

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

1. CHEMICAL: FIREBRAKE[®] ZB (Zinc Borate)

2. TEST MATERIAL: TECHNICAL 100% A.I.

Species tested: Bluegill sunfish (Lepomis macrochirus)

3. STUDY ACTION TYPE: Fish acute 96-h LC50

4. STUDY IDENTIFICATION:

Acute Toxicity of 20 MULE FIREBRAKE[®] ZB to Bluegill (Lepomis macrochirus) under Static Conditions, Report No. 88-6-2670, Springborn Life Science, Inc. Submitted by U.S. Borax Research Corporation (Reg. No. 1624-REN)

5. REVIEWED BY: Richard M. Lee
Entomologist
EEB/EFED

Signature: *Richard Lee*
Date: 5/4/89

6. APPROVED BY: Harry Craven
Sec. Head, Sec. 4

Signature: *Harry T. Craven*
Date: 5/5/89

7. CONCLUSION: The study is scientifically sound. The 96-h LC50 for bluegill sunfish was greater than 335 ppm. Firebrake is practically nontoxic to fish species tested. The study does fulfill guideline requirements for fish 96-h LC50.

8. RECOMMENDATION:

N/A

9. BACKGROUND: Registration of manufacturing-use product

10. DISCUSSION OF INDIVIDUAL TESTS OR STUDIES: N/A

11. MATERIAL AND METHODS:

General procedure followed SLS protocol entitled "Protocol for Conducting a Static Acute Toxicity Test with Freshwater Fish, Oct. 1987" and ASTM protocol entitled "Standard Practice for Conducting Acute Toxicity Tests with Fishes, Microinvertebrates and Amphibians (1980)".

A. Test animals

Average weight of bluegill sunfish tested was 0.5 g (0.14 - 1.47 g) and their average length was 35 mm (29 - 50 mm). Two weeks acclimation prior to test.

B. Dose

1. Five concentration levels (duplicated) tested are as follows:

Nominal conc.; 0, 130, 220, 360, 600, 1000 ppm
Measured conc.; 0, 94, 137, 182, 248, 335 ppm
2. No solvent used, static test with aeration, and actual concentrations measured due to precipitation.
3. Technical grade, 98% a.i.
4. Number tested: 10 fishes per vessel, 20 fishes per treatment.
5. Test vessel: 18.9 L glass aquaria with 15 L solution.
6. Temperature: 21 C
7. Water
 - a. deionized, reconstructed well water
 - b. D.O. < 60%
 - c. pH 7.7
8. Chemistry: Hardness (44mg/L CaCO₃), Alkalinity (32 mg/L CaCO₃), Specific conductivity(280 umhos/cm)
9. Photoperiod: 16-h light, 8-h dark
10. Loading: 0.33g biomass/L
11. Food withheld: 24-h pretreatment

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D. Statistics

Not applied.

12. EXPORTED RESULTS

The 24-, 48-, 72- and 96-h dose-mortality data were reported. The maximum mortality was 20% at 24-h and 30% during 48-h through 96-h with the highest concentration tested.

13. STUDY AUTHOR'S CONCLUSIONS

The 96-h LC50 is greater than 335 ppm.

14. DISCUSSION AND INTERPRETATION OF STUDY RESULTS

a. Test procedure

The procedures used generally followed EPA's protocol and scientifically sound.

B. Statistical Analysis

The statistical analysis is not required with mortality data obtained.

C. Discussion/Results

The 96-h LC50 for bluegill sunfish is greater than 335 ppm.

D. Adequacy of the study

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

15. COMPLETION OF ONE-LINER FOR STUDY

One liner completed on 5/2/89

16. CBI APPENDIX N/A

DER - MRID

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