DATA EVALUATION RECORD

CASE: GS0271
CHLORPROPHAM

CONT-CAT: 01 GUIDELINES: 72-4

MRID: 37279


REVIEW RESULTS: VALID / INVALID / INCOMPLETE

GUIDELINE: SATISFIED / PARTIALLY SATISFIED / NOT SATISFIED

DIRECT REVW TIME =

START DATE: END DATE:

REVIEWED BY: John Notes
TITLE: Biologist
ORG: HED/EEB
LOC/TEL:

SIGNATURE: John Notes
DATE: 7/19/87

APPROVED BY: Henry T. Craven
TITLE: Section Head IV
ORG: HED/EEB
LOC/TEL:

SIGNATURE: [Signature]
DATE: 12/22/87
DATA EVALUATION RECORD

1. Chemical: Chlorpropham

2. Test Material: CIPC Technical

3. Study Type: 96-Hour Freshwater Fish LC\textsubscript{50} 
   
   **Species Tested:** Lepomis macrochirus  
   **Salmo gairdneri**

   Static 96-Hour Toxicity Study of PPG Industries, Inc. Sample CIPC Technical in Bluegill Sunfish and Rainbow Trout: Laboratory No. 5E-8034.  

5. Reviewed By: John Noles  
   Biologist  
   EEB/HED  
   
   **Signature:** John Noles  
   **Date:** 8/14/87

6. Approved By: Henry T. Craven  
   Head, Section IV  
   EEB/HED  
   
   **Signature:**  
   **Date:**

7. Conclusion:  
   This study is scientifically sound and with a 96-hour LC\textsubscript{50} = 3.02 ppm and 6.3 ppm, the pesticide is considered moderately toxic to rainbow trout and bluegill sunfish, respectively. The study does not fulfill the Guideline requirement as Supplemental data.

8. Recommendation:  
   As is, the study can be used for hazard assessment purposes. The registrant submitted new fish studies April 27, 1987 to replace these studies.

9. Background:  
   This study was reviewed in development of the Chlorpropham Registration Standard.

10. Discussion of Individual Tests:  
    Each fish species was subject to the same experimental design except for water temperature conditions.
11. **Materials and Methods:**

   a. **Test Animals** - *Lepomis macrochirus* and *Salmo gairdneri* obtained from hatcheries; 35 to 75 mm length, 0.5 to 3.0 g weight; acclimated 10 days prior to bioassay in flowthrough conditions; water temperature--19 ± 2 °C for bluegills, 15 ± 2 °C for trout; diet--commercial trout chow.

   b. **Test System** - Twenty-L glass aquaria containing 10 L of undescribed reconstituted water; no aeration.

   c. **Dose/Design** - Bluegill sunfish: 4.90, 5.60, 6.5, 7.5, and 8.7 ppm reconstituted water control, and solvent control. Rainbow trout: 2.4, 2.8, 3.2, 3.7, and 4.2 ppm reconstituted water control, and solvent control; 20 fish per treatment level.

   d. **Statistics** - LC₅₀ determinations were calculated according to Litchfield, J.T., Jr. and Wilcoxon, F., "A Simplified Method of Evaluating Dose-Effect Experiments" (1949).

12. **Reported Results:**

   The mortality and water chemistry parameters recorded during the study are presented in Tables 1 and 2.

13. **Study Author's Conclusions/QA Measures:**

   Bluegill sunfish--96-hour LC₅₀ = 6.3 ppm (95% c.l. = 5.94-6.68 ppm).

   Rainbow trout--96-hour LC₅₀ = 3.02 ppm (95% c.l. = 2.88-3.17 ppm).

   No QA measures were indicated in the document.

14. **Reviewer's Discussion and Interpretation of the Study:**

   a. **Test Procedures** - The study was conducted according to acceptable protocol. The following items were observed to be inadequately reported:

   1) The ai percentage was not indicated.

   2) No quality assurance measures were indicated to reflect that Good Laboratory Practices were followed.

   3) No protocols were referenced per the experimental design.
<table>
<thead>
<tr>
<th>CONCENTRATION (ppm)</th>
<th>SURVIVORS AT (HOURS)</th>
<th>PERCENT SURVIVAL</th>
<th>DISSOLVED OXYGEN (PPM) AND pH AT (HOURS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.90</td>
<td>20 20 20 20 20</td>
<td>100</td>
<td>11.8 7.2 9.4 7.0 7.1 6.8 6.0 7.0 5.8 7.0</td>
</tr>
<tr>
<td>5.60</td>
<td>20 20 20 17 16</td>
<td>80</td>
<td>11.8 7.2 9.2 7.0 7.2 7.0 6.0 7.1 5.6 7.2</td>
</tr>
<tr>
<td>6.50</td>
<td>20 20 18 12 10</td>
<td>50</td>
<td>11.8 7.2 9.4 7.2 7.0 7.2 6.4 7.1 5.8 7.2</td>
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<tr>
<td>7.50</td>
<td>20 19 16 7 1</td>
<td>5</td>
<td>11.8 7.2 9.4 7.1 7.1 7.0 6.8 7.0 6.0 7.1</td>
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<tr>
<td>8.70</td>
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<td>0</td>
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</tr>
<tr>
<td>Untreated Control</td>
<td>20 20 20 20 20</td>
<td>100</td>
<td>11.6 7.2 10.4 7.2 9.2 7.2 7.4 7.1 6.8 7.2</td>
</tr>
<tr>
<td>Acetone Control</td>
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<td>100</td>
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</tr>
<tr>
<td>CONCENTRATION (ppm)</td>
<td>SURVIVORS AT (HOURS)</td>
<td>PERCENT SURVIVAL</td>
<td>DISSOLVED OXYGEN (PPM) AND pH AT (HOURS)</td>
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<td>100</td>
<td>11.8 7.2 10.4 7.2 9.1 6.9 7.0 7.1 6.8 7.0</td>
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<td>2.80</td>
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<td>11.8 7.2 10.2 7.2 9.2 7.0 7.1 7.1 6.6 7.2</td>
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<tr>
<td>3.20</td>
<td>20 17 10 6 4</td>
<td>20</td>
<td>11.8 7.2 10.2 7.2 9.4 7.2 7.4 7.2 6.8 7.2</td>
</tr>
<tr>
<td>3.70</td>
<td>20 6 1 0 -</td>
<td>0</td>
<td>11.8 7.2 10.5 7.2 9.1 7.0 7.8 7.1 6.5 7.1</td>
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<td>0</td>
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<tr>
<td>Untreated Control</td>
<td>20 20 20 20 20</td>
<td>100</td>
<td>11.6 7.2 10.4 7.2 - - - - - -</td>
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<tr>
<td>Acetone Control</td>
<td>20 20 20 20 20</td>
<td>100</td>
<td>11.6 7.2 10.2 7.2 9.4 7.2 7.6 7.2 6.8 7.2</td>
</tr>
</tbody>
</table>
4) No photoperiod for test organisms indicated.

5) The water temperature for trout species was 3 to 5° higher than the recommended 12 °C.

6) Loading of test organisms not indicated although 20 fish per concentration in 10 L of water were used. Biomass loading would be excessive in this case.

b. Statistical Analysis - EEB's Toxanal Program results agreed with the reported LC50 results.

c. Discussion/Results - The reported 96-hour LC50s of 3.02 and 6.3 ppm indicate that the pesticide is moderately toxic to rainbow trout and bluegill sunfish, respectively. Additional data/information is required for further evaluation.

d. Adequacy of Study
   1) Classification - Supplemental
   2) Rationality - Inadequate
   3) Repairability - Additional information required for study upgrade considerations.

15. **Completion of One-Liner for Study:**


16. **CBI Appendix:** N/A
NOLES CIPC BLUEGILL 07-23-87

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<table>
<thead>
<tr>
<th>CONC.</th>
<th>NUMBER EXPOSED</th>
<th>NUMBER DEAD</th>
<th>PERCENT DEAD</th>
<th>PROB. (PERCENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.7</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>9.536742E-05</td>
</tr>
<tr>
<td>7.5</td>
<td>20</td>
<td>19</td>
<td>95</td>
<td>2.002716E-03</td>
</tr>
<tr>
<td>6.5</td>
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<td>10</td>
<td>50</td>
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<td>5.6</td>
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<td>4</td>
<td>20</td>
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</tr>
<tr>
<td>4.9</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>9.536742E-05</td>
</tr>
</tbody>
</table>

THE BINOMIAL TEST SHOWS THAT 5.6 AND 7.5 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC$_{50}$ FOR THIS SET OF DATA IS 6.499999.

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
SPAN G
LC$_{50}$ 95 PERCENT CONFIDENCE LIMITS
4 5.135007E-02 6.351675 6.067725 6.632579

RESULTS CALCULATED USING THE PROBIT METHOD
ITERATIONS G H GOODNESS OF FIT PROBABILITY
3 .1106686 1 .6398075

SLOPE = 20.20727
95 PERCENT CONFIDENCE LIMITS = 13.48494 and 26.9296

LC$_{50}$ = 6.342792
95 PERCENT CONFIDENCE LIMITS = 6.067682 and 6.631888

LC$_{10}$ = 5.488222
95 PERCENT CONFIDENCE LIMITS = 5.027522 and 5.780515

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NOLES CIPC RAINBOW TROUT 07-23-87

<table>
<thead>
<tr>
<th>CONC.</th>
<th>NUMBER EXPOSED</th>
<th>NUMBER DEAD</th>
<th>PERCENT DEAD</th>
<th>BINOMIAL PROB. (PERCENT)</th>
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</thead>
<tbody>
<tr>
<td>4.2</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>9.536742E-05</td>
</tr>
<tr>
<td>3.7</td>
<td>20</td>
<td>20</td>
<td>100</td>
<td>9.536742E-05</td>
</tr>
<tr>
<td>3.2</td>
<td>20</td>
<td>16</td>
<td>80</td>
<td>.5908966</td>
</tr>
<tr>
<td>2.8</td>
<td>20</td>
<td>3</td>
<td>15</td>
<td>.1288414</td>
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<tr>
<td>2.4</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>9.536742E-05</td>
</tr>
</tbody>
</table>

The binomial test shows that 2.8 and 3.2 can be used as statistically sound conservative 95 percent confidence limits, because the actual confidence level associated with these limits is greater than 95 percent.

An approximate LC50 for this set of data is 3.011585.

Results calculated using the moving average method:

<table>
<thead>
<tr>
<th>SPAN</th>
<th>G</th>
<th>LC50</th>
<th>95 Percent Confidence Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>5.135013E-02</td>
<td>3.005572</td>
<td>2.861543</td>
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</table>

Results calculated using the probit method:

<table>
<thead>
<tr>
<th>Iterations</th>
<th>G</th>
<th>H</th>
<th>Goodness of Fit Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
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<td>1</td>
<td>.9968259</td>
</tr>
</tbody>
</table>

Slope = 33.20741
95 percent confidence limits = 18.96413 and 47.4507

LC50 = 3.013234
95 percent confidence limits = 2.909512 and 3.120525

LC10 = 2.759233
95 percent confidence limits = 2.55233 and 2.866672