7-9-96

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MEMORANDUM

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

SUBJECT: Isoxaflutole data review (D219139, Chemical #123000, Case 286745)

FROM: Renée Costello, Biologist Renée Costello 7/9/96
Environmental Risk Characterization Branch
Environmental Fate and Effects Division (7507C)

THRU: Elizabeth Leovey, Chief
Environmental Risk Characterization Branch
Environmental Fate and Effects Division 7/9/96

TO: Joanne Miller, PM 23
Registration Division (7505C)

The Environmental Risk Characterization Branch (ERCB) has completed the review of the data submitted in support of registration of Isoxaflutole, chemical number 123000. The following is a brief summary of the data reviewed:

Citation: RPA 201772 Technical - Acute Toxicity to Sheepshead Minnow (*Cyprinodon variegatus*) Under Flow-Through Conditions **EPA MRID No.: 435732-38**

Conclusions: This study is scientifically sound and meets the guideline requirements for an acute toxicity test using sheepshead minnows. The study was conducted with exposure concentrations up to the maximum obtainable water solubility of this material for the conditions of this study (6.4 ppm ai). No mortality or sublethal effects were observed, therefore, the LC_{50} is determined to be >6.4 ppm ai which, at worst, classifies RPA 201772 as moderately toxic to the sheepshead minnow. The NOEC was 6.4 ppm ai, the highest concentration tested.

If there are any questions regarding this data review contact Renée Costello at 305-5294.

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DATA EVALUATION RECORD
ACUTE LC_{50} TEST WITH AN ESTUARINE/MARINE FISH
§ 72-3(A)

1. **CHEMICAL:** Isoxaflutole PC Code No.: 123000

2. **TEST MATERIAL:** RPA 201772 Technical Purity: 96.8%

3. **CITATION:**

Authors: M.J. Bettencourt
Title: RPA 201772 Technical - Acute Toxicity to Sheepshead Minnow (*Cyprinodon variegatus*) Under Flow-Through Conditions
Study Completion Date: July 1, 1994
Laboratory: Springborn Laboratories, Inc., Wareham, MA
Sponsor: Rhone-Poulenc Ag Company, Research Triangle Park, NC
Laboratory Report ID: 94-5-5261
MRID No.: 435732-38
DP Barcode: D219139

4. **REVIEWED BY:** Rosemary Graham Mora, M.S., Environmental Scientist, KBN Engineering and Applied Sciences, Inc.

Signature: for RGM **Date:** 3/21/96

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, KBN Engineering and Applied Sciences, Inc.

Signature: P. Kosalwat **Date:** 3/21/96

5. **APPROVED BY:** Renée Costello

Signature: **Date:** 7/8/96

6. **STUDY PARAMETERS:**

Age or Size of Test Organism: 0.35 g
Definitive Test Duration: 96 hours
Study Method: Flow-Through
Type of Concentrations: Mean Measured

7. **CONCLUSIONS:** This study is scientifically sound and meets the guideline requirements for an acute toxicity test using sheepshead minnows. The study was conducted with exposure concentrations up to the maximum obtainable water solubility of this material for the conditions of this study (6.4 ppm ai). No mortality or sublethal effects were observed, therefore, the LC_{50} is determined to be >6.4 ppm ai which, at

worst, classifies RPA 201772 as moderately toxic to the sheepshead minnow. The NOEC was 6.4 ppm ai, the highest concentration tested.

Results Synopsis

LC_{50}: >6.4 ppm ai
NOEC: 6.4 ppm ai

95% C.I.: N/A
Probit Slope: N/A

8. **ADEQUACY OF THE STUDY**

A. **Classification:** Core.

B. **Rationale:** Although a more precise LC_{50} was not determined, this study was conducted with concentrations up to the maximum water solubility obtainable under the conditions of this test (6.4 ppm ai).

C. **Repairability:** N/A.

9. **Guideline Deviations:**

1. The test organisms had a mean (range) weight of 0.35 (0.18-0.54) g; the guidelines recommend 0.5-5 g.

2. The amount of solvent used during this study (0.5 ml/l) exceeded the recommended level for a flow-through study (0.1 ml/l). The level of acetone was used to increase the solubility of the test material.

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

A. **Test Organisms**

Guideline Criteria	Reported Information
Species Preferred species are the sheepshead minnow (*Cyprinodon variegatus*) or the Silverside (*Menidia sp.*).	*Cyprinodon variegatus*
Mean Weight 0.5 - 5 g	0.35 (0.18-0.54) g

Guideline Criteria	Reported Information
Mean Standard Length Longest not > 2x shortest	28 (24-33) mm
Supplier	Aquatic Biosystems, Fort Collins, CO.
All fish from same source?	Yes.
All fish from the same year class?	Not reported.

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period minimum 14 days	Minimum of 14 days.
Wild caught organisms were quarantined for 7 days?	N/A.
Were there signs of disease or injury?	No.
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	N/A.
Feeding No feeding during the study	The fish were not fed during the 48 hours prior to test initiation or during the test period.
Pretest Mortality <3% mortality 48 hours prior to testing	No mortality occurred in the 48 hours prior to testing.

C. Test System

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, not dechlorinated tap water	Natural filtered seawater collected from Cape Cod Canal, Bourne, MA. The water was analyzed and found to be free of pesticides, PCBs, and metals.

Guideline Criteria	Reported Information
Solvents Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests	Solvent: Acetone Maximum conc.: 0.5 ml/L.

D. Test Design

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 fish, then no definitive test is required.	No mortality or sublethal effects occurred at concentrations of ≤7 mg ai/L in a preliminary test.
Nominal Concentrations of Definitive Test Control & 5 treatment levels; each conc. should be 60% of the next highest conc.; concentrations should be in a geometric series	Dilution water control, solvent control; and 0.91, 1.5, 2.5, 4.2, and 7.0 ppm ai/L.
Number of Test Organisms Minimum 10/level, may be divided among containers	10 fish per test vessel; 2 test vessels per treatment concentration and control.
Test organisms randomly or impartially assigned to test vessels?	Yes.
Biological observations made every 24 hours?	Yes; biological observations were made at 24, 48, 72, and 96 hours.
Water Parameter Measurements 1. Temperature Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1°C 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control	1. Water temperature was measured daily in each test vessel and continuously in the water bath. 2. DO and pH were measured daily in each test vessel.

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Concentration (ppm ai)		Number of Fish	Cumulative Number Dead			
			Hour of Study			
Nominal	Mean Measured		24	48	72	96
2.5	2.6	20	0	0	0	0
4.2	3.8	20	0	0	0	0
7.0	6.4	20	0	0	0	0

Other Significant Results: None noted.

B. Statistical Results

Method: Visual inspection

96-hr LC_{50}: >6.4 ppm ai 95% C.I.: N/A

Probit Slope: N/A NOEC: 6.4 ppm ai

13. **VERIFICATION OF STATISTICAL RESULTS:**

Parameter	Result
Binomial Test LC_{50} (C.I.)	N/A
Moving Average Angle LC_{50} (95% C.I.)	N/A
Probit LC_{50} (95% C.I.)	N/A
Probit Slope	N/A
NOEC	6.4 ppm ai

14. **REVIEWER'S COMMENTS:** This study is scientifically sound, meets the guideline requirements for an acute toxicity test using sheepshead minnow, and is classified as **Core.** Although a more precise LC_{50} was not determined, this study was conducted with concentrations up to the maximum water solubility obtainable under the conditions of this test (6.4 ppm ai). The LC_{50} is determined to be >6.4 ppm ai which, at worst, classifies RPA 201772 Technical as moderately toxic to the sheepshead minnow. The NOEC was 6.4 ppm ai, the highest concentration tested.

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