

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

CASE: GS0333

FENAMIPHOS

CONT-CAT: 01 GUIDELINES: 71-2

MRID: 25958

Beavers, J.B.; Fink, R.; Brown, R. (1977) Final Report: Eight-Day Dietary LC50--Mallard Duck: Project No. 149-108. (Unpublished study including unofficial analytical report, received March 28, 1979 under 3125-236; prepared by Wildlife International, Ltd. in cooperation with Washington College, submitted by Mobay Chemical Corp., Kansas City, MO; CDL:237905-E).

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: 12/06/86

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 fulfills the data requirement for an avian dietary LC50 test.

DATA EVALUATION RECORD

1. CHEMICAL: Namacur
2. FORMULATION: 88% Technical
3. CITATION: Fink, R. (1977) Eight Day Dietary LC₅₀ - Mallard Duck Namacur Final Report. Prepared by Wildlife International, Ltd. for Mobay Chemical Corporation, Kansas City, Mo. Unpublished Report No. 53668.
4. REVIEWED BY: L.W. Touart
Fisheries Biologist
EEB/HED
5. DATE REVIEWED: 12/17/79
6. TEST TYPE: Avian Dietary LC₅₀ (waterfowl)
 - A. TEST SPECIES: Mallard Duck
7. REPORTED RESULTS: The acute LC₅₀ of Namacur in the Mallard Duck is 316 ppm, confidence limits 230 to 435 ppm.
8. REVIEWERS CONCLUSIONS: The study is scientifically sound and demonstrates that Namacur has a dietary LC₅₀ of 316 ppm with 95% confidence limits of 221 to 457 ppm. The study does fulfill the requirements for an avian dietary LC₅₀ study on waterfowl.

Materials/Methods

Protocol generally followed EPA proposed guidelines of July 10, 1978. Some specifics of note include: Age of test birds 14 days at initiation of study Levels 46.4, 100, 215, 464 and 1000 ppm. Duration of Test 5 day exposure plus 3 day observation. Environmental conditions temperature was maintained at 94 °F through completion of the study. Other information N/A.

Statistical Analysis LC₅₀ values were obtained by Finney (1971) Probit Analysis

Discussion/Results

<u>Concentration (ppm)</u>	<u>Mortality</u> <u>No. of Deaths/No. Tested</u>	<u>Time</u>
46.4	0/10	
100.0	0/10	
215.0	4/10	8 days
464.0	6/10	
1000.0	10/10	
Control	0/50	

The acute LC₅₀ of Nemacur in the Mallard Duck is 316 ppm with confidence limits of 230 to 435 ppm. Signs of toxicity included depression, reduced reaction to external stimuli, salivation, loss of coordination, prostrate posture, loss of righting reflex, lower limb rigidity, shallow and rapid respiration and minor muscle fasciculations. Lethargy and a transient period of depression and ataxia were visible in birds at the 46.4 ppm dose level.

Reviewers Evaluation

A. Test Procedures

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

B. Statistical Analysis

see attached

C. Discussion/Results

The reported LC₅₀ of 316 ppm is validated. The 95% confidence limits have been found to be from 221 ppm to 457 ppm.

D. Conclusions

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

Nemacur - Mallard Duck - LC50

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CONC.          NUMBER          NUMBER          PERCENT          BINOMIAL
                EXPOSED          DEAD            DEAD            PROB.(PERCENT)
1000           10                10             100             9.76563E-2
464            10                6              60.             37.6953
215            10                4              40.             37.6953
100            10                0              0               9.76563E-2
46.4           10                0              0               9.76563E-2
    
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THE BINOMIAL TEST SHOWS THAT 100 AND 1000 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 315.848

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-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD
SPAN      G          LC50          95 PERCENT CONFIDENCE LIMITS
4          .114217      316.031      224.091      492.196
    
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-----RESULTS CALCULATED USING THE PROBIT METHOD
ITERATIONS G          H          GOODNESS OF FIT PROBABILITY
6          .230626      1          .480418
    
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SLOPE = 3.73097
 95 PERCENT CONFIDENCE LIMITS = 1.93923 AND 5.52272

LC50 = 316.345
 95 PERCENT CONFIDENCE LIMITS = 220.937 AND 457.042
