

US EPA ARCHIVE DOCUMENT

DP Barcode : D216635  
 PC Code No : 129121  
 EEB Out : APR 3 - 1996

To: Richard Keigwin  
 Product Manager 10  
 Registration Division (7505C)

From: Anthony F. Maciorowski, Chief  
 Ecological Effects Branch/EFED (7507C)

Attached, please find the EEB review of...

Reg./File # : 264-LLU  
 Chemical Name : Fipronil  
 Type Product : Insecticide  
 Product Name : Technical  
 Company Name : Rhone-Polenc Ag Company  
 Purpose : Review mysid chronic study: 6(a)(2) Adverse data

Action Code : 405 Date Due : 9/10/95  
 Reviewer : N.E. Federoff (Wildlife Biologist)

EEB Guideline/MRID Summary Table: The review in this package contains an evaluation of the following:

GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT
71-1(A)			72-2(A)			72-7(A)		
71-1(B)			72-2(B)			72-7(B)		
71-2(A)			72-3(A)			122-1(A)		
71-2(B)			72-3(B)			122-1(B)		
71-3			72-3(C)			122-2		
71-4(A)			72-3(D)			123-1(A)		
71-4(B)			72-3(E)			123-1(B)		
71-5(A)			72-3(F)			123-2		
71-5(B)			72-4(A)			124-1		
72-1(A)			72-4(B)	436812-01		124-2		
72-1(B)			72-5			141-1		
72-1(C)			72-6			141-2		
72-1(C)						141-5		

Y=Acceptable (Study satisfied Guideline)/Concur

P=Partial (Study partially fulfilled Guideline but additional information is needed)

S=Supplemental (Study provided useful information but Guideline was not satisfied)

N=Unacceptable (Study was rejected)/Nonconcur

DP BARCODE: D216635

CASE: 031271  
SUBMISSION: S488922

DATA PACKAGE RECORD  
BEAN SHEET

DATE: 06/21/95  
Page 1 of 1

\* \* \* CASE/SUBMISSION INFORMATION \* \* \*

CASE TYPE: REGISTRATION ACTION: 405 6(A)(2) ADVERSE DATA  
RANKING : 20 POINTS (B)  
CHEMICALS: 129121 Fipronil

96.5000%

ID#: 000264-LLU FIPRONIL TECHNICAL  
COMPANY: 000264 RHONE-POULENC AG COMPANY  
PRODUCT MANAGER: 10 RICK KEIGWIN 703-305-6788 ROOM: CM2 210  
PM TEAM REVIEWER: ANN SIBOLD 703-305-6502 ROOM: CM2 201  
RECEIVED DATE: 06/14/95 DUE OUT DATE: 08/23/95

\* \* \* DATA PACKAGE INFORMATION \* \* \*

DP BARCODE: 216635 EXPEDITE: Y DATE SENT: 06/21/95 DATE RET.: / /  
CHEMICAL: 129121 Fipronil  
DP TYPE: 001 Submission Related Data Package  
CSF: Y LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE:
DIV : EFED	6/22/95	/ /	NEGOT DATE: / /
BRAN: EEB	6/23/95	/ /	PROJ DATE: / /
SECT: RS1	/ /	/ /	
REVR :	/ /	/ /	
CONTR:	/ /	/ /	

\* \* \* DATA REVIEW INSTRUCTIONS \* \* \*

Note to Ann Stavola, Please review the attached study MRID 436812-01 submitted in support of the fipronil registrations 264-LLU, 264-LLN, and 264-LLL. Please call if you have questions or need anything else to complete your review. Thanks, Ann Sibold 305-6502.

\* \* \* DATA PACKAGE EVALUATION \* \* \*

No evaluation is written for this data package

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

APR 3 1996

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM

Subject: Fipronil chronic toxicity to mysids study review.  
MRID# 436812-01, 405 6 (a) (2) Adverse data, (D216635)

From: Anthony F. Maciorowski, Chief *APC*  
Ecological Effects Branch *04/03/96*  
Environmental Fate and Effects Division (7507C)

To: Richard Keigwin  
PM 10  
Registration Division (7505C)

Attached is EEB's review of the mysid chronic study for the chemical Fipronil (MRID 436812-01). This study is scientifically sound but does not fulfill guideline requirements for a chronic life-cycle toxicity study as an NOEC was not generated. The most sensitive endpoints were reduction in male mysid weight and length.

**Results Synopsis**

NOEC:<5 ng ai/L (pptr) LOEC:5 ng ai/L (pptr) MATC:<5 ng ai/L

LOEC's for specific effects

Reproduction: 57 ng ai/L (pptr)

F1 Survival: 57 ng ai/L (pptr)

Growth: (length): Male= 15 ng ai/L (pptr)

Female= 28 ng ai/L (pptr)

(Dry weight): Male= 5 ng ai/L (pptr)

Female= 57 ng ai/L (pptr)

If there are any questions please contact Nick Federoff of my staff at 305-5064.

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OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

APR 3 1996

MEMORANDUM

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From: Anthony F. Maciorowski, Chief Ecological Effects Branch Environmental Fate and Effects Division (7507C)
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CONCURRENCES

Table with 8 columns and 3 rows (SYMBOL, SURNAME, DATE) containing handwritten initials and dates.

**DATA EVALUATION RECORD  
AQUATIC INVERTEBRATE LIFE CYCLE TEST  
GUIDELINE 72-4(B)**

1. **CHEMICAL:** Fipronil PC Code No.: 129121

2. **TEST MATERIAL:** 000264-LLU Fipronil technical Purity: 97.7 %

3. **CITATION:** Fipronil: Chronic toxicity to Mysids (*Americamysis bahia*) under flow-through conditions.

Authors: M.W. Machado

Title: see citation

Study Completion Date: 4/5/95

Laboratory: Springborn Labs

Sponsor: Rhone-Poulenc Ag Company

Laboratory Report ID: 95-4-5820

MRID No.: 436812-01

DP Barcode: D216635

4. **REVIEWED BY:** N.E. Federoff (Wildlife Biologist) EEB, EFED

Signature: *N.E. Federoff*

Date: 8/10/95

5. **APPROVED BY:** Ann Stavola, Head of Section (5), EEB, EFED

Signature: *Ann Stavola*

Date: 8/31/95

6. **STUDY PARAMETERS**

**Age of Test Organism:** <24 hrs  
**Definitive Test Duration:** 28 days  
**Study Method:** Flow-through  
**Type of Concentrations:** Mean measured

7. **CONCLUSIONS:** This study is scientifically sound but does not fulfill guideline requirements for a chronic life-cycle toxicity study as an NOEC was not generated. The most sensitive endpoints were reduction in male mysid weight and length.

**Results Synopsis**

NOEC:<5 ng ai/L (pptr) LOEC:5 ng ai/L (pptr) MATC:<5 ng ai/L

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Female= 28 ng ai/L (pptr)

(Dry weight): Male= 5 ng ai/L (pptr)

Female= 57 ng ai/L (pptr)

8. **ADEQUACY OF THE STUDY**

A. **Classification:** Core

Supplemental - see memo

B. **Rationale:** Fulfills requirements

C. **Repairability:** N/A

9. GUIDELINE DEVIATIONS

1. None

10 SUBMISSION PURPOSE: Registration of a new chemical.

11. MATERIALS AND METHODS

A. Test Organisms/Acclimation

Guideline Criteria	Reported Information
<u>Species</u> <i>Americamysis bahia</i>	<i>Americamysis bahia</i>
<u>Source</u>	Springborn Lab cultures
<u>Parental Acclimation Conditions</u> Parental stock must be maintained separately from the brood culture in dilution water and under test conditions.	Maintained separately under test conditions.
<u>Parental Acclimation Period</u> At least 14 days.	14 days
Fed at least once per day?	Yes
<u>Food</u> Live Brine Shrimp Nauplii?	Yes
<u>Food Concentration</u> 150 live brine shrimp nauplii per mysid per day is recommended.	Fed ad libitum 2X daily with one feeding supplemented with SELCO (a substance high in saturated fatty acids).
Were mysids in good health during acclimation period?	Yes

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**B. Test System**

Guideline Criteria	Reported Information
<p><b><u>Test Water</u></b>                      Natural or reconstituted saltwater that has been tested for contaminants (see ASTM for details).</p>	<p>Reconstituted saltwater (i.e., MARINEMIX) was used and tested for contaminants.                      No contaminants were found at toxic levels.</p>
<p><b><u>Water Temperature</u></b>                      27°C ± 2°C. Must not deviate from 27°C by more than 3°C for more than 12 hours.</p>	<p>Target: 27°C                      Range: 26 to 27°C</p>
<p><b><u>pH</u></b>                      Must not deviate by more than one unit for more than 48 hours.</p>	<p>8.1 to 8.3</p>
<p><b><u>Salinity</u></b></p>	<p>25-27 parts/thousand</p>
<p><b><u>Dissolved Oxygen</u></b>  <u>Renewal</u>: must not drop below 50% for more than 48 hours.  <u>Flow-through</u>: ≥ 60% throughout test.</p>	<p>&gt;60% throughout test (86%-104%)</p>
<p><b><u>Test Vessels or Compartments</u></b>                      1. <u>Material</u>: Glass, No. 316 stainless steel, or perfluorocarbon plastics                      2. <u>Size</u>: 250 ml with 200 ml fill volume is preferred; 100 ml with 80 ml fill volume is acceptable.</p>	<p>39x20x25cm glass test aquaria.</p>
<p><b><u>Covers</u></b>  <u>Renewal</u>: Test vessels should be covered with a glass plate.  <u>Flow-through</u>: openings in test compartments should be covered with mesh nylon or stainless steel screen.</p>	<p>Nitex screens were used.</p>

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Guideline Criteria	Reported Information
<p><b><u>Type of Dilution System</u></b>                      Must provide reproducible supply of toxicant. Intermittent flow proportional diluters or continuous flow serial diluters should be used.</p>	<p>Intermittent flow proportional diluter was used.</p>
<p><b><u>Flow Rate</u></b>                      Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period.</p>	<p>10 vol/24 hours</p>
<p><b><u>Aeration</u></b>                      Dilution water should be vigorously aerated, but the test tanks should not be aerated.</p>	<p>Aerated vigorously for 24hrs, then aerated for an additional 24hrs.</p>
<p><b><u>Photoperiod</u></b>                      16 hours light, 8 hours dark.</p>	<p>16L/8D</p>
<p><b><u>Solvents</u></b>                      Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests. Acceptable solvents are dimethylformamide, triethylene glycol, methanol, acetone and ethanol.</p>	<p>Solvent: Acetone                      Maximum conc.: 0.0065 ml/L.</p>

**C. Test Design**

Guideline Criteria	Reported Information
<u>Duration</u> 28 days/one generation	28 days
<u>Nominal Concentrations</u> Control(s) and at least 5 test concentrations; dilution factor not greater than 50%.	5 treatment concentrations: 4.4, 8.8, 18, 35, and 70 pptr were used as were 2 control groups (dilution and solvent).
<u>Number of Test Organisms</u> At least 2 test chambers containing at least 2 compartments containing at least 15 mysids per treatment/control groups. When sexually mature, pair mysids within each chamber. 20 pairs per concentration.	60 mysids per treatment level. Mysids were paired at sexual maturity (day 15).
<u>Test organisms randomly or impartially assigned to test vessels?</u>	Yes
<u>Specific conductivity measured?</u>	Yes
<u>Water Parameter Measurements</u> 1. Dissolved oxygen must be measured at each concentration at least once a week. 2. pH, alkalinity, hardness, and conductance must be measured once a week in one test concentration and in one control. 3. Temperature should be monitored at least hourly throughout the test in one test chamber, and near the beginning, middle and end of the test in all test chambers.	DO, pH, salinity, and temperature were measured daily in each replicate of each treatment level and the control solutions throughout the exposure period. One dilution control replicate had continuous monitoring for temperature.

Guideline Criteria	Reported Information
<p><b><u>Chemical Analysis</u></b>                      Needed if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used.</p>	<p>Analysis reported: 5, 7.7, 15, 28, and 57 ng ai/L (pptr). Concentrations ranged from 81% to 114% of nominal and were measured weekly.</p>

**12. REPORTED RESULTS**

**A. General Results**

Guideline Criteria	Reported Information
<p>Quality assurance and GLP compliance statements were included in the report?</p>	<p>Yes</p>
<p><b><u>Control Mortality</u></b>                      ≤ 30%</p>	<p>85% survival was reported.</p>
<p>Did mysids in each control produce at least 3 young per female by test termination?</p>	<p>Yes</p>
<p>Reported MATC:</p>	<p>11ng ai/L</p>
<p><b><u>Data Endpoints</u></b>                      - Survival of first-generation mysids,                      - Number of live young produced per female,                      - Dry weight and length of each first generation mysid alive at the end of the test,                      - Observations of other effects or clinical signs.</p>	<p>F1 survival reported.                      # young/female reported.                      Dry weight/length reported.                      Observations reported when noticed.</p>
<p>Raw data included?</p>	<p>Yes</p>

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Reported Effects Data

Toxicant Concentration (ng ai/L)		#exposed/ #survived (28 Days)	Mean # young per Female per Repro. Day	M/F Mean Total Length (mm)	Mean M/F Dry Weight (mg)
Nominal	Measured				
Control	0	60/51	0.46	7.4/7.0	.84/.93
Solvent Control	0	60/51	0.24	7.2/7.1	.78/.94
4.4ng/L	5.0ng/L	60/49	0.36	7.0/7.0	0.7/.92
8.8ng/L	7.7ng/L	60/50	0.32	7.2/7.1	.73/.86
18ng/L	15ng/L	60/53	0.24	6.9/6.9	.68/.85
35ng/L	28ng/L	60/43	0.16	6.8/6.8	.69/.89
70ng/L	57ng/L	60/32	0.029	6.6/6.7	.73/.82

Reported Toxicity Observations:

**B. Reported Statistical Results**

Most sensitive endpoint: Dry weight and length in male Mysids

Endpoint	Method	NOEC	LOEC
Survival	Williams	<57ng/L	>28ng/L
Reproduction	Williams	<57ng/L	>28ng/L
Weight	Williams	Male ≤5ng/L Female<57ng/L	Male ≤5ng/L Female>28ng/L
Length	Williams	Male <15ng/L Female<28ng/L	Male>7.7ng/L Female>15ng/L

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13. VERIFICATION OF STATISTICAL RESULTS

Most sensitive endpoint: Dry weight and length in male Mysids

Endpoint	Method	NOEC	LOEC
F1 Survival	Dunnetts/Williams	28ng/L	57ng/L
Reproduction	Dunnetts/Williams Bonferroni	28ng/L	57ng/L
Dry Weight	Williams	Male <5ng/L Female 28ng/L	Male 5ng/L Female 57ng/L
Length	Bonferroni Williams	Male 7.7ng/L Female 15ng/L	Male 15ng/L Female 28ng/L

14. REVIEWER'S COMMENTS: Reported NOEC and LOEC values on pgs. 24-25 of the study are inconsistent with results. Reported values seem to have been mis-marked.

*Sum*