

US EPA ARCHIVE DOCUMENT

A N V

DATA EVALUATION RECORD

CASE: GS0333

FENAMIPHOS

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CONT-CAT: 01 GUIDELINES:  
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MRID: 25960

Nelson, D.L.; Burke, M.A. (1977) Acute Toxicity of Nema-cur  
Technical to Daphnia magna: Report No. 54047. (Unpublished  
study received March 28, 1979 under 3125-236; submitted by  
Mobay Chemical Corp., Kansas City, MO; CDL:237905-G).

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REVIEW RESULTS:

VALID \_\_\_\_\_ INVALID X INCOMPLETE \_\_\_\_\_

GUIDELINE: SATISFIED \_\_\_\_\_ PARTIALLY SATISFIED \_\_\_\_\_ NOT SATISFIED X

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DIRECT RVW TIME = START DATE: END DATE:

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REVIEWED BY: Richard W. Felthousen

TITLE: Wildlife Biologist

ORG: EEB/HED

LOC/TEL: 557-1392

SIGNATURE: 

DATE: 12/03/86

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APPROVED BY: O. Gutenson

TITLE: Acting Registration Standard Coordinator

ORG: EEB/HED

LOC/TEL:

SIGNATURE: 

DATE: 12/21/87

The study is scientifically sound; however, it does not  
fulfill the data requirement for an acute aquatic invertebrate  
LC50 study because it does not follow EPA proposed guidelines.  
Study deficiencies include number of animals/dose and 2nd instars  
were used as well as 1st instars.

DATA EVALUATION RECORD

1. CHEMICAL: Namacur
2. FORMULATION: 88% Technical
3. CITATION: Nelson, D.L. and M.A. Burke (1977) Acute Toxicity of Namacur Technical to Daphnia magna. Unpublished report No. 54047 submitted by Mobay Chemical Corporation, Kansas City, MO.
4. REVIEWED BY: L.W. Touart, Fisheries Biologist  
Fisheries Biologist  
EEB/HED
5. DATE REVIEWED: 12/17/79
6. TEST TYPE: 48 hr Aquatic Invertebrate LC<sub>50</sub>
  - A. TEST SPECIES: Daphnia magna
7. REPORTED RESULTS: Under the conditions of this study, the 48 hr LC<sub>50</sub> of Namacur Technical to Daphnia was determined to be 1.6 ppb with 95% confidence limits of 1.3 to 1.9 ppb.
8. REVIEWERS CONCLUSIONS: The study is scientifically sound but does not follow the recommended protocol in EPA proposed guidelines of July 1978. The study does not fulfill the requirements for an acute Aquatic Invertebrate LC<sub>50</sub> study on Daphnia.

### Materials/Methods

Daphnia magna in the 1st and 2nd instar were used in this test. The testing vessels were pint jars filled with 300 mls of reconstituted medium hard water. Ten Daphnia were exposed to each concentration. Test levels included concentrations of 1.0, 1.47, 2.16, 3.18, 4.67 and 6.86 ppb with a negative control. The water in the test vessels was at a temperature of 75° F. The test animals were not fed during the 48 hr. testing period. The  $LC_{50}$  was calculated by the method of Carol S. Weil, Biometrics Vol. 8, No. 3.

### Discussion/Results

<u>Concentration (ppb)</u>	<u>Mortality No. of Deaths/No. Tested</u>	<u>Time</u>
Control	0/10	48 hrs.
1.0	0/10	
1.47	5/10	
2.16	8/10	
3.18	9/10	
4.67	10/10	
6.86	10/10	

A 48 hr.  $LC_{50}$  for Daphnia magna exposed to NemaCur Technical was determined to be 1.6 ppb with 95% confidence limits of 1.3 - 1.9 ppb. Irregular swimming and immobility were observed as signs of toxicity and mortality was recorded when all movements ceased. At the 1 ppb level 80% of the test animals exhibited signs of toxicity.

### Reviewers Evaluation

#### A. Test Procedures

The test protocol did not follow the recommended EPA 1978 protocol. Test animals should be entirely in the 1st instar. Additionally, all environmental conditions should be reported for Aquatic Invertebrate Tests.

#### B. Statistical Analysis

The reported  $LC_{50}$  value was verified with the probit method. See attached.

#### C. Discussion/Results

The computed  $LC_{50}$  was 1.67 ppb with 95% confidence limits of 1.35 and 2.02 ppb.

D. Conclusions

1. Category: Supplemental
2. Rationale: Test animals not in appropriate instar.
3. Repairability: No.

RUN COMPLETE.

IDLE.

9000 DATA 6

9001 DATA 6.86, 4.67, 3.18, 2.16, 1.47, 1.0

9002 DATA 10, 10, 10, 10, 10

9003 DATA 10, 10, 9, 8, 5, 0

RUN

54047  
DABINIA magna  
48HR LC50

79/12/17. 12.07.50.  
BASIC PROGRAM S79LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
6.86	10	10	100	9.76563E-2
4.67	10	10	100	9.76563E-2
3.18	10	9	90.	1.07422
2.16	10	8	80.	5.46875
1.47	10	5	50	62.3047
1	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 1 AND 3.18 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 1.47

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-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
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SPAN	G	LC50	95 PERCENT CONFIDENCE LIMIT
3	.167735	1.66737	1.35202 2.00193

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-----RESULTS CALCULATED USING THE PROBIT METHOD
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ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	.224037	1	.607085

SLOPE = 6.22477  
95 PERCENT CONFIDENCE LIMITS = 3.27843 AND 9.17112

LC50 = 1.66911  
95 PERCENT CONFIDENCE LIMITS = 1.35006 AND 2.02356

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SRU 1.303 UNTS.

RUN COMPLETE.

BYE

ZZZ6944 LOG OFF 12.09.41.  
ABKIO33 SRU 2.655 UNTS.