


US EPA ARCHIVE DOCUMENT

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

1. **CHEMICAL:** Metolachlor PC Code No.: 108801
2. **TEST MATERIAL:** CGA-354743 (metolachlor metabolite)- 95% pure
3. **CITATION:** Author: C. Neumann  
Title: Acute Toxicity Test of CGA 354743 (Metabolite of CGA 24705) to the Cladoceran *Daphnia magna* STRAUS Under Static Conditions  
Study Completion Date: October 28, 1996  
Laboratory: Ciba-Geigy Limited, Basle, Switzerland  
Sponsor: Novartis Crop Protection, Inc., Greensboro, NC  
Laboratory Report ID: 961528  
MRID No.: 449317-03  
DP Barcode: D260392
4. **REVIEWED BY:** Mark Mossler, M.S., Environmental Scientist, Golder Associates Inc.  
**Signature:** **Date:** 4/13/00
- APPROVED BY:** Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.  
**Signature:** **Date:**
5. **APPROVED BY:** Brian Montague, Fisheries Biologist   
 ERB I, Environmental Fate and Effects Division  
**Signature:** **Date:** 5/15/00
6. **STUDY PARAMETERS:**  
**Age of Test Organism:** <24 hours  
**Definitive Test Duration:** 48 hours  
**Study Method:** Static  
**Type of Concentrations:** Mean measured
7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements. The 48-hour EC<sub>50</sub> value of >108 ppm ai classifies the test material as practically non-toxic to *Daphnia magna*.
- Results Synopsis:**  
 EC<sub>50</sub>: >108 ppm ai 95% C.I.: N/A  
 Probit Slope: N/A NOEC: 108 ppm ai



**8. ADEQUACY OF THE STUDY:**A. **Classification:** CoreB. **Rationale:** N/AC. **Repairability:** N/A**9. GUIDELINE DEVIATIONS:**

1. The hardness of the medium (234 mg/L as CaCO<sub>3</sub>) was greater than the recommended maximum (200 mg/L as CaCO<sub>3</sub>).
2. Temperature was only measured at test initiation and termination. Guidelines require hourly measurement for test systems controlled by room temperature.
3. Mortality during acclimation period not reported.

**10. SUBMISSION PURPOSE:****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>
<b>All organisms are approximately the same size and weight?</b>	Not reported
<b>Life Stage</b> Daphnids: 1 <sup>st</sup> instar (<24 h).	1 <sup>st</sup> instar (<24 h)
<b>Supplier</b>	In-house cultures
<b>All organisms from the same source?</b>	Yes

**B. Source/Acclimation**

Guideline Criteria	Reported Information
<b>Acclimation Period</b> Minimum 7 days	Culture and testing conditions were similar.

Guideline Criteria	Reported Information
<b>Wild caught organisms were quarantined for 7 days?</b>	N/A
<b>Were there signs of disease or injury?</b>	Not reported
<b>If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?</b>	Not treated for disease
<b>Feeding</b> No feeding during the study.	No feeding performed during the 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, <b>not</b> dechlorinated tap water.	Elendt's M-4 medium
<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	22°C
<b>pH</b> Prefer 7.2 to 7.6.	8.2 - 8.4
<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%.	≥97% of saturation
<b>Total Hardness</b> Prefer 40 to 200 mg/L as CaCO <sub>3</sub> .	234 mg/L as CaCO <sub>3</sub>

Guideline Criteria	Reported Information
<p><b>Test Aquaria</b></p> <p>1. <u>Material</u>: Glass or stainless steel.</p> <p>2. <u>Size</u>: 250 mL (daphnids and midges) or 3.9 L (1 gal).</p> <p>3. <u>Fill volume</u>: 200 mL (daphnids and midges) or 2-3 L.</p>	<p>Glass</p> <p>150-mL</p> <p>100 mL</p>
<p><b>Type of Dilution System</b></p> <p>Must provide reproducible supply of toxicant.</p>	N/A
<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>	1 daphnid/20 mL
<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>	Solvent: none Maximum conc.: N/A

#### D. Test Design

Guideline Criteria	Reported Information
<p><b>Range Finding Test</b></p> <p>If <math>EC_{50} &gt; 100</math> mg/L, then no definitive test is required.</p>	Concentrations were selected based upon a range finding test
<p><b>Nominal Concentrations of Definitive Test</b></p> <p>Control &amp; 5 treatment levels; a geometric series with each concentration being at least 60% of the next higher one.</p>	Control, 10, 18, 32, 58, and 100 mg/L, not corrected for active ingredient (ai)

Guideline Criteria	Reported Information
<p><b><u>Number of Test Organisms</u></b> Minimum 20/level, may be divided among containers.</p>	20, 5 per replicate
<p><b><u>Test organisms randomly or impartially assigned to test vessels?</u></b></p>	Yes
<p><b><u>Water Parameter Measurements</u></b></p> <p>1. <b><u>Temperature</u></b> Measured continuously or, if water baths are used, every 6 h, may not vary &gt; 1°C.</p> <p>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>Temperature was measured at initiation and termination in the control and each treatment group.</p> <p>DO and pH were measured at initiation and termination in the control and each treatment group.</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>	Samples of the exposure solutions were taken at time 0 and at termination. Samples were analyzed by HPLC.

## 12. REPORTED RESULTS:

### A. General Results

Guideline Criteria	Reported Information
<p><b>Quality assurance and GLP compliance statements were included in the report?</b></p>	Yes, but compliance was to Swiss and OECD GLPs
<p><b><u>Control Mortality</u></b> Static: ≤10% Flow-through: ≤5%</p>	No immobilization in the control group
<p><b>Percent Recovery of Chemical:</b> 1) % of nominal; 2) Procedural recovery; 3) Limit of quantitation (LOQ)</p>	100-109% of nominal, proc. recovery of 98%, LOQ = 0.1 mg/L



Guideline Criteria	Reported Information
Raw data included?	Yes

Analytical results

Nominal concentration (ppm)	Measured concentration (ppm ai)	
	Hour of Study	
	0	48
Control	<0.1	<0.1
10	10.4	10.3
18	18.7	18.5
32	34.0	34.9
58	57.9	58.9
100	108	109

Immobilization

Concentration		Number of Organisms	Cumulative Number Immobilized	
Nominal (ppm)	Mean Measured (ppm ai)		Hour of Study	
			24	48
Control	<0.1	20	0	0
10	10	20	0	0
18	19	20	0	0
32	35	20	0	0
58	58	20	1	1
100	108	20	0	0

Other Significant Results: The immobility noted at the 58 ppm ai treatment level was not believed to be due to treatment.

**B. Statistical Results**

Method: visual interpretation (based on nominal conc.)

48-hr EC<sub>50</sub>: >100 ppm                      95% C.I.: N/A  
Probit Slope: N/A                                      NOEC: 100 ppm

13. **VERIFICATION OF STATISTICAL RESULTS:** Lack of dose response precluded the use of statistics

Method: visual interpretation (based on mean measured conc.)

48-hr EC<sub>50</sub>: >108 ppm ai                      95% C.I.: N/A  
Probit Slope: N/A                                      NOEC: 108 ppm ai

14. **REVIEWER'S COMMENTS:** This study is scientifically sound, fulfills the guideline requirements, and can be classified as **Core**. The 48-hour EC<sub>50</sub> was determined to be >108 ppm ai, which classifies the test material as practically non-toxic to *Daphnia magna*.