9-19-96

MRID No. 439781-01

DATA EVALUATION RECORD
§ 71-2 - UPLAND GAME BIRD DIETARY LC_{50} TEST

1. **CHEMICAL:** Ethoxyquin **PC Code No.:** 055501

X↑ 2. **TEST MATERIAL:** Ethoxyquin technical **Purity:** 99.1%

3. **CITATION:**

Authors: S.J. Palmer, K.H. Martin, and J.B. Beavers
Title: Ethoxyquin Technical: A Dietary LC_{50} Study with the Northern Bobwhite
Study Completion Date: April 3, 1996
Laboratory: Wildlife International Ltd., Easton, MD
Laboratory Report ID: 442-101
Sponsor: Oregon, Washington, and California Pear Bureau, Portland, OR
MRID No.: 439781-01
DP Barcode: D225526

4. **REVIEWED BY:** Mark A. Mossler, M.S., Toxicologist, KBN Engineering and Applied Sciences, Inc.

Signature: [signature] **Date:** 7/5/96

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, KBN Engineering and Applied Sciences, Inc.

Signature: P. Kosalwat **Date:** 7/5/96

5. **APPROVED BY:** [signature]

Signature: H.T. Craven **Date:** 9/19/96 9/19/96

6. **STUDY PARAMETERS:**

Scientific Name of Test Organism: *Colinus virginianus*
Age of Test Organisms at Test Initiation: 10 days
Definitive Study Duration: 8 days

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the guideline requirements for an acute dietary toxicity test using bobwhite quail. Based on measured concentrations, the LC_{50} was greater than 5850 ppm, which classifies ethoxyquin technical as practically non-toxic to the bobwhite quail. The NOEC was determined to be 3150 ppm.

Results Synopsis

LC_{50}:	>5850 ppm	95% C.I.:	N/A
NOEC:	3150 ppm	Probit Slope:	N/A

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8. **ADEQUACY OF THE STUDY:**

A. **Classification:** Core

B. **Rationale:** N/A

C. **Repairability:** N/A

9. **GUIDELINE DEVIATIONS:** The average humidity (27%) in the testing area was less than recommended (minimum of 30%).

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

A. **Test Organisms**

Guideline Criteria	Reported Information
Species: An upland game bird species, preferably the bobwhite (*Colinus virginianus*).	*Colinus virginianus*
Age at beginning of test: 10-14 days old.	10 days old
Supplier	In-house production flock
Chicks appeared healthy and did not have excessive mortality before the test?	Birds appeared in good health at the initiation of the test.
Acclimation period: As long as possible.	10 days

B. **Test System**

Guideline Criteria	Reported Information
Pen size: about 35 x 100 x 24 cm	72 x 90 x 23 cm
Brooder temperature: about 35°C (95°F)	39 ±1°C
Room temperature: 22-27°C (71-81°F)	23 ±1°C

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Guideline Criteria	Reported Information
Relative humidity: 30-80%	27 ±16%
Adequate ventilation?	Housing and husbandry based on NIH guidelines
Photoperiod Minimum of 14 h of light.	16 hours of light per day
Diet: A commercial diet for game birds.	In-house game bird ration

C. **Test Design**

Guideline Criteria	Reported Information
Range finding test?	None conducted
Definitive Test **Nominal concentrations:** Four minimum, 5 or 6 strongly recommended, in a geometric scale, unless LC_{50} > 5000 ppm.	562, 1000, 1780, 3160, and 5620 ppm, not corrected for purity
Controls: Control group tested with diet containing the maximum amount of vehicle used in treated diets?	4 control groups, receiving equivalent amount of vehicle as that present in treated diets
Number of birds per group: 10 (strongly recommended)	10 birds per group
Vehicle: Distilled water, corn oil, propylene glycol, 1% carboxymethylcellulose, or gum arabic.	Corn oil
Vehicle amount (% of diet by weight): Not more than 2%	2%
Test durations: 5 days with treated feed and at least 3 days observation with "clean" feed.	Yes

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Guideline Criteria	Reported Information
No mortality during last 72 hr of observations?	No mortality

12. REPORTED RESULTS:

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Body weights measured at beginning and end of study?	Yes, measured individually
Estimated consumption per pen reported for pretreatment, treatment, and observation periods?	Pretreatment feed consumption not reported
Control Mortality: Not more than 10%	No mortality
Raw data included?	Yes
Signs of toxicity (if any) were described?	Yes

Mortality

Conc. (ppm)		No. of Birds	Cumulative Number of Dead							
			Day of Study							
Nominal	Mean Measured		1	2	3	4	5	6	7	8
Control	<LOD	40	0	0	0	0	0	0	0	0
562	559	10	0	0	0	0	0	0	0	0
1000	1000	10	0	0	0	0	0	0	0	0
1780	1810	10	0	0	0	0	0	0	0	0
3160	3150	10	0	0	0	0	0	0	0	0
5620	5850	10	0	0	0	0	0	0	0	0

Other Significant Results: From day 5 of the test until termination, three birds in the 1000 ppm treatment group were

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noted to have lesions associated with toe-picking. These lesions were not believed to be treatment-related.

A slight treatment-related reduction in body weight gain was observed among the birds in the highest-concentration treatment group. The NOEL was therefore reported to be 3160 ppm nominal.

Statistical Results

Statistical Method: Visual interpretation

LC_{50}: >5620 ppm nominal	95% C.I.: N/A
NOEC: 3160 ppm nominal	Probit Slope: N/A

13. **VERIFICATION OF STATISTICAL RESULTS**

Statistical Method: Visual interpretation

LC_{50}: >5850 ppm measured	95% C.I.: N/A
NOEC: 3150 ppm measured	Probit Slope: N/A

14. **REVIEWER'S COMMENTS:** This study is scientifically sound and fulfills the guideline requirements for an acute dietary toxicity test using bobwhite quail. The LC_{50} was greater than 5850 ppm, which classifies ethoxyquin technical as practically non-toxic to the bobwhite quail. The NOEC was determined to be 3150 ppm. The study is classified as **Core.**