

DATA EVALUATION RECORD

1. **CHEMICAL:** Molinate.
Shaughnessey No. 041402.
2. **TEST MATERIAL:** Arrosolo 3-3E; Test substance No. T327; 33.5% molinate w/w and 34 propanil w/w; a black-brown liquid formulated product.
3. **STUDY TYPE:** Saltwater Fish Acute Static Toxicity Test. Species Tested: Cypr
variegatus.
4. **CITATION:** Tapp, J.F., S.A. Sankey, J.E. Caunter, R.D. Stanley and D.S. Adams.
Molinate: Determination of Acute Toxicity of the Formulation Arrosolo 3-3E t
Minnow (Cyprinodon variegatus). Laboratory Study No. BL3869/B. Conducted
Chemical Industries PLC, Brixham, Devon, UK. Submitted by ICI Agrochemicals,
Surrey, UK. EPA MRID No. 416136-08.
5. **REVIEWED BY:**

Mark A. Mossler, M.S. **Signature:**
Associate Scientist
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 meets the guideline requirem
static, acute toxicity test. Based on mean measured concentrations, the 96-ho
Arrosolo 3-3E formulation for sheepshead minnow was 17 mg/L. Therefore, Arro
classified as slightly toxic to sheepshead minnow. The NOEC was estimated as 3.0
8. **RECOMMENDATIONS:** N/A.
9. **BACKGROUND:**
10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.
11. **MATERIALS AND METHODS:**
 - A. **Test Animals:** Sheepshead Minnow (Cyprinodon variegatus) were obtained from
commercial supplier in Salem, MA. The fish were held in salt water and fe
available fish food daily until test initiation, at which time feeding wa

fish were held under test conditions for 30 days. The average length and control fish were 34.4 mm (range of 28-40 mm) and 1.27 g (range of 0.69-2 measured at the end of the test.

- B. **Test System:** Vessels used in the test were glass 50-L aquaria which contained 40 L of test solution or control water. They were randomly positioned in a temperature controlled room set to maintain 22 photoperiod was 16-hours light/8-hours dark. The dilution water was natural from Tor Bay, Devon which was filtered prior to use. The test concentration prepared by adding appropriate amounts of test material directly to the beginning on day 1, the test containers were gently aerated.
- C. **Dosage:** Ninety-six-hour static test. Seven nominal concentrations (1.0, 10, 18, and 32 mg/L) and a dilution water control were used. The concentrations were based on total product.
- D. **Design:** Ten minnows were randomly allocated to a single vessel for each test concentration and dilution water control. The loading rate was 0.32 g/L were observed once every 24 hours for mortality and signs of toxicity. Test solutions were taken at 0, 48, and 96 hours for chemical analysis of m
- Temperature, dissolved oxygen (DO), and pH were measured every 24 hours throughout the test. The salinity was measured at test initiation.
- E. **Statistics:** The 96-hour median lethal concentration (LC₅₀) and associated confidence interval (C.I.) was calculated using the moving average method.
12. **REPORTED RESULTS:** The mean measured values ranged from 89 to 95% of nominal values in the test vessels (Table 1, attached). The mortality responses of the sheeps given in Table 2 (attached). The 96-hour LC₅₀, based on mean measured concentration 17 mg/L (95% C.I. = 14-22 mg/L). The no-observed-effect concentration (NOEC), lack of mortality and abnormal effects, was 3.0 mg/L after 96 hours, based on concentrations.

The initial pH was 7.9-8.0 and the final pH was between 7.9 and 8.1. The dissolved oxygen between 6.4-6.8 mg/L (65-69% of saturation) at test initiation and 6.0-6.4 (61-65% at test termination. Salinity was 35.12 parts per thousand (ppt) at test initiation and ranged between 22.1-22.4°C throughout the test.

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

Quality Assurance and Good Laboratory Practice Compliance Statements were included in the report, indicating that the study was conducted in accordance with FIFRA Good 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 with protocols recommended by the guidelines, but deviated from the SEP as follows:

The DO concentrations on day 1 ranged from 47 to 53% of saturation, which is below the recommended DO concentration during the first 48 hours of the test of saturation.

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

The salinity of the test water was 35 ppt. Sheepshead minnows are species and should be tested in water of lower salinity (i.e., 10-17

Each selected nominal concentration was between 56% and 57% of th highest concentration. The SEP recommends that each concentration b the next highest concentration.

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 LC₅₀ value and obtained the same result with slightly larger conf (see attached printout).
- C. **Discussion/Results:** Although the fish were tested in water that was than recommended salinity, the control fish demonstrated no mortalit stress. Similarly, the DO sag on day 1 probably did not affect the test based on the response of the control fish.

This study is scientifically sound and satisfies the guideline req static acute toxicity test. The 96-hour LC₅₀ of 17 mg/L (based on me measured concentrations) classifies Arrosolo 3-3E as slightly sheepshead minnow. The NOEC can be estimated as 3.0 mg/L.

- D. **Adequacy of the Study:**
 - (1) **Classification:** Core.
 - (2) **Rationale:** N/A.
 - (3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER FOR STUDY:** Yes, 6-14-91.