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

OCT 24 1995

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OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Data review for RPA 203328 - degradate of Isoxaflutole (D219145, Chemical #123000, Case 286745)

FROM: Elizabeth M.K. Leovey, Chief
Environmental Risk Characterization Branch
Environmental Fate and Effects Division (7507C)

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 203328 - Acute Toxicity to Daphnids (*Daphnia magna*) Under Flow-Through Conditions **EPA MRID No. 435732-41.**

Conclusions: This study is scientifically sound. Based on mean measured concentrations, the 48 hour EC_{50} of RPA 203328, the major degradate of isoxaflutole is > 150 mg ai/L. RPA 203328 is classified as practically nontoxic to freshwater invertebrates. The NOEC is 150 mg ai/L.

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

DATA EVALUATION RECORD
§ 72-2 -- ACUTE LC_{50} TEST WITH A FRESHWATER INVERTEBRATE

1. **CHEMICAL:** RPA 203328 (degradate of isoxaflutole)
PC Code No.: 123000

2. **TEST MATERIAL:** 2-methanesuphonyl-4-trifluoromethylbenzoic acid
Purity: 99.7%

3. **CITATION**

Authors:	Arthur E. Putt
Title:	RPA 203328 - Acute Toxicity to Daphnids (*Daphnia magna*) Under Flow-Through Conditions
Study Completion Date:	June 15, 1994
Laboratory:	Springborn Laboratories
Sponsor:	Rhone-Poulenc Ag Co.
Laboratory Report ID:	10566.0194.6329.115
MRID No.:	435732-41
DP Barcode:	D219145

4. **REVIEWED BY:** Renée Costello, Biologist, ERCB, EFED

Signature: Renée Costello **Date:** 10/19/95

5. **REVIEWED BY:** Andrew Bryceland, Fishery Biologist, ERCB, EFED

Signature: **Date:** 10/23/95

6. **STUDY PARAMETERS**

Age of Test Organism:	≤ 24 hours old
Definitive Test Duration:	48 hours
Study Method:	Flow-through
Type of Concentrations:	Mean measured and Nominal

7. **CONCLUSIONS:**

Results Synopsis

48-hr EC_{50}: > 150 mg ai/L

NOEC: 150 mg ai/L

8. **ADEQUACY OF THE STUDY**

A. Classification: Core

B. Rationale: N/A

C. Repairability: N/A

9. Guideline Deviations

1. Size of daphnids not reported.

2. Acclimation period not reported.

3. Observation period prior to definitive testing not reported.

4. Temperature deviated from the recommended 20°C.

5. The solvent concentration was higher than recommended. This was done to increase the solubility of the test material.

These deviations probably did not effect the results of the study.

10. SUBMISSION PURPOSE: Product registration.

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species is *Daphnia magna*	*Daphnia magna*
All organisms are approximately the same size and weight?	Not Reported
Life Stage Daphnids: 1st instar (<24 h). Amphipods, stoneflies, and mayflies: 2nd instar. Midges: 2nd & 3th instar.	1st instar < 24 h
Supplier	Springborn Labs
All organisms from the same source?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period Minimum 7 days	Not reported

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Guideline Criteria	Reported Information
Wild caught organisms were quarantined for 7 days?	N/A
Were there signs of disease or injury?	Not reported
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	Not Reported
Feeding No feeding during the study.	Daphnids were not fed during the study; time of last feeding was not reported.
Pretest Mortality No more than 3% mortality 48 hours prior to testing.	0% mortality 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.	Fortified and filtered well water
Does water support test animals without observable signs of stress?	Yes
Water Temperature Daphnia: 20°C Amphipods and mayflies: 17°C Midges and mayflies: 22°C Stoneflies: 12°C	19 - 22 °C
pH Prefer 7.2 to 7.6.	7.9 - 8.3
Dissolved Oxygen Static: ≥ 60% during 1st 48 h and ≥ 40% during 2nd 48 h, flow-through: ≥ 60%.	≥ 60% -- lowest DO 81% @ 24-hours
Total Hardness Prefer 40 to 48 mg/L as $CaCO_3$.	160 to 180 mg/L as $CaCO_3$

Guideline Criteria	Reported Information
Test Aquaria 1. Material: Glass or stainless steel. 2. Size: 250 ml (daphnids and midges) or 3.9 L (1 gal). 3. Fill volume: 200 ml (daphnids and midges) or 2-3 L.	1. Glass 2. 1.6 liter battery jar 3. 1.4 L
Type of Dilution System Must provide reproducible supply of toxicant.	During each cycle, 50 mL of solution was delivered to each test vessel. System cycled 170 times/day.
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period.	6.1 vol/24 hours
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day.	≤ 1 g/L/day
Photoperiod 16 hours light, 8 hours dark.	16 hours light, 8 hours dark.
Solvents Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests.	0.50 mL/L -- needed to maximize the solubility of the test substance -- appropriate controls were used

D. Test Design:

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L, then no definitive test is required.	24, 40, 66, 110 and 183 mg ai.L -- 7, 15, and 39% immobilization at 3 highest test concentrations.

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Nominal Concentrations of Definitive Test Control & 5 treatment levels; a geometric series with each concentration being at least 60% of the next higher one.	Control, solvent control, 23, 39, 65, 110, and 180
Number of Test Organisms Minimum 20/level, may be divided among containers.	20/level
Test organisms randomly or impartially assigned to test vessels?	Yes
Water Parameter Measurements 1. Temperature Measured continuously or, if water baths are used, every 6 h, 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. Once daily -- continuous in one replicate 2. Once daily
Chemical Analysis Needed if solutions were aerated, 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	Sampled before the definitive test and during at 0 and 48 hour exposures.

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Control Mortality Static: ≤10% Flow-through: ≤5%	0 %
Percent Recovery of Chemical	averaged 77% of nominal

Raw data included?	no

Mortality

Concentration (ppm)		Number of Organisms	Cumulative Number Dead	
			Hour of Study	
Nominal	Mean Measured		24	48
Control	Control	20	0	0
Solvent Control	Solvent Control	20	0	0
23	19	20	0	0
39	29	20	1	1
65	46	20	0	0
110	85	20	2	2
180	150	20	1	1

B. Statistical Results

Method: empirical

48-hr EC_{50}: > 150 mg ai/L

NOEC: 150 mg ai/L

13. VERIFICATION OF STATISTICAL RESULTS

Method: empirical

48-hr EC_{50}: > 150 mg ai/L

NOEC: 150 mg ai/L