

US EPA ARCHIVE DOCUMENT

## DATA EVALUATION RECORD

1. **CHEMICAL:** Molinate.  
Shaughnessey No. 041402.
2. **TEST MATERIAL:** Ordram:Propanil 3:3E; Lot No. NDH 3031; a dark-brown, viscous, fo liquid; purity not specified.
3. **STUDY TYPE:** Freshwater Fish Static Acute Toxicity Test. Species Tested: Bluegil Lepomis macrochirus)
4. **CITATION:** Bowman, J.H. 1986. Acute Toxicity of Ordram: Propanil 3:3E to Bluegi Lepomis macrochirus). Laboratory Project ID No. 35224. Prepared by Analytical Laboratories, Inc., Columbia, MO. Submitted by Stauffer Chemical Company, Ric EPA MRID No. 416136-02.
5. **REVIEWED BY:**  
  
Mark A. Mossler, M.S.      **Signature:**  
Associate Scientist II  
KBN Engineering and                      **Date:**  
Applied Sciences, Inc.
6. **APPROVED BY:**  
  
Louis M. Rifici, M.S.                      **Signature:**  
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Henry T. Craven, M.S.                      **Signature:**  
Supervisor, EEB/HED  
USEPA    **Date:**
7. **CONCLUSIONS:** This study is scientifically sound and satisfies the guideline requ static acute toxicity test for freshwater fish. The 96-hour LC<sub>50</sub> of Ordram: bluegill sunfish was 14 mg/L (based on nominal concentration of formulated produ Ordram:Propanil 3:3E is classified as slightly toxic to bluegill sunfish. The lack of mortality and sublethal effects, was estimated as 3.2 mg/L based concentration of formulated product.
8. **RECOMMENDATIONS:** N/A.
9. **BACKGROUND:**
10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.
11. **MATERIALS AND METHODS:**
  - A. **Test Animals:** Bluegill Sunfish (Lepomis macrochirus) were obtained from Os Catfisheries in Osage Beach, MO. The fish were maintained in culture 16-hour daylight photoperiod for at least 2 weeks prior to testing. The commercially available fish food daily with occasional supplements of n brine shrimp. The condition of the fish was monitored daily and recor

treatments were kept.

Mean weight and standard length of the control fish were 0.47 ( $\pm 0.085$ ) g mm. Biomass loading rate in the control was 0.31 g/L.

- B. **Test System:** Vessels used in the test were 5-gallon glass containers filled with soft reconstituted water (control) or test solution. The reconstituted water was prepared to yield a total hardness of 40-48 mg/L as  $\text{CaCO}_3$ , a total alkalinity of 20-25 mg/L as  $\text{CaCO}_3$ , and an initial pH of 7.2-7.6. The vessels were kept in a water bath maintained at  $22 \pm 1.0^\circ\text{C}$ . The fish were acclimated to the dilution water and held without food for 48-96 hours prior to testing. The test concentration was prepared by adding appropriate amounts of test material directly to the test water.

The bluegill sunfish were not fed during the test.

- C. **Dosage:** Ninety-six-hour static test. Based on preliminary tests, seven no-effect concentrations (1.0, 1.8, 3.2, 5.6, 10, 18, and 32 mg/L) and a dilution water control were used. The concentrations made were based on total product.
- D. **Design:** Ten fish were randomly added to each test chamber within 30 minutes of solution preparation. All chambers were observed once every 24 hours for sublethal effects. Dead fish were removed from the chambers at each period.

Temperature, pH, and dissolved oxygen (DO) were measured in the dilution water control, low, medium, and high test concentrations at 0, 48, and 96 hours.

- E. **Statistics:** The 96-hour median lethal concentration ( $\text{LC}_{50}$ ) and associated confidence interval (C.I.) was calculated using the moving average method.

12. **REPORTED RESULTS:** The mortality responses of the bluegill sunfish are given in Table 1 (attached). The 96-hour  $\text{LC}_{50}$ , based on nominal concentrations, was 14 mg/L (95% confidence interval 10-18 mg/L). Sublethal effects were observed in all concentrations greater than 3.2 mg/L. The no-observed-effect concentration (NOEC) was 3.2 mg/L after 96 hours.

At test initiation, the DO of the control, low, and high concentrations were 104-106% of saturation. After 96 hours, oxygen levels in the control, 1.0, 5.6 mg/L chambers ranged from 48 to 61%.

The pH values ranged from 6.8 to 7.5 (Table 3, attached). The temperature throughout the test. The alkalinity and hardness of the test water was 24-26 mg/L as  $\text{CaCO}_3$ , respectively. Conductivity was 200  $\mu\text{Mhos/cm}$ .

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:**  
The author presented no conclusions.

Quality Assurance and Good Laboratory Compliance Statements were included in the report indicating that the study was conducted in accordance with FIFRA Good Laboratory Standards set forth in 40 CFR Part 160.

14. **REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:**

- A. **Test Procedure:** The test procedures were generally in accordance with the protocols recommended by the guidelines, but deviated from the SEP as follows:

The acclimation period of the sunfish to the test conditions was 2 to 4 weeks.

SEP recommends that the acclimation period to the test conditions two weeks.

The test temperature was not monitored every six hours as recommended

A 30-minute dawn and dusk simulation period is recommended in the transition period was not used in the study.

Each selected nominal concentration was between 55% and 57% of the highest concentration. The SEP recommends that each concentration be the next highest concentration.

The DO at test initiation ranged from 104 to 106% of saturation at SEP recommends that the DO be between 60 and 100% of saturation during the first 48 hours of the test.

- B. **Statistical Analysis:** The reviewer used EPA's Toxanal program to calculate the LC<sub>50</sub> value and obtained the same results (see attached printout).
- C. **Discussion/Results:** Results from the preliminary test indicated that foam was present in the 1.0 and 10 mg/l treatments within the first 24 hours. The report did not state if this foam was present in the definition. The reviewer assumes that this foam was present due to the formulation within the test material that went into solution eventually. Additional measurements would have been helpful to confirm the presence of foam material at stated nominal rates.

This study is scientifically sound and satisfies the guideline requirement for a static acute toxicity test. The 96-hour LC<sub>50</sub> of 14 mg/L (based on nominal concentration of total product) classifies the formulation Ordram:Pr as slightly toxic to bluegill sunfish. The NOEC can be estimated as 3.0 mg/L (on nominal concentration of total product).

D. **Adequacy of the Study:**

- (1) **Classification:** Core for the formulated product  
Ordram:Propanil 3:3E.
- (2) **Rationale:** N/A.
- (3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER FOR STUDY:** Yes, 6-10-91.