Date Out EFB: 21 MAR 1984

Shaughnessy No. 1299-9

TO: Robert Taylor/Yowell
Product Manager 25
Registration Division
TS-767

FROM: Samuel Creeger, Chief
Review Section No. 1
Exposure Assessment Branch
Hazard Evaluation Division

Attached please find the environmental fate review of:

Reg./File No.: 241-EUP-RNR

Chemical: AC 243,997

Type Product: Herbicide

Product Name: ARSENAL Herbicide

Company Name: American Cyanamid

Submission Purpose: Experimental use permit for non-cropland areas

ZBB Code: ?

ACTION CODE: 700

Date in: 2/16/84

EFB # 4198

Date Completed: 3/21/84

TAIS (level II)	Days
60	1

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1.0 INTRODUCTION

American Cyanamid Corporation has submitted an application for an EUP to allow for testing the chemical Arsenal (EPA Reg./File No. 241-EUP-RNR) as a herbicide for controlling annual and perennial grasses and broadleaf weeds in non-cropland areas.

EAB considered a previous application for registration of Arsenal for the same use in review dated 3/15/84.

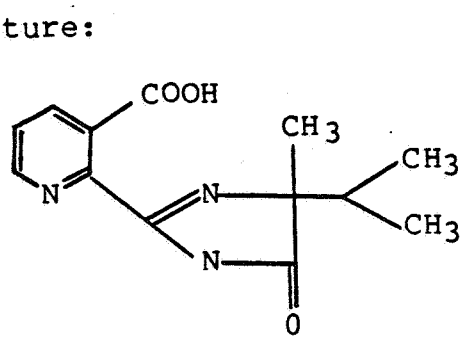
1.1 Chemical

Common/Code name: CL 243,997 or AC 243,997 (free acid)
CL 253,925 or AC 253,925 (2-propanamine salt) ? ?

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

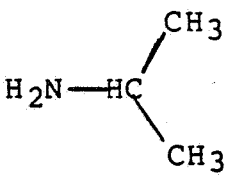
see AC252,9; for better naming. HCM 11/8/88

Chemical structure:



(free acid)

+



(2-propanamine)

2.0 DIRECTIONS FOR USE

Incomplete use directions were submitted to EAB. However, EAB assumes the directions are similar to those included in the application for registration of Arsenal reviewed previously be EAB.

Also, no experimental program was submitted to EAB.

3.0 DISCUSSION OF DATA

Data reviewed here were submitted under EPA Accession No. 252006. However, the data were identical to that submitted previously and considered by EAB in review dated 3/15/84. Those data were submitted in support of registration for ARSENAL (EPA Reg./File No. 241-ETG) for the same use of this current experimental use action.

For complete details of the studies, see the previous EAB review.

3.1 CL 243,997 Herbicide: The Hydrolysis of Carbon-14 Labeled CL 243,997. 5/28/82. M. Hussain. Cyanamid Report No. PDM-19-8. Exhibit 1.

CL 243,997 is stable to hydrolysis at pH 5 and 7 (25°). At pH 9 (25°C), half-life is calculated to be 325 days. EAB concluded that CL 243,997 will be stable in water at environmental temperature and pH.

3.2 ARSENAL Herbicide (AC 243,997): Aerobic Soil Metabolism of Carboxyl Carbon-14 Labeled AC 243,997 [Nicotinic acid, 2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl-] in Sandy Loam Soil. 9/12/83. M. Mallipudi. Cyanamid Report No. PD-M Vol 20-17. Exhibit 2.

Carboxyl-^{14}C-AC 243,997 slowly degraded (releasing $^{14}CO_2$) with a half-life of approximately 17 months. No degradation products other than $^{14}CO_2$ were identified.

This study is adequate to support the experimental use permit. However, the registrant should be informed that an additional study using AC 243,997 radio-labeled in another portion of the AC 243,997 molecule will be necessary to support registration. The submitted study alone is not adequate to define the soil metabolism of AC 243,997. The soil should be analyzed for additional soil degradation products.

3.3 No fish accumulation study was submitted. EAB notes the reported octanol/water partition coefficient = 1.3.

3.4 Rotational crop data are not relevant to this application.

3.5 No data on the environmental fate of 2-propanamine were submitted.

4.0 RECOMMENDATION

4.1 Adequate data on hydrolysis and aerobic soil metabolism are available to support the experimental use permit for Arsenal for the proposed use.

4.2 Data on the fish accumulation of Arsenal are not available. The fish accumulation study may be waived provided the registrant adds a restriction to the label prohibiting the experimental use of Arsenal in areas where residues may get into fish-bearing waters.

4.3 The deficiencies noted in the previous EAB review of registration of Arsenal for use on non-cropland areas should be communicated to the registrant:

4.3.1 The soil metabolism of AC 243,997 is not adequately defined. An additional soil metabolism study is needed to further define the soil degradation products of AC 243,997.

4.3.2 The field dissipation of AC 243,997 is not adequately defined. An additional field dissipation study is needed. Soil should be sampled at sufficient times to define the degradation of AC 243,997 and at sufficient depths to define the extent of leaching. Soil should be analyzed for the degradataion products identified in the soil metabolism study.

4.3.3 A fish accumulation study, or waiver based on adequate justification is needed.

4.3.3 Data on the environmental fate of 2-propanamine are needed.

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