Treat wild onion or garlic in early Spring and in Fall when they are young and growing actively. Mix 2-1/2 pints of this product in 2 quarts kerosene or diesel oil then add this mixture to 100 gallons of water. Apply 300 to 500 gallons of spray per acre, depending on the stand. The addition of a wetting agent (spray adjuvant) is suggested. Usually 2-1/2 pints per acre will give adequate control. Do not use on herbaceous ground covers or creeping grass such as Bent. Legumes will usually be damaged or killed. Deep-rooted perennials may require repeat applications. Do not use on freshly seeded turf until grass is well established. Delay reseeding for 30 days.

CONTROL OF SOUTHERN WILD ROSE: On rangelands, roadsides and fencerows, use 2-3/4 quarts of this product plus 4 to 8 ounces of an agricultural surfactant per 100 gallons of water and spray thoroughly as soon as foliage is well developed. Two or more treatments may be required. On rangeland, apply a maximum of 4-1/3 quarts of this product per acre per application.

SPOT TREATMENT IN NON-CROP AREAS: To control broadleaf weeds in small areas with a hand or back pack sprayer, use 2-1/2 fluid ounces of this product per gallon of water and spray to thoroughly wet all foliage.

GRASSES IN CONSERVATION RESERVE PROGRAM AREAS: To control annual broadleaf weeds apply when weeds are actively growing. Use 1/4 to 1/2 pint per acre when weeds are small; use higher rates on older weeds. Excessive injury may result if applied to young grasses with fewer than 6 leaves or prior to grasses being well established. To control biennial and perennial broadleaf weeds in established grasses apply at a rate of 1-1/4 to 2-1/2 pints per acre. Apply to actively growing weeds. Treat when biennial weeds are in the seedling to rosette stage and before flower stalks become apparent. Treat perennial weeds in the bud to bloom stage.

NOTE: Suggest at least 2 gallons of water per acre by air and 5 gallons of water per acre by ground. Do not harvest or graze treated Conservation Reserve Program areas. Do not apply to grasses in the boot to dough stage if grass seed production is desired.

WOODY PLANT CONTROL: To control woody plants susceptible to 2,4-D such as Alder, Buckbrush, Elderberry, Sumac, Cherokee rose, Japanese honeysuckle, Virginia creeper, Wild grape and Willow on non-crop areas such as rights-of-way, fence rows, roadsides and along ditchbanks, use 1-1/4 to 1-3/4 quarts of product per acre in 30 to 100 gallons of water. Lower volume of water can be used unless applying through such equipment as Directa-Spra, Wobbler, Mini Wobbler, Spirometer. Spray brush 5 to 8 feet tall, after Spring foliage is well developed. Wet all parts of the plants thoroughly, including stem and foliage, to the point of runoff. Higher volumes of up to 300 to 500 gallons of

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spray per acre may be necessary where the brush is very dense and over 6 to 8 feet high. Spraying can be effective at anytime up to 3 weeks before frost as long as soil moisture is sufficient for active growth of the brush. Control will be less effective in mid-summer during hot dry weather when soil moisture is deficient and plants are not actively growing. Oil or wetting agent may be added to the spray, if needed for increased effectiveness. Hard-to-control species may require re-treatment next season. In general, it is better to cut tall woody plants and spray sucker growth when 2 to 4 feet tall.

SAND SHINNERY OAK AND SAND SAGEBRUSH: On the oak, use 1-1/3 pints of this product in 5 gallons of oil or in 4 gallons of water plus 1 gallon of oil per acre. Apply by aircraft between May 15 and June 15. On the sagebrush, use 1-1/3 pints in 3 gallons of oil per acre and apply by aircraft when foliage is fully expanded and the brush is actively growing.

BIG SAGEBRUSH AND RABBITBRUSH: Use 1-1/3 to 4-1/3 pints in 2 to 3 gallons of oil or in 3 to 5 gallons of oil-water emulsion spray. For rabbitbrush, the 4-1/3 pints rate is usually required. Brush should be leafed out and growing actively when treated. Retreatment may be needed.

Chamise, Manzanita, Buckbrush, Coastal Sage, Coyotebrush and Certain other Chaparral Species: Use 1-1/3 to 4-1/3 pints per acre in 5 to 10 gallons of water. One gallon of fuel oil may be included in the spray mixture for added effectiveness. Make applications by aircraft or ground equipment to obtain uniform spray coverage. For effective control, the brush must be fully leafed out and growing actively when sprayed. Retreatment may be needed. Consult state or local brush control specialists for most effective rate, volume and timing of spray application.

CATTAILS, TULE (BULRUSH), AND OTHER RUSHES: Mix 2-1/2 pints of Solution Emulsible and 1 gallon of diesel oil or kerosene, then add this mixture to 100 gallons of water (1 to 1-1/2 quarts of Solution™ Emulsible in 400-800 gallons of spray per acre). Addition of a wetting agent may be advisable. Apply in the Spring during flower head emergence. Spray to wet all foliage. Respray if needed when regrowth is 3 to 5 feet tall.

USES IN FOREST MANAGEMENT

Conifer Release: For control of Alder, apply 1 to 1-1/4 quarts of product per acre in 8 to 25 gallons of water, and apply as a foliage spray. Treat when 3/4 of the brush foliage has attained full size leaves and before new conifer growth reaches 2" in length. This is usually between early May and mid-June. Adjust treatment date depending on stage of growth and brush species. This may cause leader deformation on exposed firs, but they should overcome this during the second year after spraying.

To control susceptible brush species such as ceanothus spp., chinquapin, madrone, manzanita, oak and tanoak and to release Douglas fir, hemlock, Sitka spruce or grand fir, apply 2 quarts of product per acre before new growth on Douglas fir is 2" long. To control manzanita and ceanothus in ponderosa pine, apply 1-3/4 quarts of Solution™ Emulsible before pine growth begins in Spring.

To increase performance, add 2 to 4 quarts of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rate.

After northern conifers, jack pine, red pine, black spruce, and white spruce cease growth and "harden off" (usually in mid-July), a spray of 3/4 to 1-3/4 quarts of product in 8 to 25 gallons of water per acre may be applied by air to control certain competing hardwood species such as Alder, Aspen, Birch, and Willow. Since this treatment may cause occasional conifer injury, do not use if such injury cannot be tolerated. Consult your regional or extension forester or state herbicide specialist for recommendations to fit local conditions.

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Tree Injections (Pine Release): To control hardwoods, such as Oaks, Hickory, Maple, Pecan, Elm, Sumac, Sweetgum and Hawthorn in forest and other non-crop areas, apply undiluted Solution™ Emulsible in a concentrate tree injector calibrated to apply .6 ml. per injection. Space injections 2" apart, edge to edge, completely around the tree and close to the base. The injector bit must penetrate the inner bark. On hard-to-kill species such as Hickory, Dogwood, Red maple, Blue beech and Ash make injections 1-1½" apart, edge to edge. Treatment may be made at any time of the year. For best results, injections should be made during growing season, May 15-October 15. For dilute injections, mix 2/3 gallon of Solution Emulsible in 19 gallons of water.

Dormant Application (other than pine): For the control of susceptible deciduous brush species such as alder, cascara, cherry poplar and serviceberry apply up to 2 quarts of product per acre in sufficient diesel, fuel oil or kerosene for good coverage. Application may be made by ground or air and should be made before conifer bud break.

Pine Only: Make application while pine buds are still dormant. Apply 1-1/4 quarts of product per acre in sufficient water for good coverage by air or ground equipment. Do not use this application unless some pine injury is acceptable. Use of diesel, kerosene, or other oil, or addition of surfactants to spray mix may cause unacceptable pine injury.

Herbaceous Weed Control: To control over-wintering susceptible weeds such as false dandelion, klamath weed, plantain, tansy ragwort apply 2/3 to 2 quarts of product in sufficient water for good coverage. Make application at rates and timing indicated above if pines are present. For control of hazel brush and similar species in the Lake States area, apply 1-1/4 quarts of product per acre in 8 to 25 gallons of water, when new shoot growth of Hazel is complete (usually mid-July).

Site Preparation: (As Budbreak Spray) - For control of Alder prior to planting seedlings, apply 1-1/4 to 2-1/2 quarts of product per acre in 8 to 25 gallons of water, after Alder budbreak but before foliage is 1/4 full size. Application may be made by air or ground. If desired, diesel, fuel oil or kerosene may be substituted for water as diluent. **(As Foliage Spray)** - For control of Alder prior to planting seedlings, apply 1-1/4 quarts of product per acre in 8 to 25 gallons of water, after most Alder leaves are full size. To increase penetration, 2 to 4 quarts per acre of diesel, fuel oil, kerosene, or a suitable approved agricultural surfactant at recommended label rates, may be added to the spray mixture.

TANK MIXES

Read and follow the label of each tank mix product used for precautionary statements, directions for use, geographic and other restrictions.

Using Riverdale Solution™ Emulsible and Bucril^(R) ME4 for weed control on cereal grains (wheat, barley and rye): Bucril ME4 Broadleaf Herbicide will control some annual weeds that are resistant to Solution™ Emulsible and may be tank mixed with Solution™ Emulsible for broader spectrum weed control on small grains. In cereal areas except Washington, Oregon and Idaho, use 1/4 to 1/2 pint of Solution Emulsible plus 1/2 to 3/4 pint of Bucril ME4 per acre. In Washington, Oregon and Idaho: use 1/4 to 1/2 pint of Solution™ Emulsible plus 3/4 to 1 pint Bucril ME 4 per acre. First mix the Solution™ Emulsible in water then add the Bucril ME4. Use the higher rates for larger weeds or where weed growth is slow due to dry or cold weather. Apply before weeds are 6 inches high. Use 10 to 20 gallons total spray volume per acre with ground equipment or 5 to 10 gallons total spray volume with air application. Use higher volume on larger weeds.

Using Riverdale Solution™ Emulsible and Sencor as knockdown herbicides for no-till:

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Solution™ Emulsible with Sencor DF alone or in combination with Dual, Lasso, Surflan or Prowl may be applied as an early preplant surface application for the control of certain broadleaf weeds and grasses in soybeans in minimum or no-till products. Application is recommended 30 days prior to planting. Apply at rate of 1-1/3 pints Solution™ Emulsible(1# A.I.) per acre with labeled rates of Sencor. Where grass herbicide is used in tank mix, apply at the rates specified on that product's label.

Using Riverdale Solution™ Emulsible and Turbo 8EC in reduced-tillage or no-till systems: Solution™ Emulsible may be applied in combination with Turbo 8EC for the control of annual grasses and broadleaf weeds and the suppression of emerged perennial weeds when soybeans are directly seeded into a stale seedbed, cover crop or in previous crop residues. Special precautions: poor weed control and/or crop injury may result if directions are not followed. Do not use a rib-type press wheel on your no-till planter or crop injury may result. Apply at a rate of 1-1/3 pints Solution™ Emulsible(1# A.I.) per acre with labeled rates of Turbo 8EC. Application is recommended 30 days prior to planting.

Using Riverdale Solution™ Emulsible and Poast as a burndown prior to planting soybeans: for broad spectrum post-emergence weed control, a tank mix application of Solution™ Emulsible with Poast may be made for control of emerged broadleaf and grass weeds before planting soybeans. Apply at a rate of 2/3 pints Solution™ Emulsible(1/2# A.I.) per acre with labeled rates of Poast.

Using Riverdale Solution™ Emulsible and Garlon 4 or Garlon 3A tank Mixtures for Non-Crop Areas: Broadleaf Weed Control: Use 1-1/4 to 2-1/2 pints Solution™ Emulsible plus 2 to 6 pints Garlon 4 (or 3 to 8 pints Garlon 3A) per acre. For wider spectrum control of broadleaf weeds and woody plants. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing. Woody Plant Control Broadcast Foliar Spray: Use 1/2 to 1-1/4 gallons Solution™ Emulsible plus 1-1/2 to 3 quarts Garlon 4 (or 2 to 4 quarts Garlon 3A) per acre. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when woody plants are actively growing. Woody Plant Control High Volume Leaf-Stem Treatment with Ground Equipment: Use 1/2 to 5 quarts Solution™ Emulsible plus 1-1/2 to 12 pints Garlon 4 (or 2 to 16 pints Garlon 3A) per acre. Mix 1/2 to 2 qts. Solution™ Emulsible plus 1-1/2 to 3 pts. Garlon 4 or 2 to 4 pints Garlon 3A in enough water to make 100 gallons of spray. Apply at a volume of 100 to 400 gallons of total spray per acre depending on size and density of woody plants. Thoroughly wet all leaves, stems, and root collars of plants to be controlled. Wood Plant Control Aerial Application (Helicopter only): Use 1/2 to 1-1/4 gallons Solution™ Emulsible plus 3 to 4 quarts Garlon 4 (or 4 to 6 quarts Garlon 3A) per acre. Apply in a total spray volume of 10 to 30 gallons per acre using drift control equipment such as Microfoil boom or an effective drift control agent such as Lo-Drift Spray Additive. Use the higher rates and volumes when plants are dense or under drought conditions.

Using Riverdale Solution™ Emulsible and Banvel Herbicide tank mixtures for Non-Crop Areas: Annual broadleaf weeds: Use 1-1/4 to 2-1/2 pints Solution™ Emulsible plus 1/2 to 1-1/2 pints Banvel. For wider spectrum control of broadleaf weeds and woody plants. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing. Use the higher rates when treating dense or tall vegetative growth. Perennial and Biennial Broadleaf Weeds: Use 2 to 4 pints Solution™ Emulsible plus 1/2 to 6 pints Banvel. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre. Apply when broadleaf weeds are actively growing but prior to flowering. Use the lower rates for

biennials less than 3 inches rosette diameter. Use the higher rates for perennial weeds or for biennial weeds past the 3 inch rosette stage. Woody Plant Control Broadcast, High Volume, Stem Foliage or Aerial Application: Use 1/2 to 1-1/4 gallons Solution™ Emulsible plus 2 to 8 quarts Banvel. Apply as a broadcast spray in enough water to deliver 20 to 100 gallons total spray per acre or apply as a high volume stem foliage spray in enough volume to thoroughly wet leaves, stems and root collars (100 to 400 gallons per acre) or apply aerially in enough water to deliver total spray volume of 10 to 30 gallons per acre using drift control equipment such as the Microfoil Boom or an effective drift control agent such as Lo-Drift Spray Additive. Use the higher rates and volumes when plants are dense or under drought conditions.

Using Riverdale Solution™ Emulsible and Escort^(R), Oust^(R) and Telar^(R): To improve control of some target species, this product may also be tank mixed with Escort, Oust, and Telar herbicides for post-emergent weed control. Tank mixes have shown improved control where resistant bio-types are present.

NOTE: All intended tank mix combinations should be used only in recommended areas on the same broadleaf weed species found on both labels. For application methods and other use specifications, use the most restricted limitations from labelling of both products.

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. Do not contaminate water, food or feed by storage or disposal. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high.

PESTICIDE 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 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. 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, by burning. If burned, stay out of smoke.

Local conditions may affect the use of this chemical. Consult State Agricultural Extension or Experiment Station weed specialist for specific recommendations for local weed problems and for information on possible lower dosages.

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Garlon and Surflan are trademarks of the DowElanco

Banvel is a trademark of Sandoz Crop Protection

Escort, Oust and Telar are trademarks of E. I. DuPont de Nemours & Co. (Inc.)

Poast is a trademark of BASF Corp.

Dual is a trademark of Ciba-Geigy Corp.

Lasso is a trademark of Monsanto Agri Co.

Sencor is a trademark of Bayer AG

Turbo is a trademark of Mopay Corp.

Prowl is a trademark of American Cyanamid Co.

WARRANTY: Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended, and other influencing factors in the use of this product are beyond the control of the seller.

Buyer assumes all risk of use, storage or handling of this material not in strict

accordance with directions given herewith.

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