128829
SHAUGHNESSEY NO.

1
REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 12-2-83 OUT 2/17/84

FILE OR REG. NO. 241-ETG

PETITION OR EXP. PERMIT NO.

DATE OF SUBMISSION 10-6-83

DATE RECEIVED BY HED 11-30-83

RD REQUESTED COMPLETION DATE 3-20-84

EEB ESTIMATED COMPLETION DATE 3/13/84

RD ACTION CODE/TYPE OF REVIEW 115/New Chemical

TYPE PRODUCT(S): I, D, H, F, N, R, S Herbicide

DATA ACCESSION NO(S). 251506

PRODUCT MANAGER NO. R. Taylor (25)

PRODUCT NAME(S) Arsenal, CL 243, 997, AC 243, 997

COMPANY NAME American Cyanamid Company

SUBMISSION PURPOSE Proposed full registration of new product on noncropland areas

SHAUGHNESSEY NO.	CHEMICAL, & FORMULATION	% A.I.
128829	Arsenal	27.6%

Ecological Effects Branch Review

100. Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The registrant has submitted basic studies in support of a Section 3(c)(5) Regostratopm for AC 243, 997 and for their formulation AC 252, 925. AC 252, 925 is the company's designation for their trade name product, Arsenal. Arsenal is for use on noncropland areas to control annual and perennial grasses and broadlead weeds. It can be applied preemergence or postemergence.

100.2 Formulation Information

AC 243, 997 or CL 243, 997
Technical = 93% A.I.

AC 252, 925 or CL 252, 925 or Arsenal

2-[4,5-dihydro-4-methyl-4-(1 methylethyl)-5-oxo-1H-imidazol-2-yl]-3-pyridine carboxylic acid with 2-propanamine + (1:1)...27.6%

Inert Ingredient.....72.6%

+ Equivalent to 22.6% 2-[4,5-dihydro-4-methyl-(1-methylethyl]-5-oxo-1H-imidazol-2-yl]-3-pyridine carboxylic acid or 2 pounds acid per gallon.

100.3 Application Methods, Directions, Rates

(excerpted from submission)

A postemergence application of ARSENAL is recommended for control of most annual and perennial grasses and broadleaf weeds on noncropland areas such as railroad, utility and pipeline rights-of-way, utility plant sites, petroleum tank farms, pumping installations, fence rows, storage areas, and other similar areas.

MIXING INSTRUCTIONS

Mix the proper amount of ARSENAL in water in the spray tank with the agitator running. To minimize drift, a drift control agent may be added at the recommended label rate. A foam reducing agent may be added at the recommended label rate, if needed.

SPRAYING INSTRUCTIONS

Uniformly apply with properly calibrated ground equipment in 30 to 60 gallons of water per acre with a spray pressure of 25 to 50 psi. If the spray volume applied exceeds 60 gallons per acre, additional nonionic surfactant such as surfactant WK** or Ortho*** X-77 must be added at the rate of 1 quart per 100 gallons of spray to provide optimum wetting and/or contact activity.

**Registered trademark of E.I. duPont de Nemours and Company.

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100.4 Target Organisms (excerpted from submission)

ARSENAL herbicide will provide postemerence control with residual control of the following weed species at the rates listed.

BIENNIAL/PERENNIAL WEEDS

Apply 2-3 pints per acre††

Dandelion (Taraxicum officinale)
Field bindweed (Convolvalus arvenisis)
Guineagrass (Panicum maximum)
Honeylocust (Gleditsia triacanthos)
Johnsongrass (Sorghum halepense)
Multiflora rose (Rosa multiflora)
Ox-eye daisy (Chrysanthemum leucathemum)
Paragrass (Brachiaria mutica)
Quackgrass (Agropyron repens)
Sandspur (Cenchrus spp.)
Tall fescue (Festuca arundinacea)
Vaseygrass (Paspalum vurvillei)
Wild carrot (Daucus carota)

Apply 3-4 pints per acre††

Dewberry (Rubus spp.)
Greenbriar (Smilax spp.)
Honeysuckle (Lonicera spp.)
Oppossum grape (Cissus sicyoides)
Poison ivy (Rhus radicans)
Redvine (Brunnichia cirrhosa)
Trumpetcreeper (Campsis radicans)
Virginia creeper (Parthenocisus quinquefolia)

Apply 4-6 pints per acre††

Bermudagrass (Cynodon dactylon)
Blackberry (Rubus spp.)
Canada thistle (Cirsium arvense)
Mulberry (Morus spp.)
Sumac (Rhus spp.)

ANNUAL WEEDS

Apply 2-3 pints per acre††

Broadleaf signalgrass (Brachiaria platyphylla
Carpetweed (Mollugo verticillate)
Common ragweed (Ambrosia artemisiifolia)
Curly dock (Rumex crispus)
Downy brome (Bromus tectorum)
Fleabane (Erigeron spp.)
Foxtails (Setaria spp.)
Goldenrod (Solidago spp.)
Hoary vervain (Verbena stricta)
Kochia (Kochia scoparia)
Lambsquarters (Chenopodium alba)
Lezpedeza (Lezpedeza spp.)
Marestail (Erigeron canadensis)
Pigweed (Amaranthus spp.)
Plaintain (Plantago spp.)
Smartweed (Polygonum spp.)
Sorrel (Rumex spp.)
Sowthistle (Sonchrus spp.)
Sunflower (Helianthus annuus)
Wild buckwheat (Polygonum convolvulus)
Wild mustard (Brassica kaber)
Yellow woodsorrel (Oxalis stricta)

Apply 3-4 pints per acre††

Cocklebur (Xanthium pennsylvanicum)
Crabgrass (Digitaria spp.)
Goosegrass (Eleusine indica)
Morningglory (Ipomoea spp.)

†† The higher rates should be used where heavy or well established infestations occur.

100.5 Precautionary Labeling

DO NOT apply directly to any body of water. DO NOT contaminate water by cleaning of equipment or disposal of waste.

101 Hazard Assessment

101.1 Discussion

This submission is complicated by the fact that AC 243, 997, the technical, is mixed with isopropylamine to form a salt. Thus, the basic studies submitted with the technical mayer may not reflect the toxicity of the formulated product. The toxicity data for AC 243, 997 indicates that it is acutely practically nontoxic to avian and aquatic organisms. EEB cannot complete a hazard assessment on the formulated product since data is not available on the toxicity of the salt (AC 252, 295).

102 Classification

Cannot be addressed at this time due to lack of data on the formulated product.

103 Conclusions

EEB has completed a full risk assessment (3(c)(5) finding) of the proposed registration of AC 243, 997, the technical material. However, EEB cannot complete a full risk assessment (3(c)(5) finding) on AC 252, 295 (arsenal) the formulated product. When AC 243, 997 is mixed with isopropylamine, the resulting product (Arsenal) appears to be chemically altered from the technical. Therefore, EEB is requesting that the following studies be conducted with the formulated product-Arsenal.

§ 71-1 Avian single-dose oral LD_{50} test (1 test)
§ 71-2 Avian dietary LC_{50} test (2 test - waterfowl and upland game bird)
§ 72-1 Acute toxicity test for freshwater fish (2 test-warm water species and cold water species)
§ 72-2 Acute toxicity test for freshwater aquatic invertebrates (1 test)

EEB will consider a waiver of part of these studies, if the registrant can supply data that will fulfill one of the avian dietary studies (§71-2), one of the ~~avian dietary~~ freshwater fish studies (§72-1) and the aquatic invertebrate study and demonstrate equivalent toxicity levels to AC 243, 997.

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