

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD
§ 72-1(C) -- ACUTE LC₅₀ TEST WITH A COLDWATER FISH

1. **CHEMICAL:** Cloquintocet-mexyl PC Code No.: 999999

2. **TEST MATERIAL:** CGA-185072 Purity: 91.6%

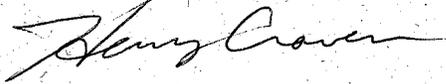
3. **CITATION**

Authors: H.Rufli, R.Dieterle, and A.de Morsier
Title: Acute Toxicity Test of CGA-185072 technical to rainbow trout
Study Completion Date: June 21, 1988
Laboratory: Ciba-Geigy, Ltd.
CH-4002 Basle, Switzerland
Sponsor: Novartis Crop Protection, Inc.
P.O. Box 18300
Greensboro, NC 27419
Laboratory Report ID: 871684
MRID No.: 443874-11
DP Barcode: D240854

4. **REVIEWED BY:** Stephen Carey, Biologist, EFED, ERBIII

Signature:  Date: 10/18/99

5. **APPROVED BY:** Harry Craven, EFED, ERBIII

Signature:  Date: 10/21/99

6. **STUDY PARAMETERS**

Scientific Name of Test Organism: *Oncorhynchus mykiss*
Age or Size of Test Organism: 40-46 mm in length
Definitive Test Duration: 96 hours
Study Method: Static
Type of Concentrations: Measured

7. **CONCLUSIONS:**

Results Synopsis
LC₅₀: >63.8 ppm ai 95% C.I.: N/A
NOEL >63.8 ppm ai Probit Slope: N/A

8. **ADEQUACY OF THE STUDY**



A. Classification: Supplemental

B. Rationale: Despite no mortalities, this study contains useful information. Test containers were aerated and dechlorinated water used as dilution water.

C. Repairability: No

9. GUIDELINE DEVIATIONS

1. The solvent, alkylphenol-polyglykol-ether, is not from one of EFED's solvent recommendations for study purposes. The test organism in the solvent control level survived, not affecting the category of the study.
2. The test containers were gently aerated throughout the study.
3. pH of the study at 7.8 - 8.0 exceeded the recommended range 7.2 - 7.6
4. Hardness at 176 mg CaCO3/L exceeded the recommended range of 40 - 48 ppm.
5. Dechlorinated water

10. SUBMISSION PURPOSE:

11. MATERIALS AND METHODS

A. Test Organisms

Guideline Criteria	Reported Information
<u>Species</u> Preferred species is the rainbow trout (<i>Oncorhynchus mykiss</i>)	<i>Oncorhynchus mykiss</i>
<u>Mean Weight</u> 0.5-5 g	0.97g (0.75 - 1.08g)
<u>Mean Standard Length</u> Longest not > 2x shortest	Mean: 44 mm Range: 40 - 46 mm
<u>Supplier</u>	P. Hohler CH-4314 Zeiningen
All fish from same source?	Yes

Guideline Criteria	Reported Information
All fish from same source?	Yes
All fish from the same year class?	Not Reported

B. Source/Acclimation

Guideline Criteria	Reported Information
<u>Acclimation Period</u> Minimum 14 days	13 days
Wild caught organisms were quarantined for 7 days?	Yes
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
<u>Feeding</u> No feeding during the study	Last fed 24 hours prior to test initiation
<u>Pretest Mortality</u> < 3% mortality 48 hours prior to testing	0 % mortality prior to testing.

C. Test System

Guideline Criteria	Reported Information
<u>Source of dilution water</u> Soft reconstituted water or water from a natural source, not dechlorinated tap water	Dechlorinated tap water (carbon filtered)
Does water support test animals without observable signs of stress?	Yes
<u>Water Temperature</u> 12°C	14 ± 1°C
<u>pH</u> Prefer 7.2 to 7.6	7.8 - 8.0 pH

Guideline Criteria	Reported Information
<p><u>Dissolved Oxygen</u> Static: $\geq 60\%$ during 1st 48 hrs and $\geq 40\%$ during 2nd 48 hrs, flow-through: $\geq 60\%$</p>	Aeration was used throughout study. 1 st 48 hrs: 92 % 2 nd 48 hrs: 94 %
<p><u>Total Hardness</u> Prefer 40 to 48 mg/L as CaCO₃</p>	176 mg CaCO ₃ /l
<p><u>Test Aquaria</u> 1. <u>Material</u>: Glass or stainless steel 2. <u>Size</u>: Volume of 18.9 L (5 gal) or 30 x 60 x 30 cm 3. <u>Fill volume</u>: 15-30 L of solution</p>	Glass 20 L 36 x 22 x 25 cm 15 L
<p><u>Type of Dilution System</u> Must provide reproducible supply of toxicant</p>	Static
<p><u>Flow Rate</u> 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><u>Biomass Loading Rate</u> Static: ≤ 0.8 g/L at $\leq 17^\circ\text{C}$, ≤ 0.5 g/L at $> 17^\circ\text{C}$; flow-through: ≤ 1 g/L/day</p>	0.65 g/L
<p><u>Photoperiod</u> 16 hours light, 8 hours dark</p>	16-h light, 8-h dark
<p><u>Solvents</u> Not to exceed 0.5 ml/L for static tests or 0.1 ml/L for flow-through tests</p>	Solvent: alkylphenol-polyglykoether Maximum conc.: .0038 ml/L.

D. Test Design

Guideline Criteria	Reported Information
<p><u>Range Finding Test</u> If LC₅₀ > 100 mg/L with 30 fish, then no definitive test is required.</p>	Not reported
<p><u>Nominal Concentrations of Definitive Test</u> Control & 5 treatment levels; dosage should be 60% of the next highest concentration; concentrations should be in a geometric series</p>	Blank & vehicle controls with 10, 18, 32, 58, 100 mg ai/L treatment levels
<p><u>Number of Test Organisms</u> Minimum 10/level, may be divided among containers</p>	10 fishes per concentration and control 10 fishes per aquarium
<p>Test organisms randomly or impartially assigned to test vessels?</p>	Yes
<p>Biological observations made every 24 hours?</p>	Yes
<p><u>Water Parameter Measurements</u> 1. <u>Temperature</u> Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1 °C 2. <u>DO and pH</u> Measured at beginning of test and every 48 h in the high, medium, and low doses and in the control</p>	Temperature, Oxygen, and pH were measured daily in each test chamber. Temperature was continuously monitored in the test tanks using min/max thermometers.
<p><u>Chemical Analysis</u> 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 collected from each test vessel at day 0 and day 4 were analyzed by HPLC.

12. REPORTED RESULTS

A. General Results

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Recovery of Chemical Percent of nominal: Analytical capability: Limit of quantitation (LOQ):	21-81 % 101 - 109 % Not reported
Control Mortality Not more than 10% control organisms may die or show abnormal behavior.	0 %
Raw data included?	Yes
Signs of toxicity (if any) were described?	No

Mortality

Concentration (ppm)				Number of Fish	Cumulative Number Dead			
Nominal	Initial Measured	96 hr Measured	Mean Measured		Hour of Study			
					24	48	72	96
Control	N/A	N/A	N/A	10	0	0	0	0
Solvent Control	N/A	N/A	N/A	10	0	0	0	0
10	7.43	2.09	4.76	10	0	0	0	0
18	14.5	6.90	12.2	10	0	0	0	0
32	25.1	12.2	18.65	10	0	0	0	0
58	46.2	28.3	37.25	10	0	0	0	0
100	76.3	51.3	63.8	10	0	0	0	0

Other Significant Results: None

14. REVIEWER'S COMMENTS: Based on the report, the study is scientifically sound but does not fulfill the section 158 requirements. The study partially conforms to the procedures of the subdivision guideline requirements for an acute toxicity test using rainbow trout. Based on mean measured concentrations, the 96-hour LC50 was >63.8 ppm, which classifies CGA-185072 as slightly toxic to the trout. The NOEC was determined to be >63.8 ppm.

Hardness (176 mg/L) and pH (7.8 - 8.0) exceed the recommended protocol requirements. ASTM recommends the use of dechlorinated water only as a last resort for dilution water. The EPA Rejection Rate Analysis guidebook rejects using dechlorinated water unless other water quality parameters meet acceptable criteria. The test containers were gently aerated with the test concentration at 96-hour maintained at >70% of initial-measured concentrations. The solvent, alkylphenol-polyglykol-ether, is acceptable for the study since no mortality occurred in the solvent control. This study is classified as **supplemental** because a definitive LC50 was not determined.