DATA EVALUATION RECORD

1. Chemical: Pyridate

2. Test Material: Pyridate Technical
Technical grade
92% ai (obtained by lot number from rainbow trout study)

3. Study Type: Freshwater Fish Acute Toxicity

Species Tested: Lepomis macrochirus

4. Study ID: Bowman, J.; Schuster, S.; Franklin, B.B. (1986) Acute Toxicity of Pyridate Technical to Bluegill Sunfish. Prepared by: ABC Labs, Inc., Columbia, MO. Submitted by: Gilmore, Inc., Memphis, TN; for Chemie Linz, AG, Linz Austria. ABC Static Toxicity Report No. 34303. EPA Accession No. 265682.

5. Reviewed by: Thomas M. Armitage
Fisheries Biologist
EEB/HED
Signature: Thomas M. Armitage
Date: 1-5-87

6. Approved by: Raymond W. Matheny
Head-Section I
EEB/HED
Signature: Raymond W. Matheny
Date: 1-7-87

7. Conclusions:

On the basis of measured concentrations, this study indicates that the 96-hr LC_{50} of bluegill sunfish exposed to technical Pyridate is > 2.1 mg/L (ppm). Technical Pyridate is no more than moderately toxic to bluegill sunfish. The study fulfills the Guidelines requirement for an acute toxicity study using a warmwater fish species.

8. Recommendations: N/A.

9. Background:

The study, an acute toxicity determination for a warmwater fish species with technical Pyridate, was submitted to support registration of Pyridate in an EUP program.

10. Discussion of Individual Test: N/A.

11. Materials and Methods: (Definitive Test)

a. Test Animals were bluegill sunfish (Lepomis macrochirus) obtained from Osage Catfisheries in Osage Beach, Missouri. The sunfish had a mean weight of 0.45 (± 0.14) g and a mean standard length of 26 (± 2.4) mm. Chamber loading biomass was 0.30 g/L.

System: Five (5) gallon glass containers with 15 liters of soft reconstituted water. Test water temperature was 22 °C. D.O. ranged from 9.0 mg/L to 5.6 mg/L (100-64% saturation). pH ranged from 6.9 to 7.6.

b. Dose: Static bioassay using nominal and measured concentrations. DMF (dimethyl formamide) was used as a solvent at .8 mL/L.

c. Design: Ten fish per level, five dose levels plus control and solvent control (0.12, 0.25, 0.50, 1.0, and 2.0 mg/L nominal and 0.10, 0.23, 0.76, 0.83, and 2.1 mg/L measured at 0 hour).

d. Statistics: Statistical analysis was not required because no mortality was observed.

12. Reported Results:

The maximum exposure level was established at 2.0 mg/L. In so doing, the exposure regime bracketed the water solubility limit of approximately 1.5 mg/L. Small oil drops were visible on the 0.50, 1.0, and 2.0 mg/L solutions at 0 hour. These observations remained consistent throughout the study period.

The actual concentrations of Pyridate technical were meaured by liquid chromatography at 0 and 96 hours. At 0 hour, measured concentrations approximated the nominal concentration series. However, at 96 hours, levels of parent Pyridate had degraded to < 0.072, < 0.072, 0.19, 0.40, and 0.48 mg/L. In addition, there was a concomitant increase in Pyridate metabolite from 0 to 96 hours.

No mortality was observed at any test level.

13. Study Authors' Conclusions/QA Measures:

96-hr LC_{50} > 2.0 mg/L (based on nominal concentrations).

"In accordance with ABC Laboratories' intent that all studies conducted at our facilities are designed and function in conformance with good laboratory practice regulations and protocols for individual laboratory studies, an inspection of the final report for Pyridate Technical was conducted and found to be in an acceptable form by a member of our quality assurance unit. An inspection of the daily mortality rate of the test organisms prior to the initiation of the study indicated that they were in good health and should not bias the observed mortality in the study. A procedure audit was conducted on May 1, 1986. No deviations were noted. A final inspection of all data and records on May 22, 1986 indicated that the report submitted to you is an accurate reflection of the study as it was conducted by ABC Laboratories."

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

a. Test procedures: The procedures followed were in conformity with protocols recommended by the Guidelines. The following deviations from accepted protocol are noted:

(1) Solvent used should not exceed .5 mg/L in a static test. DMF was used at .8 mg/L. No mortality or effects were observed in the solvent control.

(2) If a 96-hr LC_{50} and confidence limits cannot be determined, it must be demonstrated that the 96-hr LC_{50} is > 100 ppm. It was not possible to test Pyridate dose levels in excess of 2.0 mg/L because of solubility limits.

(3) A precipitate was observed in the three highest dose level test chambers. However, actual measurements of toxicant were recorded and may be used to derive exposure levels.

b. Statistical Analysis: No statistical analysis is needed to calculate an LC_{50} because no mortality was observed at any dose level.

c. Discussion/Results: On the basis of measured concentrations, this study indicates that the 96-hr LC_{50} of bluegill sunfish exposed to technical Pyridate is > 2.1 mg/L (ppm). Technical Pyridate is no more than moderately toxic to bluegill sunfish.

d. Adequacy of Study:

(1) Classification: Core.

(2) Rationale: The test was conducted at maximum solubility limits using measured test dosages.

(3) Repair: N/A.

15. Completion of One-Liner for Study:

One-liner form completed December 24, 1986.

16. CBI Appendix: N/A.