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**DATA EVALUATION RECORD**

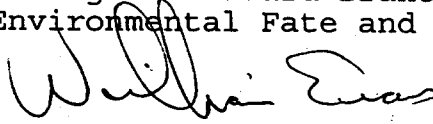
**S 72-2 -- ACUTE EC<sub>50</sub> TEST WITH A FRESHWATER INVERTEBRATE**

1. **CHEMICAL:** Chlorfenapyr PC Code No.: 129093

2. **TEST MATERIAL:** CL 312094 (Study 1) Purity: 98%  
CL 325195 (Study 2) 97%  
CL 303267 (Study 3) 98.1%

3. **CITATION:**  
**Authors:** C.E. Olivieri, T.J. Ward, J.P. Magazu,  
and R.L. Boeri  
**Title:** Acute Toxicity of Chlorfenapyr Soil  
Metabolites to *Daphnia magna* Under Static  
Test Conditions  
**Study Completion Date:** November 13, 1997  
**Laboratory:** T.R. Wilbury Laboratories, Inc.,  
Marblehead, Massachusetts  
**Sponsor:** American Cyanamid Company, Princeton, NJ  
**Laboratory Report ID:** ECO-97-255, ECO-97-256, and ECO-97-257  
**MRID No.:** 444526-18  
**DP Barcode:** D241963

4. **REVIEWED BY:** William Evans, Biologist  
Ecological Hazard Branch  
Environmental Fate and Effects Division

**Signature:**  **Date:** 4/13/98

5. **APPROVED BY:** Thomas A. Bailey, Branch Chief  
Ecological Hazard Branch  
Environmental Fate and Effects Division

**Signature:**  **Date:** 8/28/98

6. **STUDY PARAMETERS:**

**ALL STUDIES**

**Age or Size of Test Organism:** <24 hours  
**Definitive Test Duration:** 48 hours  
**Study Method:** Static  
**Type of Concentrations:** Nominal

7. **CONCLUSIONS:** These studies do not meet the guideline requirements for an acute freshwater invertebrate toxicity

test. Guidelines require that concentrations be measured at the beginning and end of the test. At the conclusion of these tests, concentrations were not measured at any test level. Further chemical analysis was not performed. Although these tests were static tests, registrant should provide rationale for the lack of a chemical analysis. Chemical characteristics such as solubility and adsorbing tendencies of the compound would be useful. Until such rationale can be provided, these studies must be classified as Invalid. However, upon submission of this rationale, these studies could be upgraded to Supplemental or core status.

**Results Synopsis**

**Study 1 - CL 312094**

N/A

**Study 2 - CL 325195**

N/A

**Study 3 - CL 303267**

N/A

**8. ADEQUACY OF THE STUDY:**

- A. **Classification:** Invalid
- B. **Rationale:** Concentrations were not measured at any test levels at the conclusion of the studies. Chemical analysis was also not carried out.
- C. **Repairability:** These tests could be upgraded to Supplemental or core status if registrant can provide rationale for the lack of a chemical analysis.

**9. GUIDELINE DEVIATIONS:** The following deviations from the protocol were noted.

- 1. Test concentrations were not measured at the end of the experiment. EPA/NACA guidance requires all test solutions to be measured at the beginning and the end of the test.
- 2. Chemical analysis should have been conducted since the compound is presumed insoluble and a solvent was used to dissolve it.

**10. SUBMISSION PURPOSE:** To examine fish toxicity to soil degrades

of chlorfenapyr.

11. MATERIALS AND METHODS:

A. Test Organisms

Guideline Criteria	Reported Information
<b>Species</b> Preferred species is <i>Daphnia magna</i>	<i>Daphnia magna</i>
All organisms are approximately the same size and weight?	Not reported
<b>Life Stage</b> Daphnids: 1 <sup>st</sup> instar (<24 h). Amphipods, stoneflies, and mayflies: 2 <sup>nd</sup> instar. Midges: 2 <sup>nd</sup> & 3 <sup>rd</sup> instar.	<24 hour neonates
<b>Supplier</b>	In-house cultures
All organisms from the same source?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
<b>Acclimation Period</b> Minimum 7 days	No acclimation period was necessary since daphnids were maintained under test conditions.
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

Guideline Criteria	Reported Information
<b>Feeding</b> No feeding during the study.	The daphnids were not fed during the test.
<b>Pretest Mortality</b> No more than 3% mortality 48 hours prior to testing.	Mortality was <3% during the 48 hours prior to the test.

**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.	Carbon filtered, deionized water adjusted to a hardness of 160-180 mg/L CaCO <sub>3</sub> and a pH of <8 with phosphoric acid.
<b>Does water support test animals without observable signs of stress?</b>	Yes
<b>Water Temperature</b> Daphnia: 20°C Amphipods and mayflies: 17°C Midges and mayflies: 22°C Stoneflies: 12°C	19.8-20.9°C (Study 1-CL 312094) 20.0-21.0°C (Study 2-CL 325195) 20.0-20.9°C (Study 3-CL 303267)
<b>pH</b> Prefer 7.2 to 7.6.	7.7 (Study 1-CL 312094) 7.7-7.9 (Study 2-CL 325195) 7.6-7.9 (Study 3-CL 303267)
<b>Dissolved Oxygen</b> Static: ≥ 60% during 1 <sup>st</sup> 48 h and ≥ 40% during 2 <sup>nd</sup> 48 h, flow-through: ≥ 60%.	7.6-9.0 mg/L (Study 1-CL 312094) 8.6-8.9 mg/L (Study 2-CL 325195) 8.3-9.1 mg/L (Study 3-CL 303267)  ≥84% of saturation for all studies
<b>Total Hardness</b> Prefer 40 to 48 mg/L as CaCO <sub>3</sub> .	176 mg/L as CaCO <sub>3</sub> for all studies

Guideline Criteria	Reported Information
<p><b>Test Aquaria</b></p> <p>1. <b>Material:</b> Glass or stainless steel.</p> <p>2. <b>Size:</b> 250 ml (daphnids and midges) or 3.9 L (1 gal).</p> <p>3. <b>Fill volume:</b> 200 ml (daphnids and midges) or 2-3 L.</p>	<p>For all studies:</p> <p>1. Glass</p> <p>2. 300-mL beakers</p> <p>3. 200 mL test volume</p>
<p><b>Type of Dilution System</b></p> <p>Must provide reproducible supply of toxicant.</p>	Static
<p><b>Flow Rate</b></p> <p>Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period.</p>	N/A
<p><b>Biomass Loading Rate</b></p> <p>Static: <math>\leq 0.8</math> g/L at <math>\leq 17^\circ\text{C}</math>, <math>\leq 0.5</math> g/L at <math>&gt; 17^\circ\text{C}</math>; flow-through: <math>\leq 1</math> g/L/day.</p>	$\leq 0.5$ g/L
<p><b>Photoperiod</b></p> <p>16 hours light, 8 hours dark.</p>	16 hours light, 8 hours dark
<p><b>Solvents</b></p> <p>Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests.</p>	<p>Solvent: DMF</p> <p>Concentration:</p> <p>0.5 mL/L for CL 312094</p> <p>0.5 mL/L for CL 325195</p> <p>0.1 mL/L for CL 303267</p>

#### D. Test Design

Guideline Criteria	Reported Information
<p><b>Range Finding Test</b></p> <p>If <math>\text{EC}_{50} &gt; 100</math> mg/L, then no definitive test is required.</p>	<p>A range finding test was conducted for each of the three metabolites at nominal concentrations of 1.0, 10, 100, 1,000, and 10,000 <math>\mu\text{g}/\text{L}</math>. Results from the range finding tests were not reported.</p>

Guideline Criteria	Reported Information
<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>	<p>Dilution water control, solvent control and five nominal test concentrations (corrected for purity) were used for each study. <b>Study 1:</b> 130, 220, 360, 600, 1000 µg/L <b>Study 2:</b> 610, 1000, 1700, 2800, 4700 µg/L <b>Study 3:</b> 44, 59, 79, 105, 140 µg/L</p>
<p><b><u>Number of Test Organisms</u></b> Minimum 20/level, may be divided among containers.</p>	<p>10 daphnids per chamber, 2 chambers per treatment and control.</p>
<p><b>Test organisms randomly or impartially assigned to test vessels?</b></p>	<p>Yes</p>
<p><b><u>Water Parameter Measurements</u></b> 1. <b><u>Temperature</u></b> Measured continuously or, if water baths are used, every 6 h, may not vary &gt; 1°C. 2. <b><u>DO and pH</u></b> Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control.</p>	<p>1. Temperature was measured continuously from a representative beaker in the water bath and daily in each replicate chamber. 2. DO and pH were measured daily in each replicate chamber.</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>Chemical analysis was not performed for each study. All results were based on nominal concentrations (corrected for purity).</p>

12. **REPORTED RESULTS:**

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
<u>Control Mortality</u> Static: ≤10% Flow-through: ≤5%	Control and solvent control mortality was ≤5% for all tests.
<u>Percent Recovery of Chemical</u>	N/A
Raw data included?	Yes

Mortality

## Study 1 CL 312094

Concentration (ppb)		Number of Organisms	Cumulative Number Dead			
Nominal (µg/L)	Mean Measured <sup>1</sup>		Hour of Study			
			24	48	72	96
Control	-	20	0	0	-	-
Solvent Control	-	20	0	0	-	-
130	-	20	0	0	-	-
220	-	20	0	0	-	-
360	-	20	0	0	-	-
600	-	20	5	12	-	-
1000	-	20	20	20	-	-

Other Significant Results: None

## Study 2 CL 325195



Concentration (ppb)		Number of Organisms	Cumulative Number Dead			
Nominal ( $\mu\text{g/L}$ )	Mean Measured <sup>1</sup>		Hour of Study			
			24	48	72	96
Control	-	20	0	0	-	-
Solvent Control	-	20	0	0	-	-
130	-	20	0	0	-	-
220	-	20	1	0	-	-
360	-	20	4	1	-	-
600	-	20	20	9	-	-
1000	-	20	20	20	-	-

Other Significant Results: None

Study 3 CL 303267

Concentration (ppb)		Number of Organisms	Cumulative Number Dead			
Nominal ( $\mu\text{g/L}$ )	Mean Measured <sup>1</sup>		Hour of Study			
			24	48	72	96
Control	-	20	0	0	-	-
Solvent Control	-	20	1	1	-	-
130	-	20	0	0	-	-
220	-	20	0	0	-	-
360	-	20	0	0	-	-
600	-	20	3	9	-	-
1000	-	20	20	20	-	-

Other Significant Results: None

Statistical Results

Study 1 - CL 312094

N/A

Study 2 - CL 325195

N/A

Study 3 - CL 303267

N/A

**13. VERIFICATION OF STATISTICAL RESULTS:**

Parameter	Result	
Binomial Test EC <sub>50</sub> (C.I.)	Study 1 - CL 312094	N/A
	Study 2 - CL 325195	N/A
	Study 3 - CL 303267	N/A
Moving Average Angle EC <sub>50</sub> (95% C.I.)	Study 1 - CL 312094	N/A
	Study 2 - CL 325195	N/A
	Study 3 - CL 303267	N/A
Probit EC <sub>50</sub> (95% C.I.)	Study 1 - CL 312094	N/A
	Study 2 - CL 325195	N/A
	Study 3 - CL 303267	N/A
Probit Slope	Study 1 - CL 312094	N/A
	Study 2 - CL 325195	N/A
	Study 3 - CL 303267	N/A
NOEC	Study 1 - CL 312094	N/A
	Study 2 - CL 325195	N/A
	Study 3 - CL 303267	N/A

14. REVIEWER'S COMMENTS: These studies do not meet the guideline requirements for an acute freshwater invertebrate toxicity test. Guidelines require that concentrations be measured at the beginning and end of the test. At the conclusion of these tests, concentrations were not measured at any test level. Further chemical analysis was not performed. Although these tests were static tests, registrant should provide rationale for the lack of a chemical analysis. Chemical characteristics such as solubility and adsorbing

tendencies of the compound would be useful. Until such rationale can be provided, these studies must be classified as Invalid. However, upon submission of this rationale, these studies could be upgraded to Supplemental or core status.

1. Concentrations not measured at any test concentrations.