

# FILE COPY

Date Out EFB: MAY 6 1982

To: Product Manager 15 La Rocca  
TS-767

From: Dr. Willa Garner *WJG*  
Chief, Review Section No. 1  
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 241-260

Chemical: Amdro

Type Product: Insecticide

Product Name: Amdro

Company Name: Am. Cyanamid

Submission Purpose: Hydrolysis study

ZBB Code: 3(c)(5)

Date in: 4/16/82

Date Completed: MAY 6 1982

Deferrals To:

Ecological Effects Branch

Residue Chemistry Branch

Toxicology Branch

ACTION CODE: 570

EFB # 284

TAIS level

Days

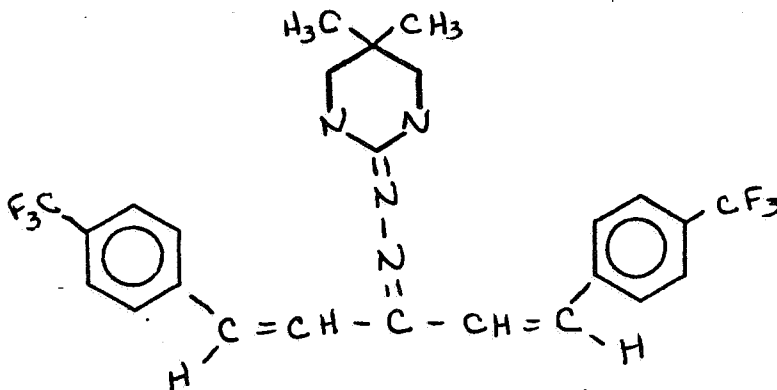
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## 1.0 INTRODUCTION

American Cyanamid has submitted a hydrolysis study in support of its application to register Amdro, a fire ant insecticide, EPA Acc. No. 247235.

## 2.0 Amdro: AC 217,300: Cl 217,300



tetrahydro-5,5-dimethyl-2(1H)-pyrimidone(3-trifluoromethyl)-phenyl)-1-(2-(4-trifluoromethyl)-phenyl)ethenyl)-2-propenyliidene)hydrazone

## 3.0 DISCUSSION

Amdro fire ant insecticide (CL217,300): The Hydrolysis of Carbon-14 CL 217,300. (II) Studies at Concentrations in the ppb Range Without Cosolvent, D. Barringer, Report No. C-2005.

In a previous hydrolysis study with 10 ppm Amdro in a 30% aqueous 1,2-dimethoxyethane (DME) solutions buffered at pH 3.3, 6.4, and 9.2, half lives of 22.6, 4.4, and 4.8 days were reported. Several unknown residues were present. This study was undertaken to identify the residues found.

Attempts to reproduce the initial experiment failed. Inconsistencies in half-lives and residue levels were noted. Removal of DME appeared to slow the hydrolysis of Amdro. (see Table I). DME, the cosolvent, was found to contain peroxides. The presence of these peroxides was thought to initiate radical reactions which enhanced the observed hydrolysis rate. Table II shows that a a concentration of 21 ppb in the absence of DME, little reduction of Amdro occurs.

Table III gives the results of Amdro hydrolysis after one week in buffered solutions at pH 5,7, and 9 at a parent concentration of 4 ppb. Half-life estimates of 24-33 days, 10-11 days and 11-12 days at pH 5,7, and 9 respectively were determined. No residues other than parent were found to exceed 6% of total residue. Only one metabolite could be identified (CL-71,640).

#### 4.0 CONCLUSION and RECOMMENDATION

- The results indicate that hydrolysis is not a significant route of Amdro degradation.
- EFB considers the hydrolysis requirement to be satisfied.



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Table I: Comparison of the Percent of Carbon-14 CL 217,300 at 10 ppm Recovered after 4.5- to 5.0-Day Hydrolysis in the Presence and Absence of 1,2-Dimethoxyethane

pH	Percent CL 217,300 Recovered	
	30% DME Solution	Aqueous Suspension
6.4 (a)	50	(b)
7.1 to 7.8	4	98
9.2 (a)	50	(b)

(a) From B. Reichert, PD-M 16-29.

(b) Not determined.

*DB*

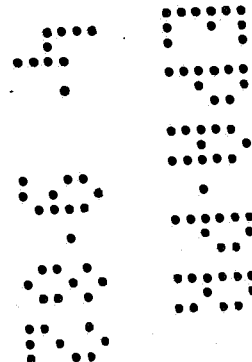


Table II: Variation with Time of the Amount of Carbon-14 CL 217,300 at 21 ppb Recovered after Hydrolysis in Unbuffered Distilled Water

<u>Time (Days)</u>	<u>Percent CL 217,300 Recovered</u>
1	84
2	84
4	97
7	86

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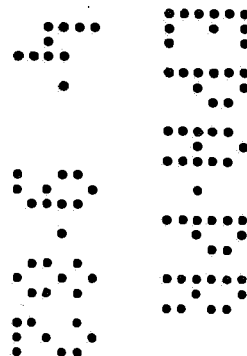


Table III: Percent Recovery of Carbon-14 CL 217,300 Derived Residues after Hydrolysis in 4 ppb Aqueous Solution for One Week at Three pH's

Fraction	pH		
	4.90	7.03	8.87
CH <sub>2</sub> Cl <sub>2</sub>	89	71	71
<u>TLC Analysis</u>			
1 (CL 98,724)	2	1.5	1
2 (CL 217,300)	82	61	64
3	2	1	<1
4	<1	1.5	1
5	0	0	1
6 (Origin)	3	6	4
Water	5 <sup>(a)</sup>	15.5 <sup>(a)</sup>	16 <sup>(a)</sup>
Acetone	6 <sup>(a)</sup>	13.5 <sup>(a)</sup>	13 <sup>(a)</sup>

(a) Insufficient radioactivity for further analysis.

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