00160187

DATA EVALUATION RECORD

CASE: ETHOPROP

CONT-CAT: GUIDELINES: 72-1

MRID: 00160187 Swigert, J.P.; Bowman, J. (1986) Acute Toxicity of Ethoprop to Bluegill Sunfish (Lepomis macrochirus) Static Acute Toxicity Report No. 34319, Analytical Bio-Chemistry Laboratories, Inc., Submitted by Rhone-Poulenc, Inc. Agrochemical Division, NJ, CDL Acc. No. 263470

REVIEW RESULTS:

VALID X INVALID_____ INCOMPLETE_____

GUIDELINES: SATISFIED X PARTIALLY SATISFIED_____ NOT SATISFIED____

DIRECT RVW TIME = START DATE: END DATE:

REVIEWED BY: Dennis J.McLane

TITLE: Wildlife Biologist

ORG: EEB/HED

LOC/TEL: 557-1993

SIGNATURE: Dennis McLane DATE: 11-5-87

APPROVED BY: RAY MATHENY

TITLE: Head, Sec. 1

ORG: EEB/HED

LOC/TEL: 557-1134 DATE: NOV 9 1987

SIGNATURE: Ray Matheny

S.S. Duplicate

DATA EVALUATION REPORT

1. Chemical: Ethoprop

2. Test Material: 99.7% Technical Ethoprop

3. Study Action: §72-1 - 96-hour LC_{50} with Bluegill Sunfish

4. Study ID: Swigert, J.P.; Bowman, J. (1986) Acute Toxicity of Ethoprop to Bluegill Sunfish (Lepomis macrochirus), Static Acute Toxicity Report No. 34319, Analytical Bio-Chemistry Laboratories, Inc., Submitted by Rhone-Poulenc, Inc. Agrochemical Division, NJ, CDL Accession No. 263470

5. Reviewed By: Dennis J. McLane
Wildlife Biologist
EEB/HED
Signature: Dennis McLane
Date: 11-5-87

6. Approved By: Ray Matheny
Head, Section I
EEB/HED
Signature: Ray Matheny
Date: NOV 9 1987

7. Conclusion:

This study meets the Guideline requirements and provides an LC_{50} of 0.30 (0.23-0.40) mg/L for Technical Ethoprop. This would place it in the "highly toxic" category for toxicity to aquatic organisms.

8. Recommendations:

9. Background:

This study was requested in connection with the initial Registration Standard and evaluated under the (FRSTR).

10. Discussion of Individual Test: N/A

11. Materials and Methods:
(Definitive Test)

a. Test Animals were bluegill sunfish (Lepomis macrochirus), from commercial hatchery, Osage Catfisheries, Inc., Osage Beach, MO; mean weight = 0.28 g; mean length 23 (± 1.2) mm; no age given.

b. Test System--five (5) gallon glass/15 L test solution; static exposure to well water reconstituted to soft water at 22 °C; 96 hours duration.

c. Dose--static bioassay using nominal concentrations; both a solvent control with DMF and a control.

d. Design--10 fish per level; 6 doses plus a control and solvent control. (0.8, 0.4, 0.2, 0.1, 0.05, 0.025) mg/L.

e. Statistics--Stephan, C. (1977) Methods for Calculating an LC_{50}, p. 65 to 84. In F.L. Mayer and J.L. Hamelink (eds.). Aquatic Toxicology and Hazard Evaluation. ASTM Special Technical Publication 634. ASTM, Philadelphia.

12. Reported Results:

(Excerpted from citation)

"The results of the 4-day static fish toxicity study using ethoprop are summarized below. The 24- and 48-hour LC_{50} values were also determined.

Compound	96-hour LC_{50} (95% C.I.)
Ethoprop	0.30 mg/L (0.23-0.40 mg/L

"Also, the results indicated a 96-hour no-observed-effect concentration could be estimated at 0.05 mg/L, which was based on the lack of mortality and abnormal effects. Abnormal effects of mortality, surfacing, loss of equilibrium, dark discoloration and/or fish on the bottom of test chamber were observed during the 96-hour exposure period."

13. Study Author's Conclusions/QA Measures:

(See attached Table 3 and previous discussion for conclusions)

The following paragraph concerning QA measures was excerpted from the citation.

"The study was conducted following the intent of the Good Laboratory Practice Regulations (7) and the final report was reviewed by Analytical Bio-Chemistry Laboratories Quality Assurance Unit. All original raw data were provided to Rhone-Poulenc, Inc., with a copy retained at Analytical Bio-Chemistry Laboratories."

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

a. Test Procedures--The procedures were in accordance with protocols recommended by the Guidelines. There were no major problems.

b. Statistical Analysis--EEB's LC_{50} and confidence limits are nearly identical to the submitted values. Based on this, the statistical analysis is acceptable.

c. Discussion/Results--The study meets the Guideline requirements and indicates that ethoprop is highly toxic to the bluegill sunfish.

d. Adequcy of Study

1) Classification: Core

2) Rationale: The study meets the Guideline requirements.

3) Repair: N/A

15. Completion of One-Liner for Study

One-liner entered in PC October 27, 1986.

16. CBI Appendix: N/A

McLane Ethoprop Bluegill Sunfish 10/27/87

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
.2	10	10	100	9.765625E-02
.4	10	6	60.00001	37.695312E-02
.2	10	3	30	17.18753
.1	10	0	0	9.765625E-02
.05	10	0	0	9.765625E-02
.025	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT .1 AND .8 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 .3183736

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC_{50}	95 PERCENT CONFIDENCE LIMITS	
3	.1144044	.2979956	.2269139	.3966565

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	.2462969	1	.8284751

SLOPE = 4.472085
95 PERCENT CONFIDENCE LIMITS = 2.252665 and 6.691505

LC_{50} = .30177
95 PERCENT CONFIDENCE LIMITS = .2201773 and .4161234

LC_{10} = .156925
95 PERCENT CONFIDENCE LIMITS = 7.478755E-02 and .2060706