

Leaflet

### ARSENAL®/DIURON 70 DG HERBICIDE

**ACTIVE INGREDIENT:**

Imazapyr (2-[4,5-dihydro-4-methyl-4-(1-methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridinecarboxylic acid).....7.78%

Diuron (3-[3,4-dichlorophenyl]-1,1-dimethylurea).....62.22%

INERT INGREDIENTS.....30.00%

TOTAL.....100.0%

EPA Reg. No. 241-

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION/PRECAUCION**

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

In case of emergency endangering life or property involving this product, call collect, day or night, Area Code 201-835-3100. See next page for Additional Precautionary Statements

**ACCEPTED**  
~~RECEIVED~~  
In EPA Letter Dated

JAN 29 1996

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide registered under EPA Reg. No.

241-372

AMERICAN CYANAMID COMPANY  
AGRICULTURAL PRODUCTS DIVISION  
SPECIALTY PRODUCTS DEPARTMENT  
WAYNE, NJ 07470 ©1994

Net Contents:

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## PRECAUTIONARY STATEMENTS

### HAZARDS TO HUMANS

#### CAUTION!

Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

#### FIRST AID

**IF ON SKIN:** Wash with plenty of soap and water. Get medical attention if irritation persists.  
**IF IN EYES:** Flush with plenty of water. Get medical attention if irritation persists.  
**IF INHALED:** Remove victim to fresh air.

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. DO NOT contaminate water when disposing of equipment washwaters.

### PHYSICAL AND CHEMICAL HAZARDS

Spray solutions of ARSENAL/DIURON 70 DG herbicide should be mixed, stored and applied only in stainless steel, fiberglass, plastic and plastic-lined steel containers.

DO NOT mix, store or apply ARSENAL/DIURON 70 DG herbicide or spray solutions of ARSENAL/DIURON 70 DG herbicide in unlined steel (except stainless steel) containers or spray tanks.

#### IMPORTANT

**DO NOT** use on food or feed crops. **DO NOT** treat irrigation ditches, or water used for crop irrigation or for domestic purposes. Keep from contact with fertilizers, insecticides, fungicides and seeds. **DO NOT** apply except as recommended or drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. **DO NOT** use on lawns, walks, driveways, tennis courts, or similar areas. **DO NOT** side trim desirable vegetation with this product. Prevent drift of spray to desirable plants. **DO NOT USE** in California. Clean application equipment after using this product by thoroughly flushing with water.

2/95

### GENERAL INFORMATION

ARSENAL/DIURON 70 DG herbicide is a dispersible granule to be mixed with water and a spray adjuvant and applied as a spray solution to noncropland areas such as railroads, utility, pipeline and highway rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, non-irrigation ditchbanks, and other similar areas where bare ground is desired. ARSENAL/DIURON 70 DG herbicide may also be used for weed control under paved surfaces.

ARSENAL/DIURON 70 DG herbicide will control most annual and perennial grasses and broadleaf weeds in addition to many brush and vine species and ARSENAL/DIURON 70 DG herbicide will provide residual control of weeds which germinate in the treated areas. This product may be applied either preemergence or postemergence to the weeds; however, postemergence application is the method of choice in most situations, particularly for perennial species. For maximum activity, weeds should be growing vigorously at the time of postemergence application and the spray solution should include a spray adjuvant (for specific recommendations see the adjuvant section of this label).

### DISCLAIMER

The label instructions for the use of this product reflect the opinion of experts based on field use and tests. The directions are believed to be reliable and should be followed carefully. However, it is impossible to eliminate all risks inherently associated with use of this product. Ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the use or application of the product contrary to label instructions, all of which are beyond the control of American Cyanamid Company. All such risks shall be assumed by the user.

American Cyanamid Company warrants only that the material contained herein conforms to the chemical description on the label and is reasonably fit for the use therein described when used in accordance with the directions for use, subject to the risks referred to above.

Any damages arising from a breach of this warranty shall be limited to direct damages and shall not include consequential commercial damages such as loss of profits or values or any other special or indirect damages.

American Cyanamid Company makes no other express or implied warranty, including other express or implied warranty of FITNESS or of MERCHANTABILITY.

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

ARSENAL/DIURON 70 DG herbicide should be used only in accordance with recommendations on the leaflet label attached to the container. Keep containers closed to avoid spills and contamination.

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**STORAGE AND DISPOSAL**

**PROHIBITIONS:** DO NOT contaminate water, food or feed by storage or disposal of this product.

**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Completely empty bag into application equipment. Then dispose of empty bag in an approved sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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**APPLICATION INSTRUCTIONS**

ARSENAL/DIURON 70 DG herbicide controls many annual and perennial weeds when applied either preemergence or postemergence (See the weeds controlled section for a list of susceptible weeds).

ARSENAL/DIURON 70 DG herbicide should be dissolved in water and applied with properly calibrated equipment to deliver the desired gallons per acre of spray volume in a uniformly distributed spray pattern across the treated area. ARSENAL/DIURON 70 DG herbicide should be applied at 5 to 19 pounds of product per acre. Length of control may be rainfall dependent. See table below for suggested rates according to average annual rainfall for your region.

Ensure that spray equipment maintains adequate agitation to keep ARSENAL/DIURON 70 DG herbicide in solution.

**Average Annual Rainfall in Inches**

**Pounds of ARSENAL/DIURON  
70 DG Herbicide**

Less than 15 inches  
Between 15 and 35 inches  
Greater than 35 inches

5 - 10 pounds of product  
6.5 - 13 pounds of product  
13 - 19 pounds of product

(Insert Rainfall Map of the United States)

**Postemergence Applications:** Always use a spray adjuvant (See adjuvant section of this label) when making a postemergence application. For optimum performance on tough to control perennial weeds, applications should be made at a total volume of 100 gallons per acre or less in combination with 1 quart per acre of a methylated seed oil. For quicker burndown or brown-out of target weeds, ARSENAL/DIURON 70 DG herbicide may be tank-mixed with products such as Roundup<sup>1</sup> or Finale<sup>2</sup> (See the tank-mix section of this label for other products and specific recommendations).

**Spot Treatments:** ARSENAL/DIURON 70 DG herbicide may be used as a follow-up treatment to control escapes or weed encroachment in a bareground situation. To prepare the spray solution, thoroughly mix in each gallon of water at least 1 pound of ARSENAL/DIURON 70 DG herbicide plus an adjuvant. Do not exceed 19 pounds of product per acre. For increased burndown, include Roundup, Finale, or similar products (See the tank-mix section of this label for other products and specific recommendations).

**TANK MIXES**

ARSENAL/DIURON 70 DG herbicide may be tank-mixed with Roundup, Karmex<sup>3</sup> (Diuron), Oust<sup>3</sup>, Garlon<sup>4</sup>, Finale, MSMA, Banvel<sup>5</sup>, Vanquish<sup>5</sup>, PENDULUM<sup>®</sup>, or ARSENAL<sup>®</sup>. Tank-mixes with 2,4-D or products which contain 2,4-D, have resulted in reduced performance of perennial weed control.

Consult manufacturer's labels for specific rates and weeds controlled. Always follow the more restrictive label when making an application involving tank-mixes.

<sup>1</sup>Trademark of Monsanto Company.

<sup>2</sup>Trademark of Hoechst AG

<sup>3</sup>Trademark of E.I. Du Pont de Nemours and Company

<sup>4</sup>Trademark of Dow Chemical Company

<sup>5</sup>Trademark of Sandoz Ltd.

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## FOR CONTROL OF UNDESIRABLE WEEDS UNDER PAVED SURFACES

ARSENAL/DIURON 70 DG herbicide can be used under asphalt, pond liners and other paved areas, ONLY in industrial sites or where the pavement has a suitable barrier along the perimeter that prevents encroachment of roots of desirable plants.

ARSENAL/DIURON 70 DG herbicide should be used only where the area to be treated has been prepared according to good construction practices. If rhizomes, stolons, tubers or other vegetative plant parts are present in the site, they should be removed by scalping with a grader blade to a depth sufficient to ensure their complete removal.

**IMPORTANT:** Paving should follow ARSENAL/DIURON 70 DG herbicide applications as soon as possible. **DO NOT** apply where the chemical may contact the roots of desirable trees or other plants.

This product is not recommended for use under pavement on residential properties such as driveways or parking lots, nor is it recommended for use in recreational areas such as under bike or jogging paths, golf cart paths, or tennis courts, or where landscape plantings could be anticipated.

Injury or death of desirable plants may result if this product is applied where roots are present or where they may extend into the treated area. Roots of trees and shrubs may extend a considerable distance beyond the branch extremities or the so-called drip line.

### APPLICATION DIRECTIONS FOR PAVED SURFACES:

Applications should be made to the soil surface only when final grade is established. Do not move soil following ARSENAL/DIURON 70 DG herbicide application.

Apply ARSENAL/DIURON 70 DG herbicide in sufficient water (at least 100 gal. per acre) to ensure thorough and uniform wetting of the soil surface, including the shoulder areas. Add ARSENAL/DIURON 70 DG herbicide at a rate of 19 pounds of product per acre to clean water in the spray tank during the filling operation. Agitate before spraying.

If the soil is not moist prior to treatment, incorporation of ARSENAL/DIURON 70 DG herbicide is needed for herbicide activation. ARSENAL/DIURON 70 DG herbicide can be incorporated into the soil to a depth of 4 to 6 inches using a rototiller or disc. Rainfall or irrigation of 1 inch will also provide uniform incorporation. Do not allow treated soil to wash or move into untreated areas.

## ADJUVANTS

**Postemergence applications of ARSENAL/DIURON 70 DG herbicide require a spray adjuvant.**

**Nonionic Surfactants:** Use a nonionic surfactant at the rate 0.25% v/v or higher (see manufacturer's label) of the spray solution (0.25% v/v is equivalent to 1 quart in 100 gallons). For best results, select a nonionic surfactant with a HLB (hydrophilic to lipophilic balance) ratio between 12 and 17 and having at least 70% surfactant in the formulated product (alcohols, fatty acids, oils, ethylene glycol or diethylene glycol should not be considered as surfactants to meet the above requirements).

**Methylated Seed Oils or Vegetable Oil Concentrates:** Instead of a surfactant, a vegetable-based seed oil concentrate may be used at the rate of 1.5 to 2 pints per acre. Research indicates that these oils may aid in the deposition and uptake of ARSENAL/DIURON 70 DG herbicide under moisture or temperature stress. Methylated seed oils are the adjuvant of choice and will increase control of perennial weeds.

**Silicone-Based Surfactants:** See manufacturer's label for specific rate recommendations. Silicone-based surfactants may reduce the surface tension of the spray droplets allowing greater spreading on the leaf surface as compared to conventional nonionic surfactants. However, some silicone-based surfactants may dry too quickly, limiting herbicide uptake.

**Fertilizer/Surfactant Blends:** Nitrogen-based liquid fertilizers such as 28%N, 32%N, 10-34-0, or ammonium sulfate, may be added at the rate of 2 to 3 pints per acre in combination with the recommended rate of nonionic surfactant or vegetable/seed oil concentrate. The use of fertilizers in a tank mix without a nonionic surfactant is not recommended.

## WEEDS CONTROLLED BY ARSENAL/DIURON 70 DG HERBICIDE

ARSENAL/DIURON 70 DG herbicide will provide preemergence or postemergence control with residual control of the following target vegetation species at the rates listed. Residual control refers to control of newly germinating seedlings in both annuals and perennials. In general, annual weeds may be controlled by preemergence or postemergence applications of ARSENAL/DIURON 70 DG herbicide; whereas, for established biennials and perennials postemergence applications of ARSENAL/DIURON 70 DG herbicide are recommended. The rates shown below pertain to broadcast applications and indicate the relative sensitivity of these weeds. ARSENAL/DIURON 70 DG herbicide should be used only in accordance with the recommendations on this label.

### WEEDS CONTROLLED<sup>1</sup>

#### GRASSES

<u>COMMON NAME</u>	<u>SPECIES</u>	<u>GROWTH HABIT<sup>2</sup></u>
Annual bluegrass	( <u>Poa annua</u> )	A
Annual ryegrass	( <u>Lolium multiflorum</u> )	A
Annual sweet vernalgrass	( <u>Anthoxanthum odoratum</u> )	A
Bahiagrass	( <u>Paspalum notatum</u> )	P
Barnyardgrass	( <u>Echinochloa crusgalli</u> )	A
Beardgrass	( <u>Andropogon spp.</u> )	P
Bermudagrass	( <u>Cynodon dactylon</u> )	P
Big bluestem	( <u>Andropogon gerardii</u> )	P
Broadleaf signalgrass	( <u>Brachiaria platyphylla</u> )	A
Canada bluegrass	( <u>Poa compressa</u> )	P
Cattail	( <u>Typha spp.</u> )	P
Cheat	( <u>Bromus secalinus</u> )	A
Cogongrass	( <u>Imperata cylindrica</u> )	P
Crabgrass	( <u>Digitaria spp.</u> )	A
Dallisgrass	( <u>Paspalum dilatatum</u> )	P
Downy brome	( <u>Bromus tectorum</u> )	A
Fall panicum	( <u>Panicum dichotomiflorum</u> )	A
Feathertop	( <u>Pennisetum villosum</u> )	P
Fescue	( <u>Festuca spp.</u> )	A/P
Foxtail	( <u>Setaria spp.</u> )	A
Goosegrass	( <u>Eleusine indica</u> )	A



Guineagrass	( <u>Panicum maximum</u> )	P
Italian ryegrass	( <u>Lolium multiflorum</u> )	A
Johnsongrass	( <u>Sorghum halepense</u> )	P
Kentucky bluegrass	( <u>Poa pratensis</u> )	P
Kyllinga	( <u>Cyperus brevifolius</u> )	A
Lovegrass	( <u>Eragrostis spp.</u> )	A/P
Maidencane	( <u>Arundinaria amabilis</u> )	P
Orchardgrass	( <u>Dactylis glomerata</u> )	P
Paragrass	( <u>Brachiaria mutica</u> )	P
Peppergrass	( <u>Lepidium virginicum</u> )	A
Phragmites	( <u>Phragmites australis</u> )	P
Prairie cordgrass	( <u>Spartina pectinata</u> )	P
Prairie threeawn	( <u>Aristida oligantha</u> )	P
Quackgrass	( <u>Agropyron repens</u> )	P
Rattail fescue	( <u>Vulpia myuros</u> )	A
Reed canarygrass	( <u>Phalaris arundinacea</u> )	P
Ricegrass	( <u>Oryzopsis hymenoides</u> )	A
Saltgrass	( <u>Distichlis stricta</u> )	P
Sand dropseed	( <u>Sporobolus cryptandrus</u> )	P
Sandbur	( <u>Cenchrus spp.</u> )	A
Smooth brome	( <u>Bromus inermis</u> )	P
Sprangletop	( <u>Leptochloa spp.</u> )	A
Timothy	( <u>Phleum pratense</u> )	P
Torpedograss	( <u>Panicum repens</u> )	P
Vaseygrass	( <u>Paspalum urvillei</u> )	P
Velvetgrass	( <u>Holcus lanatus</u> )	A
Wild barley	( <u>Hordeum spp.</u> )	A
Wild oats	( <u>Avena fatua</u> )	A
Wirestem muhly	( <u>Muhlenbergia frondosa</u> )	P
Witchgrass	( <u>Panicum capillare</u> )	A

**BROADLEAF WEEDS<sup>1</sup>**

Arrowwood	( <u>Pluchea sericea</u> )	A
Ageratum	( <u>Asteraceae houstonianum</u> )	P
Broom snakeweed <sup>3</sup>	( <u>Gutierrezia sarothrae</u> )	P
Bull thistle	( <u>Cirsium vulgare</u> )	B
Burdock	( <u>Arctium spp.</u> )	B
Camphorweed	( <u>Heterotheca subaxillaris</u> )	P
Canada thistle	( <u>Cirsium arvense</u> )	P
Carolina geranium	( <u>Geranium carolinianum</u> )	A
Carpetweed	( <u>Mollugo verticillata</u> )	A
Clover	( <u>Trifolium spp.</u> )	A/P
Cocklebur	( <u>Xanthium strumarium</u> )	A
Common chickweed	( <u>Stellaria media</u> )	A
Common ragweed	( <u>Ambrosia artemisiifolia</u> )	A
Corn spurry	( <u>Spergula arvensis</u> )	P
Dandelion	( <u>Taraxacum officinale</u> )	P
Dayflower	( <u>Commelina spp.</u> )	A/P
Desert Camelthorn	( <u>Alhagi pseudalhagi</u> )	P
Diffuse knapweed	( <u>Centaurea diffusa</u> )	A
Dock	( <u>Rumex spp.</u> )	P
Dogfennel	( <u>Eupatorium capillifolium</u> )	A
Filaree	( <u>Erodium spp.</u> )	A
Fleabane	( <u>Erigeron spp.</u> )	A
Giant ragweed	( <u>Ambrosia trifida</u> )	A
Goldenrod	( <u>Solidago spp.</u> )	P
Grey rabbitbrush	( <u>Chrysothamnus nauseosus</u> )	P
Gromwell	( <u>Lithospermum spp.</u> )	A
Groundcherry	( <u>Physalis spp.</u> )	A/P
Hawksbeard	( <u>Crepis spp.</u> )	A
Hoary vervain	( <u>Verbena stricta</u> )	P
Horsenettle	( <u>Solanum carolinense</u> )	P
Horseweed	( <u>Conyza canadensis</u> )	A
Indian mustard	( <u>Brassica juncea</u> )	A
Japanese bamboo	( <u>Polygonum cuspidatum</u> )	P
Knawel	( <u>Scleranthus annuus</u> )	A
Kochia	( <u>Kochia scoparia</u> )	A
Larbsquarters	( <u>Chenopodium album</u> )	A
Lespedeza	( <u>Lespedeza spp.</u> )	P
Little mallow	( <u>Malva parviflora</u> )	B
Marigold	( <u>Tagetes spp.</u> )	P
Milkweed	( <u>Asclepias spp.</u> )	P
Miners lettuce	( <u>Montia perfoliata</u> )	A

Morningglory	( <u>Ipomoea</u> spp.)	A/P
Mullein	( <u>Verbascum</u> spp.)	B
Nettleleaf goosefoot	( <u>Chenopodium murale</u> )	A
Oxeye daisy	( <u>Chrysanthemum leucanthemum</u> )	P
Pennycress	( <u>Thlaspi</u> spp.)	A
Pepperweed	( <u>Lepidium</u> spp.)	A
Pigweed	( <u>Amaranthus</u> spp.)	A
Pineapple weed	( <u>Matricaria matricarioides</u> )	P
Plantain	( <u>Plantago</u> spp.)	P
Pokeweed	( <u>Phytolacca americana</u> )	P
Prickly sida	( <u>Sida spinosa</u> )	A
Primrose	( <u>Oenothera kunthiana</u> )	P
Puncturevine	( <u>Tribulus terrestris</u> )	A
Purple loosestrife <sup>3</sup>	( <u>Lythrum salicaria</u> )	P
Purslane	( <u>Portulaca</u> spp.)	A
Ragweed	( <u>Ambrosia</u> spp.)	A
Rush skeletonweed <sup>3</sup>	( <u>Chondrilla juncea</u> )	B
Russian knapweed	( <u>Centaurea repens</u> )	P
Russian thistle	( <u>Salsola kali</u> )	A
Saltbush	( <u>Atriplex</u> spp.)	A
Sesbania	( <u>Sesbania</u> spp.)	A
Sicklepod	( <u>Cassia obtusifolia</u> )	A
Silverleaf nightshade	( <u>Solanum elaeagnifolium</u> )	P
Shepherd's-purse	( <u>Capsella bursa-pastoris</u> )	A
Smartweed	( <u>Polygonum</u> spp.)	A/P
Sorrell	( <u>Rumex</u> spp.)	P
Sowthistle	( <u>Sonchus</u> spp.)	A
Speedwell	( <u>Veronica</u> spp.)	A
Stinging nettle <sup>3</sup>	( <u>Urtica dioica</u> )	P
Sunflower	( <u>Helianthus</u> spp.)	A
Sweet clover	( <u>Melilotus</u> spp.)	A/B
Tansymustard	( <u>Descurainia pinnata</u> )	A
Texas thistle	( <u>Cirsium texanum</u> )	P
Velvetleaf	( <u>Abutilon theophrasti</u> )	A
Western ragweed	( <u>Ambrosia psilostachya</u> )	P
Wild buckwheat	( <u>Polygonum convolvulus</u> )	A
Wild carrot	( <u>Daucus carota</u> )	B
Wild lettuce	( <u>Lactuca</u> spp.)	A/B
Wild parsnip	( <u>Pastinaca sativa</u> )	B
Wild radish	( <u>Raphanus raphanistrum</u> )	B
Wild turnip	( <u>Brassica campestris</u> )	B

Woollyleaf bursage	( <u>Franseria tomentosa</u> )	P
Yellow starthistle	( <u>Centaurea solstitialis</u> )	A
Yellow woodsorrel	( <u>Oxalis stricta</u> )	P

**VINES AND BRAMBLES<sup>1</sup>**

Blackberry <sup>4</sup>	( <u>Rubus</u> spp.)	P
Dewberry <sup>4</sup>	( <u>Rubus</u> spp.)	P
Field bindweed	( <u>Convolvulus arvensis</u> )	P
Greenbriar	( <u>Smilax</u> spp.)	P
Hedge bindweed	( <u>Calystegia sepium</u> )	A
Honeysuckle	( <u>Lonicera</u> spp.)	P
Kudzu <sup>5</sup>	( <u>Pueraria lobata</u> )	P
Morningglory	( <u>Ipomoea</u> spp.)	A/P
Poison ivy	( <u>Rhus radicans</u> )	P
Redvine	( <u>Brunnichia cirrhosa</u> )	P
Trumpet creeper	( <u>Campsis radicans</u> )	P
Virginia creeper	( <u>Parthenocissus quinquefolia</u> )	P
Wild buckwheat	( <u>Polygonum convolvulus</u> )	P
Wild grape	( <u>Vitis</u> spp.)	P
Wild rose	( <u>Rosa</u> spp.)	P

**BRUSH SPECIES<sup>1</sup>**

ARSENAL/DIURON 70 DG herbicide controls more than 30 species of brush.

<sup>1</sup> The higher rates should be used where heavy or well established infestations occur.

<sup>2</sup> Growth Habit - A = Annual, B = Biennial, P = Perennial

<sup>3</sup> For best results early postemergence applications are required.

<sup>4</sup> The degree of control is species dependent. Some Rubus species may not be completely controlled.

<sup>5</sup> Use a minimum of 75 GPA - Control of established stands may require repeat applications.