

DATA EVALUATION RECORD

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CASE: GS0333

FENAMIPHOS

CONT-CAT: 01 GUIDELINES: 72-4

MRID: 25962

Lamb, D.W.; Roney, D.J. (1977) Acute Toxicity of Namacur Technical, Namacur Sulfoxide and Namacur Sulfone to Bluegill: Report No. 54150. (Unpublished study received March 28, 1979 under 3125-236; submitted by Mobay Chemical Corp., Kansas City, MO; CDL:237905-I).

REVIEW RESULTS:

VALID X INVALID _____ INCOMPLETE _____

GUIDELINE: SATISFIED X PARTIALLY SATISFIED _____ NOT SATISFIED _____

DIRECT RVW TIME = START DATE: END DATE:

REVIEWED BY: Richard W. Felthousen

TITLE: Wildlife Biologist

ORG: EEB/HED

LOC/TEL: 557-1392

SIGNATURE: *R.W. Felthousen* DATE: 12/03/86

APPROVED BY: O. Gutenson

TITLE: Acting Registration Standard Coordinator

ORG: EEB/HED

LOC/TEL:

SIGNATURE: *O. Gutenson* DATE: 12/21/87

The study is scientifically sound and satisfies the data requirement for a warmwater fish species for the major degradates of fenamiphos.

DATA EVALUATION RECORD

1. CHEMICAL: Namacur
2. FORMULATION: 88% Technical, Namacur Sulfoxide, Namacur Sulfone
3. CITATION: Lamb, D.W. and D.J. Roney. (1977) Acute Toxicity of Namacur Technical, Namacur Sulfoxide, and Namacur Sulfone to Bluegill. Unpublished report No. 54150 submitted by Mobay Chemical Corporation, Kansas City, MO.
4. REVIEWED BY: L.W. Touart
Fisheries Biologist
EEB/HED
5. DATE REVIEWED: 12/18/79
6. TEST TYPE: Fish Acute Toxicity (Warmwater)
 - A. TEST SPECIES: Bluegill Sunfish
7. REPORTED RESULTS: The 96 hr. LC_{50} values and 95% confidence limits of Namacur Technical, Namacur Sulfoxide and Namacur Sulfone exposed to Bluegill were 9.6 (8.4-10.9) ppb, 2600 (2000-3400) ppb, and 1200 (1100-1300) ppb, respectively.
8. REVIEWERS CONCLUSIONS: The study is scientifically sound and demonstrates that the 96 hr. LC_{50} values for Namacur Technical, Namacur Sulfoxide and Namacur Sulfone to Bluegill were 9.5 (6.8-15) ppb, 2653 (1000-4600) ppb, and 1173 (1000-1500) ppb respectively. The study does fulfill the requirements for an acute toxicity test for a warmwater fish.

Materials/Methods

Test Procedures

Protocol generally followed EPA proposed guidelines of July 10, 1978. A minimum of five concentrations of the technical and its two metabolites were prepared based on a geometric factor of 1.47. Acetone was used as the stock solution solvent. The fish were obtained from commercial hatcheries and acclimated for a minimum of five days. These fish were approximately 35 to 75 mm in length and weighed 0.5 to 1.0 g. Temperatures were maintained at 19° C and the loading factor was less than one g of fish/liter of water.

Statistical Analysis

Approximate LC_{50} values and 95% confidence limits were calculated according to the method of Weil (Biometrics, 8(3), 1952).

Discussion/Results

Bluegill tolerated higher levels of NemaCur sulfoxide than NemaCur sulfone or NemaCur Technical. NemaCur Technical was more toxic to bluegill than NemaCur Sulfone. The 96 hr. LC_{50} values with 95% confidence limits for bluegill with NemaCur Technical, NemaCur Sulfoxide, and NemaCur Sulfone were 9.6 (8.4-10.9) ppb, 2600 (2000-3400) ppb and 1200 (1100-1300) ppb, respectively.

Reviewers Evaluation

A. Test Procedure

The test procedure generally complies with the recommended EPA 1978 protocol.

B. Statistical Analysis

The reported LC_{50} values were verified using either the binomial test or the probit method depending on the reported data. See attached.

C. Discussion/Results

The study demonstrates that the 96 hour LC_{50} values for NemaCur Technical, NemaCur Sulfoxide and NemaCur Sulfone to Bluegill are 9.5 (6.8-15) ppb, 2653 (1000-4600) ppb and 1173 (1000-1500) ppb, respectively.

D. Conclusions

1. Category: Core
2. Rationale: N/A
3. Repairability: N/A

79/12/17. 15.00.24.
BASIC PROGRAM S79LC50

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*****
CONC.      NUMBER      NUMBER      PERCENT      BINOMIAL
           EXPOSED      DEAD        DEAD        PROB.(PERCENT
22         10          10          100          9.76563E-2
15         10          10          100          9.76563E-2
10         10          6           60.          37.6953
6.8        10          0           0           9.76563E-2
4.6        10          0           0           9.76563E-2
*****
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THE BINOMIAL TEST SHOWS THAT 6.8 AND 15 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 9.52273

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT
DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE
PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

SRU 1.220 UNTS.

RUN COMPLETE.

9000 DATA 5

4600,3200,2200,1500,1000

9001 DATA 4600,3200,2200,1500,1000

9002 DATA 10,10,10,10,10

9003 DATA 9,6,4,2,0

RUN

79/12/17. 15.03.21.

SRU 1.233 UNTS.

RUN COMPLETE.

9000 DATA 5

9001 DATA 2200, 1500, 1000, 680, 460

9002 DATA 10, 10, 10, 10, 10

9003 DATA 10, 10, 1, 0, 0

RUN

79/12/18. 09.15.09.

BASIC PROGRAM S79LC50

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*****
CONC.      NUMBER      NUMBER      PERCENT      BINOMIAL
           EXPOSED     DEAD        DEAD        PROB.(PERCENT)
2200       10          10          100          9.76563E-2
1500       10          10          100          9.76563E-2
1000       10          1           10.          1.07422
680        10          0           0            9.76563E-2
460        10          0           0            9.76563E-2
*****
```

THE BINOMIAL TEST SHOWS THAT 1000 AND 1500 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 1173.48

WHEN THERE ARE LESS THAN TWO CONCENTRATIONS AT WHICH THE PERCENT DEAD IS BETWEEN 0 AND 100, NEITHER THE MOVING AVERAGE NOR THE PROBIT METHOD CAN GIVE ANY STATISTICALLY SOUND RESULTS.

SRU 1.222 UNTS.

RUN COMPLETE.

79/12/18. 09.12.29.
BASIC PROGRAM S79LC50

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*****
CONC.      NUMBER      NUMBER      PERCENT      BINOMIAL
            EXPOSED     DEAD        DEAD        PROB.(PERCENT)
4600        10          9          90.         1.07422
3200        10          6          60.         37.6953
2200        10          4          40.         37.6953
1500        10          2          20.         5.46875
1000        10          0          0           9.76563E-2
```

THE BINOMIAL TEST SHOWS THAT 1000 AND 4600 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 2653.3

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
SPAN G LC50 95 PERCENT CONFIDENCE LIMITS
4 .168455 2528.23 2051.57 3292.25

-----RESULTS CALCULATED USING THE PROBIT METHOD
ITERATIONS G H GOODNESS OF FIT PROBABILITY
5 .224764 1 .830664

SLOPE = 4.60779
95 PERCENT CONFIDENCE LIMITS = 2.42327 AND 6.79231

LC50 = 2567.6
95 PERCENT CONFIDENCE LIMITS = 2047.49 AND 3318.47
