UNDATED

DATA EVALUATION RECORD

1. **CHEMICAL:** Molinate.
Shaughnessey No. 041402.

2. **TEST MATERIAL:** Ordram 8E; Lot No. NH1-0821; 90.3% active ingredient w/w; an ambe formulated product.

3. **STUDY TYPE:** Freshwater Fish Static Acute Toxicity Test. Species Tested: Bluegil Lepomis macrochirus).

4. **CITATION:** Sankey, S.A., J.F. Tapp, J.E. Caunter, S.K. Cornish, and D.S. Adams. Molinate: Determination of Acute Toxicity of the Formulation Ordram 8E to Bl Lepomis macrochirus). Report No. BL3836/B. Prepared by ICI Group Environmental Brixham, Devon, UK. Submitted by ICI Agrochemicals, Fernhurst, Surrey, UK. EP 416136-01.

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:**
Associate Scientist II
KBN Engineering and **Date:**
Applied Sciences, Inc.

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_{50} of Ordram 8E was 24 mg/L (based on mean measured concentration of total product). Therefore, classified as slightly toxic to bluegill sunfish. The NOEC, based on the lac sublethal effects, was estimated as 0.34 mg/L (based on mean measured concentra 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 Mo Aquatics in Monkfield, Bourn, Cambs, UK. The fish were maintained in cul 39 days prior to testing at 22°±1°C under daylight and artificial lighting a commercially available fish food daily. Lymphocytosis was noted in the

of the fish but it was considered that this would not affect the validity The fish were fed a medicated fish food for three days (0.3% tetracycline) testing. The fish were in good condition at test initiation. The mortali prior to test initiation was less than 1%.

Mean weight and length of the control fish were 0.39 g (range of 0.17-0.80 (range of 21-35 mm). Biomass loading rate in the control was 0.098 g/L.

B. **Test System:** Vessels used in the test were 50-liter glass containers fille water (control) or test solution. The dilution water was tap water that w activated carbon, filtered to remove particulate material and dechlorinat thiosulfate. The water had a total hardness of 62.6 mg/L as $CaCO_3$, a condu 153 ?S/cm, a chlorine level of less than 4 ?g/L, and an initial pH of 7.9. kept in a temperature controlled room set to maintain 22°±1°C. The fish w to the dilution water and test temperature for 39 days. The illuminat sunlight supplemented with artificial lights on a 16-hour light/8-hr dark test concentrations were prepared by adding appropriate amounts of test ma to the test chambers.

The bluegill sunfish were not fed during the test.

C. **Dosage:** Ninety-six-hour static test. Seven nominal concentrations (0.10, 18.0, 32.0, 56.0, and 100 mg/L) and a dilution water control were concentrations made were based on total product.

D. **Design:** Ten fish were randomly added to each test chamber. All chambers w observed once every 24 hours for mortality and sublethal effects. Sampl solutions were taken at 0, 48, and 96 hours for chemical analysis. Dis (DO), pH, and temperature were recorded daily. Water hardness and conduc measured at the beginning of the test. Temperature was monitored continu dilution water control.

E. **Statistics:** The 96-hour median lethal concentration (LC_{50}) and associated confidence interval (C.I.) was calculated using the probit analysis.

12. **REPORTED RESULTS:** The mean measured values ranged from 100 to 115% of nominal values in the test vessels (Table 1, attached) and were fairly consistent between

The mortality responses of the bluegill sunfish are given in Table 2 (attached). , based on mean measured concentration of total product, was 24 mg/L (95% C.I. = The no-observed-effect concentration (NOEC), based on the lack of mortality effects (Table 3, attached), was 0.34 mg/L after 96 hours (based on mean concentration of total product).

At test initiation, the D.O. was 8.0 to 8.6 mg/L or 91-98% of saturation. Aft levels ranged from 70-80% of saturation. The pH values ranged from 7.6 t temperature was 22°±1°C throughout the test. The hardness and conductivity o water were 62.6 mg/L as $CaCO_3$ and 153 ?S/cm, respectively.

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

Quality Assurance and Good Laboratory Practice Regulation Statements were in the report, indicating that the study was conducted in accordance wit

Laboratory Practice 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 wit protocols recommended by the guidelines, but deviated from the SEP as

Although the report stated that the temperature was monitored cont the dilution water control, no raw data were submitted.

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 th highest concentration for the two sets of continuous nominal value 0.18, 0.32 mg/L and 18, 32, 56, and 100 mg/l). The SEP recommends t concentration be 60% of the next highest concentration. There is gap of values between these two sets.

No alkalinity measurements were reported.

The report did not state the time period between test solution pre fish addition.

B. **Statistical Analysis:** The reviewer used EPA's Toxanal program to cal the LC_{50} value and obtained the same results (see attached printout). the reviewer noted that the authors calculated this value with pr Probit analysis cannot be used when the LC value lies between two d that are 0 and 100% mortality, respectively. Only binomial pro estimate an LC value with the upper and lower test rates as the intervals.

C. **Discussion/Results:** Because all mortality occurred in the four highe the LC value predicted is valid. However, because a large gap of no exist between 0.32 and 18 mg/L, the NOEC derived herein is probably the actual NOEC. However, since this NOEC is more conservative than that would probably be obtained if a proper concentration progressi used, it will be taken to be the correct NOEC.

This study is scientifically sound and satisfies the guideline req static acute toxicity test. The 96-hour LC_{50} of 24 mg/L (based on me measured concentration of total product) classifies Ordram 8E as sli bluegill sunfish. The NOEC can be estimated as 0.34 mg/L (based measured concentration of total product).

D. **Adequacy of the Study:**

(1) **Classification:** Core.

(2) **Rationale:** N/A.
(3) **Repairability:** N/A.

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