

US EPA ARCHIVE DOCUMENT

12-22-87 (4)

DATA EVALUATION RECORD

PAGE 1 OF

CASE: GS0271

CHLORPROPHAM

CONT-CAT: 01

GUIDELINES: 72-4

MRID: 37279

Reinert, H.K.; Parke, G.S.E. (1975) Report: Static 96-Hour Toxicity Study of PPG Industries, Incorporated Sample CIPC Technical in Bluegill Sunfish and Rainbow Trout: Laboratory No. 5E-8034. (Unpublished study received Sep 21, 1976 under 748-161; prepared by Cannon Laboratories, Inc., submitted by PPG Industries, Inc., Barberton, Ohio; CDL:095292-AA)

REVIEW RESULTS:

VALID INVALID INCOMPLETE

GUIDELINE: SATISFIED PARTIALLY SATISFIED NOT SATISFIED

DIRECT RVW TIME = START DATE: END DATE:

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

DER prepared for this study document.

SIGNATURE: John Noles

DATE: 7/17/87

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

SIGNATURE: 

DATE: 12/22/87

DATA EVALUATION RECORD

1. Chemical: Chloroprotham
2. Test Material: CIPC Technical
3. Study Type: 96-Hour Freshwater Fish LC50

Species Tested: Lepomis macrochirus
Salmo gairdneri

4. Study ID: Reinert, H.K.; Parke, G.S.E. (1975) Report: Static 96-Hour Toxicity Study of PPG Industries, Inc. Sample CIPC Technical in Bluegill Sunfish and Rainbow Trout: Laboratory No. 5E-8034. (Unpublished study received September 21, 1976 under 748-161; prepared by Cannon Laboratories, Inc.; submitted by PPG Industries, Inc., Barberton, OH. CDL:095292-A.) MRID No. 37279.

5. Reviewed By: John Noles
Biologist
EEB/HED

Signature: *John Noles*
Date: 8/19/87

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 LC50 = 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 Chloroprotham 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 1

CIPC TECHNICAL
SURVIVAL, DISSOLVED OXYGEN, AND PH DATA FOR BLUEGILL SUNFISH

CONCENTRATION (ppm)	SURVIVORS AT (HOURS)						DISSOLVED OXYGEN (PPM) AND pH AT (HOURS)									
	6	24	48	72	96		DO	pH	DO	pH	DO	pH	DO	pH		
4.90	20	20	20	20	20	100	11.8	7.2	9.4	7.2	7.1	6.8	6.0	7.0	5.8	7.0
5.60	20	20	20	17	16	80	11.8	7.2	9.2	7.0	7.2	7.0	6.0	7.1	5.6	7.2
6.50	20	20	18	12	10	50	11.8	7.2	9.4	7.2	7.0	7.2	6.4	7.1	5.8	7.2
7.50	20	19	16	7	1	5	11.8	7.2	9.4	7.1	7.1	7.0	6.8	7.0	6.0	7.1
8.70	20	9	3	0	-	0	11.8	7.2	9.4	7.2	7.0	7.2	6.7	7.1	6.0	7.3
Untreated Control	20	20	20	20	20	100	11.6	7.2	10.4	7.2	9.2	7.2	7.4	7.1	6.8	7.2
Acetone Control	20	20	20	20	20	100	11.6	7.2	10.4	7.2	9.0	7.2	7.6	7.2	6.8	7.2

5

TABLE 2

CIPC TECHNICAL
SURVIVAL, DISSOLVED OXYGEN, AND pH DATA FOR RAINBOW TROUT

CONCENTRATION (ppm)	SURVIVORS AT (HOURS)			DISSOLVED OXYGEN (PPM) AND pH AT (HOURS)												
	6	24	48	72	96	6		24		48		72		96		
	DO	pH	DO	pH	DO	pH	DO	pH	DO	pH	DO	pH	DO	pH	DO	pH
2.40	20	20	20	20	20	11.8	7.2	10.4	7.2	9.1	6.9	7.0	7.1	6.8	7.0	
2.80	20	20	20	19	17	11.8	7.2	10.2	7.2	9.2	7.0	7.0	7.1	6.6	7.2	
3.20	20	17	10	6	4	11.8	7.2	10.2	7.2	9.4	7.2	7.4	7.2	6.8	7.2	
3.70	20	6	1	0	-	11.8	7.2	10.5	7.2	9.1	7.0	7.8	7.1	6.5	7.1	
4.20	15	0	-	-	-	11.8	7.2	10.4	7.2	9.0	7.2	6.7	7.1	-	-	
Untreated Control	20	20	20	20	20	11.6	7.2	10.4	7.2	-	-	-	-	-	-	
Acetone Control	20	20	20	20	20	11.6	7.2	10.2	7.2	9.4	7.2	7.6	7.2	6.8	7.2	

- 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) Rationale - Inadequate
 - 3) Repairability - Additional information required for study upgrade considerations.
15. Completion of One-Liner for Study:
One-liner form completed July 23, 1987.
16. CBI Appendix: N/A

NOLES CIPC BLUEGILL 07-23-87

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
8.7	20	20	100	9.536742E-05
7.5	20	19	95	2.002716E-03
6.5	20	10	50	58.80984
5.6	20	4	20	.5908966
4.9	20	0	0	9.536742E-05

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 LC₅₀ FOR THIS SET OF DATA IS 6.499999.

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
SPAN G LC₅₀ 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

LC₅₀ = 6.342792
95 PERCENT CONFIDENCE LIMITS = 6.067682 and 6.631888

LC₁₀ = 5.488222
95 PERCENT CONFIDENCE LIMITS = 5.027522 and 5.780515

NOLES CIPC RAINBOW TROUT 07-23-87

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
4.2	20	20	100	9.536742E-05
3.7	20	20	100	9.536742E-05
3.2	20	16	80	.5908966
2.8	20	3	15	.1288414
2.4	20	0	0	9.536742E-05

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

SPAN	G	LC ₅₀	95 PERCENT CONFIDENCE LIMITS		
4	5.135013E-02		3.005572	2.861543	3.135181

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
10	.1839714	1	.9968259

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