

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

1. Chemical: Triforine
MRID No. 0068755
2. Test Material: Triforine technical a.i. (W-524)
3. Study Type: Acute toxicity test on aquatic invertebrate
Test species: Daphnia magna
4. Study ID: Acute toxicity of triforine technical to the water flea (daphnia magna). Performed by E G & G, Bionomics, Aquatic Toxicology Laboratory 790 Main Street, Wareham, Massachusetts. for E.M. Laboratories, Inc., Elmsford, NY.
5. Reviewed By: Nimish Vyas
Biologist
EEB/EFED
Signature: *Nimish Vyas*
Date: 5/11/91
6. Approved By: Norman Cook
Head, Section II
EEB/EFED
Signature: *Norman Cook*
Date: 3.11.91
7. Conclusion: This study is classified as invalid because of the deviations listed in section 14 a.
8. Recommendations: The study must be repeated.
9. Background Information: This study was reviewed in response to Phase 4 Reregistration (List B).
10. Discussion of Individual Tests: N/A
11. Materials and Methods:
 - a. Test Animal: Daphnia were from laboratory stocks cultured at E G & E, Bionomics and were ≤ 24 hours old.
 - b. Test System: The static test was conducted in 250 ml beakers with 150 ml of test solution. Deionized, reconstituted well water with the following physical parameters was used: total hardness of 60 mg/l as CaCO₃, pH of 7.4 units, temperature of 22 \pm 1°C, and DO concentration of greater than 60% of saturation.
 - c. Study Design: A range finding test was conducted prior to the definitive test. During the definitive test, fifteen daphnids were randomly assigned to the test vessels within 30 minutes after the addition of the compound. The daphnids were tested at the following concentrations: control, 0.78, 6.0, 46.0, 360.0, 2800.0 ppm triforine technical. The DO, pH, and temperature were monitored at the initiation and termination of the test in the high, middle, and low test levels.

d. Statistics: Mortality data was analyzed using the moving average angle method.

12. Reported Results: The pH ranged from 7.4 - 7.5 units and the DO ranged between 93% - 100% of saturation. Triforine technical was visible at surfaces and bottoms of all test solutions at all test concentrations. The triforine appeared to adhere to the daphnids and impaired motility.

13. Study Author's Conclusions/ Quality Assurance Measures:

Quality Assurance and Good Lab Practices Statements were not included in the report.

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

a. Test Procedure: The study is classified as invalid. Following is a list of deviations from the guidelines:

a. Triforine was noticed at the surface and bottom of all treatment levels. The toxin should have been dissolved completely and if necessary, a solvent should have been used.

b. The percent a.i. for triforine technical should have been reported.

c. The guidelines suggest that 20 daphnids be used per treatment, not 15.

d. The hardness of the test water should not have exceeded 48 mg/l as CaCO₃.

e. No information was reported on the range finding test.

b. Statistical analysis: The Toxanal program was used to calculate the LC₅₀ value and its 95% C.I.

c. Discussion/Results: The LC₅₀ was calculated as 83.87 ppm. with 95% C.I. of 29.5 - 263.27 and a slope of 0.76. (attachment 1)

d. Adequacy of the Study:

(1) Classification: Invalid

(2) Rationale: See 14 a.

(3) Repairability: The study must be repeated

(4) Descriptive Conclusion: This study is classified as invalid.

Attachment 1

n-vyas triformine technical acute freshwater invertebrate daphnia magna

CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
2800	15	15	100	3.051758E-03
360	15	8	53.33334	50
46	15	6	40	30.36194
6	15	2	13.33333	.3692627
.78	15	2	13.33333	.3692627

THE BINOMIAL TEST SHOWS THAT 6 AND 2800 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 215.6822

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	.1146709	84.48081	33.49884	249.2822

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H
4	.1561924	1

1399885

SLOPE = .7656528
95 PERCENT CONFIDENCE LIMITS = .4630577 AND 1.068248

LC50 = 83.87138
95 PERCENT CONFIDENCE LIMITS = 29.51545 AND 263.2706

LC10 = 1.840342
95 PERCENT CONFIDENCE LIMITS = .1308279 AND 6.954242
