Shaughnessy No.: 128821

Date Out of EAB OCT 7 1986

Signature: _____

To: R. Taylor
Product Manager # 25
Registration Division (TS-767)

From: Emil Regelman, Supervisory Chemist
Review Section #3
Exposure Assessment Branch
Hazard Evaluation Division (TS-769)

Attached, please find the EAB review of...

Reg./File # : 241-273

Chemical Name: No common chemical name (AC-243997)

Type Product : Herbicide

Product Name : Arsenal

Company Name : American Cyanamid Company

Purpose : Submission of field dissipation and fish accumulation studies to fill data gaps.

Action Code(s): 360

EAB #(s) : 5853

Date Received: 8/12/85

Monitoring Submitted: _____

Date Completed: 10/06/86

Monitoring Requested: _____

Total EAB Reviewing Time: 3.0 days

Deferrals to:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

1. CHEMICAL: Common name:

None

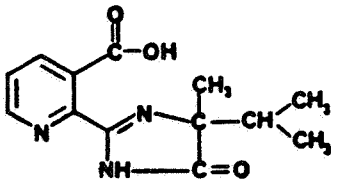
Chemical name:

2-(4-Isopropyl--4-methyl-5-oxo-2-imidazolin-2-yl)-nicotinic acid

Trade name(s):

Arsenal, AC 243,997

Structure:



Formulations:

Aqueous liquid.[a]

Physical/Chemical properties:[a]

Physical state: Clear, slightly viscous, pale yellow to dark green aqueous solution with slight ammonia odor.

Solubility: Soluble in water at pH 6.0-7.5.

[a] Farm Chemicals Handbook. 1986. Ed. R.T. Meister. Meister Publishing Co., Willoughy, OH.

2. TEST MATERIAL:

See individual studies.

3. STUDY/ACTION TYPE:

Submission of field dissipation and fish accumulation studies to fill data gaps.

4. STUDY IDENTIFICATION:

The following studies are new submittals:

Mallipudi, N.M., July 18, 1985. Arsenal herbicide, AC 243,997 [2-(4-isopropyl-4-methyl-5-oxo-2-imidazolin-2-yl)nicotinic acid]: Weed and soil metabolism in a field plot. American Cyanamid Company, Agricultural Research Division, Princeton, NJ. Report No. PD-M, Vol. 22-23. Acc. No. 258899, Ref: Book 2, Exhibit 4.2.

McAllister, W.A., B. Bunch, and J. Burnett. July, 1985. Bioconcentration and depuration of $^{14}C$-AC 243,997 by bluegill sunfish (Lepomis macrochirus). American Cyanamid Company, Agricultural Research Division, Princeton, NJ. Report No. ABC 32819, Acc. No. 258899. Ref. Book 2, Exhibit 4.3.

5. REVIEWED BY:

John Jordan
Microbiologist
EAB/HED/OPP

Signature: John H. Jordan
Date: 10/6/86

6. APPROVED BY:

Emil Regelman
Supervisory Chemist
Review Section #3, EAB/HED/OPP

Signature: E Regelman
Date: OCT 7 1986

7. CONCLUSIONS:

The Mallipudi study ( #1, 7/18/86 ) is a non-guideline study submitted in response to an Agency request to determine the fate of Arsenal in/on treated weeds and the resulting soil residues.

Arsenal was rapidly absorbed by weeds and the decrease in weed residues resulted in a concomitant increase in soil residues. Soil residues increased and peaked on day 104 and were constant through day 231 because of cool weather. The major soil degradate (6.9 - 13%) was CL-252,974 [2-[2' Carbamyl-N 2', 3'-dimethylbutamido-nicotinic acid]. Because this study is non-guideline, no requirement was expected to be satisfied. However, the fate of the foliar applied Arsenal was determined in this study,and the Agency's questions were basically answered.

Study # 2 (McAllister, 7/85) satisfied the Agency's requirement for fish accumulation data.

8. RECOMMENDATIONS: Requirements for the NON-CROPLAND use.

| Data Requirement Satisfied | Data Gaps |
|---|---|
| Hydrolysis- acid is stable<br>Mobility / Leaching- acid leaches<br>Aqueous Photolysis- acid 1/2 life is 1.3 - 2.7 days<br>Fish Accumulation- no bioaccumulation | Aerobic soil metabolism- (another $^{14}C$ study is needed)<br>Field ~~Accumulation~~ Dissipation- another study required to define depth of leaching |

See Note below.

9. BACKGROUND:

A. Introduction

Two studies were submitted to address requirements for fish accumulation and the fate of foliar applied residues on weeds and in the soil.

B. Directions for Use

Please refer to the attached current label

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES:

See attached reviews of individual studies.

11. COMPLETION OF ONE-LINER: Not completed to date

12. CBI APPENDIX:

All data discussed here are considered CBI by the registrant and must be treated as such.

Note:

The data gaps listed (aerobic soil metabolism and field dissipation) are required for any new uses. There is sufficient information from these studies to make them acceptable for this non-crop use.

SMC
HLM
10/23/86