

US EPA ARCHIVE DOCUMENT

152320
MRID No.

041402
Shaughnessy No.

Data Evaluation Record

MOLINATE TG ORDRAM •

Mysid Shrimp Toxicity Test
Guideline Reg. No. 72-3(c)

1. TEST MATERIAL - Molinate TG
2. STUDY MATERIAL - S-Ethyl hexahydro-1H-azepine-1-carbothioate 98.8% ai W/W.
3. STUDY TYPE:
Estuarine and Marine Invertebrate, acute toxicity.
Species tested- Mysid shrimp (*Mysidopsis bihia*)

4. STUDY IDENTIFICATION:

Ward, G.S. 1984. Acute toxicity of OrDRAM technical to Mysid shrimp (*Mysidopsis bihia*) [sic]. Springborn Bionomics. Pensacola FL 32507. Project No. 723.8002. Report No. BP-84-1. Written by S. Irwin. Submitted by ICI Americas, Inc., Agricultural Products, Wilmington, Delaware 19897. Registrant's Code No. (?) on the Summary title page, Report No. T-11498, RR 90-341B.

5. REVIEWED BY:

James J. Goodyear
Biologist, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: James J. Goodyear
Date: April 11, 1991

6. APPROVED BY:

Leslie W. Touart
Acting Head, Section 1
Ecological Effects Branch
Environmental Fate and Effects Division (H7507C)

Signature: Leslie W. Touart
Date: 4/12/91

7. CONCLUSIONS:

The study does not meet the guideline requirements and *cannot* be used to fulfil the requirements of reregistration.

8. RECOMMENDATIONS - N/A.

9. BACKGROUND:

The registrant submitted the study as a "Previously submitted, acceptable study." Elizabeth Zucker (1985) reviewed this study and classified it "Core."

10. DISCUSSION OF INDIVIDUAL TEST - N/A.

ENVIRONMENTAL FATE AND EFFECTS DIVISION
ECOLOGICAL EFFECTS BRANCH
List B Phase 4 - Response on Existing Studies Reviewed

CHEMICAL AI NAME: Molinate (Ordram).
CHEMICAL NO.: 041402.

CASE NO.: 2435.

REVIEWER'S NAME: James J. Goodyear.
TELEPHONE NUMBER: 703-557-7726.
DATE: April 1, 1991.

USE PATTERN(S):

Rice (Postemergence Chemigation, Aerial spray, and Ground spray. Preplant Chemigation, "Soil incorporated treatment [-] Aircraft," and Soil incorporated with ground equipment. Postemergence Chemigation, Aerial spray, Ground spray, Aircraft water application, "Soil incorporated treatment [-] Aircraft," Soil incorporated with ground equipment).

GUIDELINE NO.: 72-3(c).

TITLE:

Ward, G.S. 1984. Acute toxicity of Ordram technical to Mysid shrimp (*Mysidopsis bithia*) [sic]. Springborn Bionomics. Pensacola FL 32507. Project No. 723.8002. Report No. BP-84-1. Written by S. Irwin. Submitted by ICI Americas, Inc., Agricultural Products, Wilmington, Delaware 19897. Registrant's Code No. (?) on the Summary title page, Report No. T-11498, RR 90-341B.

MRIDS AND DATES OF STUDIES REVIEWED: MRID 152320, October 1984.

MRIDS AND DATES OF FULLY ACCEPTABLE STUDIES- None.

COMMENTS:

Because of the history of precipitation of Molinate in aquatic toxicity testing and the unpredictable results of feeding the test animals, EEB believes that a test must be done with measured concentration even in a static protocol. The report does not give the methods used in measuring the D.O. and pH. Temperature was not measured properly.

11. MATERIALS AND METHODS:

A. TEST CONDITIONS:

Animals - Mysid shrimp, 4 days old.

Containers - Glass dishes (1.6 l) with 1 l of test solution.

Solution - Sea water from the Gulf of Mexico.

Salinity - 27 ppt.

Temperature - 21 to 23° C.

Duration - 96 hours.

pH - Measured at 0 and 96 hours, 8.0 ±0.5 pH units.

Dissolved O₂ - Measured at 0 and 96 hours,

B. DOSE- 80, 130, 220, 360, 600, and 1,000 µg/l plus and control and a solvent control.

C. DESIGN- Static, 20 Mysids per level, nominal concentrations, not aerated.

D. STATISTICS- Stephan, et al. 1977.

12. REPORTED RESULTS:

LC₅₀ - 760 µg/l (CI 130 to 1,000 µg/l)

NOEL = 130 µg/l.

13. STUDY AUTHORS' CONCLUSIONS/QA MEASURES:

"This study was reviewed by the Quality Assurance Unit to insure the methods, standard operating procedures, and protocol used in the performance of this study were followed. The final report is an accurate reflection of raw data."

14. REVIEWER'S DISCUSSION AND CONCLUSIONS:

A. TEST PROCEDURES:

The study used only nominal levels, the salinity was slightly higher than recommended (27 ppt vs. 25 ppt), the shrimp were fed during the test period (thus allowing the fecal matter to modify the toxicant concentration), the experimenters did not give the methods used to measure the pH and the D.O., and they did not measure the temperature continuously in one vessel.

B. STATISTICAL ANALYSIS:

Although Zucker (1985) accepted the registrant's results of 760 µg/l (Confidence Interval of 130 to 1,000 µg/l) the recalculated 96-hour LC₅₀ should be recorded as 694 µg/l based upon a smaller CI (594 to 846 µg/kg). If this test were acceptable, Molinate TG would be characterized as "very highly toxic" to Mysid shrimp.

C. DISCUSSION/RESULTS:

Because of the history of precipitation of Molinate in aquatic toxicity testing and the unpredictable results of feeding the test animals, EEB believes that a test must be done with measured concentration even in a static protocol. The methods used to measure the D.O. and pH were not given and the temperature was not measured correctly.

D. ADEQUACY OF THE STUDY:

Classification - Invalid.

Rational - The concentrations were not measured and the methods for measuring the D.O. and the pH were not given.

Repair - None.

15. COMPLETION OF ONE-LINER FOR STUDY- No.

16. CBI APPENDIX - N/A.

LITERATURE CITED

Stephan, C.E. 1977. Methods for calculating an LC_{50} . in, Aquatic Toxicology and Hazard Evaluation. ASTM STP 634. F.L. Mayer and J.L. Hamelink, Eds. American Society for Testing and Materials. pp. 65-84.