

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD  
§ 72-2 -- ACUTE LC<sub>50</sub> TEST WITH A FRESHWATER INVERTEBRATE

6/12/1995

1. CHEMICAL: RPA 201772 (Isoxaflutole) PC Code No.: 123000

2. TEST MATERIAL: Batch No. 21 ADM 93 Purity: 98.7%

3. CITATION

Authors: Putt, A.E.

Title: RPA 201772 - Acute Toxicity to Daphnids  
(*Daphnia magna*) Under Flow-Through  
Conditions

Study Completion Date: October 6, 1993

Laboratory: Springborn Laboratories, Inc.

Sponsor: Rhone-Poulenc Ag Company

Laboratory Report ID: SLI Report No. 93-7-4873; SLI Study #  
10566.0493.6285.115

MRID No.: 435732-37

DP Barcode: D213874

4. REVIEWED BY: Michael Davy, Agronomist, ERCB, EFED

Signature: 

Date: 6-8-95

5. PEER REVIEWER: Andrew Bryceland, Fishery Biologist, ERCB/EFED

Signature: 

Date: 6-12-95

6. STUDY PARAMETERS

Age of Test Organism: <24 HR

Definitive Test Duration: 48 hours

Study Method: Flow-through

Type of Concentrations: Mean measured

7. CONCLUSIONS: The study is scientifically sound and meets the guidelines for an Aquatic Invertebrate Toxicity study. It is not possible to classify, precisely, the toxicity of RPA 201772 based on this study, since no LC<sub>50</sub> was derived. However, based on this study, it is possible to state that RPA 201772 is probably no more than moderately toxic to aquatic invertebrates.

Results Synopsis: 48-hr LC<sub>50</sub>>1.5 ppm ai, NOEC>1.5 ppm ai

8. ADEQUACY OF THE STUDY

A. Classification: Core

B. Rationale: despite guideline deviations, the reviewer feels that the study is sound enough to be a core study.

C. Repairability: n/a

- 3. There was no reported holding period prior to testing nor any pretest mortality.
- 4. Biomass loading rate was not reported.
- 5. Solvent amount in flow-through test exceeded 0.1 ml/L.
- 6. Undissolved chemical observed at highest dose level
- 7. Percent recovery of chemical ranged from 109% to 143% when 48 hour measured compares with nominal and 175% to 209% when 48 hour measured compared with the 0 hour measured.

10. SUBMISSION PURPOSE: EUP

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
<u>Species</u> Preferred species is <i>Daphnia magna</i>	<i>Daphnia magna</i>
All organisms are approximately the same size and weight?	Yes
<u>Life Stage</u> Daphnids: 1 <sup>st</sup> instar (<24 h)	1st instar
<u>Supplier</u>	Springborn Lab
All organisms from the same source?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
<u>Acclimation Period</u> Minimum 7 days	not reported
Wild caught organisms were quarantined for 7 days?	not wild organisms
Were there signs of disease or injury?	N/A

Guideline Criteria	Reported Information
<b>If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?</b>	N/A
<b>Feeding</b> No feeding during the study.	feeding was prior to initiation of study
<b>Pretest Mortality</b> No more than 3% mortality 48 hours prior to testing.	not reported

**C. Test System:**

Guideline Criteria	Reported Information
<b>Source of dilution water</b> Soft reconstituted water or water from a natural source, not dechlorinated tap water.	well water
<b>Does water support test animals without observable signs of stress?</b>	Yes
<b>Water Temperature</b> Daphnia: 20°C	21 °C
<b>pH:</b> Prefer 7.2 to 7.6.	8.4 to 8.7
<b>Dissolved Oxygen:</b> flow-through: ≥ 60%.	94% saturation at 48 hr
<b>Total Hardness</b> Prefer 40 to 48 mg/L as CaCO <sub>3</sub> .	160 to 170 mg/L as CaCO <sub>3</sub>
<b>Test Aquaria</b> 1. <b>Material:</b> Glass or stainless steel. 2. <b>Size:</b> 250 ml (daphnids and midges) or 3.9 L (1 gal). 3. <b>Fill volume:</b> 200 ml (daphnids and midges) or 2-3 L.	1.6-L Glass battery jar with 1.4-L solution in depth of 15 cm

Guideline Criteria	Reported Information
<p><b><u>Type of Dilution System</u></b>                      Must provide reproducible supply of toxicant.</p>	intermittent-flow proportional diluter
<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>	6 vol/24 hours (167 cycle x 50 ml test solution into 1.4 L solution volumn)
<p><b><u>Biomass Loading Rate</u></b>                      flow-through: <math>\leq 1</math> g/L/day.</p>	not reported
<p><b><u>Photoperiod</u></b>                      16 hours light, 8 hours dark.</p>	16 hours light, 8 hours dark.
<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.</p>	0.5 ml/L acetone due to solubility of 0.3 ppm

**D. Test Design:**

Guideline Criteria	Reported Information
<p><b><u>Range Finding Test</u></b>                      If <math>LC_{50} &gt; 100</math> mg/L, then no definitive test is required.</p>	1st range upto 100 ppm ai with no immobilization observed. 2nd range upto 2.5 ppm ai with no immobilization observed.
<p><b><u>Nominal Concentrations of Definitive Test</u></b>                      Control &amp; 5 treatment levels; a geometric series with each concentration being at least 60% of the next higher one.</p>	control, solvent control, 0.32, 0.54, 0.90, 1.5, and 2.5 ppm ai.
<p><b><u>Number of Test Organisms</u></b>                      Minimum 20/level, may be divided among containers.</p>	10/vessel with 2 vessels/rep
<p>Test organisms randomly or impartially assigned to test vessels?</p>	Yes

<p><b><u>Water Parameter Measurements</u></b>  <b>1. Temperature</b>                  Measured continuously or, if water baths are used, every 6 h, may not vary &gt; 1°C.  <b>2. DO and pH</b>                  Measured at beginning of test and every 48 h in the high, medium, and low doses and in the control.</p>	<p>temperature measured continuously, DO and pH measured at 0, 24, and 48 hr. These measurements were made at all dose levels and controls.</p>
<p><b><u>Chemical Analysis</u></b>                  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</p>	<p>analysis made at initiation and at 48 hr.</p>

**12. REPORTED RESULTS:**

Guideline Criteria	Reported Information
<p><b>Quality assurance and GLP compliance statements were included in the report?</b></p>	<p>Yes</p>
<p><b><u>Control Mortality</u></b>                  Static: ≤10%                  Flow-through: ≤5%</p>	<p>0%</p>
<p><b><u>Percent Recovery of Chemical</u></b></p>	<p>109 - 143% compared w/ nominal                  175 - 209% compared w/ 0-HR</p>
<p><b>Raw data included?</b></p>	<p>Yes</p>

**Mortality**

Concentration (ppm)		Number of Organisms	Cumulative Number Dead			
Nominal	Mean Measured		Hour of Study			
			24	48	72	96
Control	0	20	0	0		
Solvent Control	0	20	0	0		

Concentration (ppm)		Number of Organisms	Cumulative Number Dead			
Nominal	Mean Measured		Hour of Study			
			24	48	72	96
0.32	0.20	20	0	0		
0.54	0.41	20	1	1		
0.90	0.53	20	0	0		
1.5	0.91	20	0	0		
2.5	1.5	20	0	0		

Other Significant Results: Four mobile daphnids found on surface of 0.41 ppm ai measured conc. and were pushed below surface on hourly basis using drop of test solution. Undissolved material noted at all concentration levels at 48 hr.

B. Statistical Results Method: observed

48-hr LC<sub>50</sub>: >1.5 ppm ai                      NOEC: >1.5 ppm ai

13. VERIFICATION OF STATISTICAL RESULTS

48-hr LC<sub>50</sub>: >1.5 ppm ai                      NOEC: >1.5 ppm ai

14. REVIEWER'S COMMENTS:

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ISOXAFLOTOLE Review 123000

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