DATA EVALUATION RECORD PAGE 1 OF

CASE: GS0333 FENAMIPHOS

CONT-CAT: 01 GUIDELINES: 71-1

MRID: 121289

Lamb, D.; Carsel, M. (1982) Acute Oral LD_{50} of Nemacur Technical to Bobwhite Quail: Study No. 81-015-02; 80372. (Unpublished study received December 16, 1982 under 3125-283; submitted by Mobay Chemical Corp., Kansas City, MO; CDL:071291-B).

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: 12/04/86

APPROVED BY: O. Gutenson

TITLE: Acting Registration Standard Coordinator

ORG: EEB/HED

LOC/TEL:

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

This bioassay is scientifically sound and demonstrates that technical Nemacur is very highly toxic to upland game birds. This study fulfills the data requirement for a 14-day avian acute oral LD_{50}.

7 pages

DATA EVALUATION RECORD

1. Chemical: Nemacur

2. Formulation: Technical (90%)

3. Citation: Lamb, D.W. 1982. Acute Oral LD_{50} of Nemacur Technical to Bobwhite. Mobay Chemical Corporation. Study Number: 81-of15-02. EPA Accession No. 071291

4. Reviewed By: Charles A. Bowen II
Fisheries Biologist
Ecological Effects Branch
Hazard Evaluation Division (TS-769)

5. Date Reviewed:

6. Test Type: Acute Oral LD_{50}

A. Test Species: Bobwhite Quail (Colinus virginianus)

7. Reported Results:

		95% C.I.
LD_{50}	= 1.6 mg/kg	(1.3 to 1.9 mg/kg)
NOEL	= 0.5 mg/kg	

8. Reviewer's Conclusion:

This bioassay is scientifically sound and demonstrates that Technical Nemacur is very highly toxic to upland game birds. This study will fulfill the requirement for a 14-day acute oral LD_{50} study.

Methods

Bird Data

Adult male and female bobwhite quail, Colinus virginianus, were reared at the Stanley Research Center. Birds were banded and weighed 15 days prior to dosing. They were maintained on Purina Game Bird Chow except when feed was removed to fast the birds. Water was available ad libitum. After the 15-day holding period, the birds selected at random ranged in weight from 160 to 210 g.

Environmental Conditions

The birds were housed in Beacon Steel Brooders with five males and five females to a cage. The room temperature was maintained at 66 to 70°F with ambient relative humidity and 12 hours of light.

Procedures

The birds was fasted for 20 hours prior to dosing. The excipient used for administering the test material was Carbowax. The test material was administered orally at 1% (v/w) of the bird's body weight. Feed was withheld for 1 hour following administration of the test material.

Dosing

Groups of five males and five females were treated at 0.25, 0.5, 1.0, 2.0, 4.0, and 8.0 mg/kg. A control group was treated with the vehicle.

Observations

The quail were observed for mortality and symptoms of toxicity at 0.5 and 1-hour posttreatment and twice daily for 14 days after treatment. Body weights were recorded on the day of treatment and on day 14 after treatment. Feed consumption was recorded daily. Birds that died during the study and those that were sacrificed on day 14 were examined for gross lesions.

Treatment for Infectious Disease

No treatment was necessary.

Authors Results:

The results are summarized in Table I. Table II presents feed consumption data.

Control, 0.25 and 0.5 mg/kg birds appeared normal throughout the study. Two birds at 1.0 mg/kg had ataxia, but there was no mortality.

The mortality rates at 2.0, 4.0, and 8.0 mg/kg were 90%, 90%, and 100% respectively. Salivation, tremors, convulsions, ataxia, and wing drop were observed as signs of toxicity in these groups of birds.

Body weight changes were consistent between treatment groups over the 14-day period. There was a slight decrease in the amount of feed consumed for the first 2 days of the study for treatment groups 1.0, 2.0, and 4.0 mg/kg. Feed consumption for for the remainder of the study was consistent between the groups.

When the birds were examined for gross lesions, no dose-related or compound-related lesions were apparent.

The LD_{50} was determined by the method of Carroll S. Weil, Biometrics, September 1952, Vol. 8, No. 3.

Under the conditions of this study, the oral LD_{50} of Nemacur Technical to bobwhite quail was 1.6 mg/kg with 95% confidence limits of 1.3 to 1.9 mg/kg. There were no observable toxic effects at the levels of 0.25 and 0.5 mg/kg.

EEB Statistical Validation:

Results of Stephan's program are appended.

Statistical Conclusions:

The LC_{50} value calculated by the author does not differ significantly from the medium toxicity value determined above.

Reviewer's Discussion:

The conclusions drawn by the author are supported by the dose related mortality data cited in Table 1. No deviations from recommended testing protocols were noted.

Validation Status: Core.

Validation Rationale: N/A

Ecological Effects Branch Reviews - Fenamiphos

Pages 5 through 6 are not included. The pages contain detailed test data submitted by the Mobay Corporation and stamped confidential.

ZUCKER NEFMACUR BOBWHITE ACUTE ORRAAL (mg/kg)

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
8	10	10	100	.0976563
4	10	9	90	1.07422
2	10	9	90	1.07422
1	10	0	0	.0976563
.5	10	0	0	.0976563
.25	10	0	0	.0976563

THE BINOMIAL TEST SHOWS THAT 1 AND 2 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 1.52146

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
5	.114405	1.80046	1.26405	2.72957

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
7	.293416	1	.115771

SLOPE = 5.60237
95 PERCENT CONFIDENCE LIMITS = 2.56768 AND 8.63706

LC50 = 1.69867
95 PERCENT CONFIDENCE LIMITS = 1.26828 AND 2.27809

LC10 = 1.0079
95 PERCENT CONFIDENCE LIMITS = .495044 AND 1.33197

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