TRID No. 4700-130-23

40062404

71-1(a)

DATA EVALUATION RECORD

1. **CHEMICAL:** Alkyl-amino-3-aminopropane.
Shaughnessey Number: 067301.

2. **TEST MATERIAL:** Armohib B-101 (Alkyl-amino-3-aminopropane). Lot No. 1564-117; 100% active ingredient; a dark amber-colored liquid.

3. **STUDY TYPE:** Avian Single Dose Oral LD_{50} Test.
Species Tested: Bobwhite quail (Colinus virginianus).

4. **CITATION:** Shapiro, R. 1984. Avian Single Dose LD_{50}-- Bobwhite Quail. Study performed by Product Safety Labs, East Brunswick, New Jersey. Laboratory study No. E40716-1. Submitted by Azko Chemie America, McCook, Illinois. TRID No. 4700-130-23.

5. **REVIEWED BY:**

Concepción Rodríguez
Biologist
Ecological Effects Branch
Environmental Fate and Effects Division

Signature: Concepción Rodríguez
Date: 7/8/92

6. **APPROVED BY:**

Henry T. Craven, M.S.
Supervisor, EEB/EFEB
USEPA

Signature: Henry T Craven
Date: 7/13/92

7. **CONCLUSIONS:** The study does not appear to be scientifically sound based primarily on the lack of control groups in the study. However, it will be classified as supplemental pending the registrant will submitt data about the control birds. SEP guidelines state that concurrent control groups are required for each LD_{50} test.

8. **RECOMMENDATIONS:** If control groups were included in the study, but not reported, available data should be provided as a basis for re-evaluating the validity of the study.

9. **BACKGROUND:**

10. **DISCUSSION OF INDIVIDUAL TESTS:** N/A.

11. **MATERIALS AND METHODS:**

A. **Test Animals:** The birds used in the study were young adult bobwhite quail (*Colinus virginianus*) at least 16 weeks of age. The birds were obtained from Fritts Game Bird Farm, Harmony, New Jersey. All birds were acclimated to the facilities for at least 7 days prior to dosing.

B. **Test System:** All birds were housed indoors in thermostatically controlled batteries with wire bottomed floors. Pen dimensions were 26 x 36 x 10 inches (66 x 91 x 25.4 cm). Fluorescent lights provided 24 hours of light per day. The brood temperature was 90° ± 5°F.

C. **Dosage:** 14-day single dose oral LD_{50} test. Nominal dosages selected for the study were 0.125, 0.188, 0.25, 0.50, 1.0, 2.0, and 4.0 ml active ingredient (a.i.) per kilogram body weight (ml/kg).

D. **Design:** Groups of ten birds (five males and five females) were randomly allocated to each of seven treatment groups. No control groups were included in the study. Water was available at all times and food was offered ad libitum with the exception of a fasting period of approximately 15 hours prior to dosing. The birds were fed Avian Services Unmedicated Broiler Feed No. 4098 during the acclimation and test periods. The test substance was administered without dilution at the highest dose levels (0.5, 1, 2, and 4 ml/kg), and diluted with water to achieve accurate quantitation at the three lowest dose levels (0.25, 0.188, and 0.125 ml/kg). The dose was administered by intubation into the crop or proventriculus using a stainless steel feeding needle.

Each bird was individually weighed immediately before dosing (Day 1) and on test days 3, 7, 10, and 14. Group feed consumption was measured over the total 14-day period. The birds were observed for mortality, behavioral changes and any other signs of gross toxicity hourly for 8 hours post-dose. Thereafter, they were observed twice daily for the balance of the 14-day observation period.

Gross pathological examinations were performed on birds that died during the study.

E. Statistics: The LD_{50} was estimated based on the Litchfield-Wilcoxin Method of Probit Analysis.

12. REPORTED RESULTS: Severe toxic effects were noted at the highest dose levels (i.e. 1, 2, and 4 ml/kg). At these levels, most of the birds died within 24 hours after dosing. At lower dose levels, mortality was somewhat delayed, occurring between 48 hours and 11 days after dosing. This delayed response resulted in reduced feed consumption and severe body weight loss in most cases. Other than emaciation due to apparent toxicity of the test compound, no gross signs of toxicity were reported. The authors did report a general lethargy, weakness, and frailty in birds that eventually died.

Necropsy results showed no evidence of test substance toxicity. Several birds appeared to die from starvation, apparently induced by the toxicity of the test product.

13. STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:

The acute oral LD_{50} of Armohib B-101 was determined to be 0.3 ml/kg of body weight, with 95% confidence limits of 0.43 ml/kg (upper) and 0.21 ml/kg (lower).

14. REVIEWER'S DISCUSSION AND INTERPRETATION OF STUDY RESULTS:

A. Test Procedure: The test procedures were in accordance with Subdivision E and SEP guidelines, except for the following deviations:

The author did not report the use of control groups in the study. SEP guidelines state that concurrent control groups are required for each LD_{50} test.

The authors did not report the time of onset or duration of observed behavioral changes and signs of toxicity within each test group.

Test concentrations are reported in units of ml/kg of body weight. Dose should be reported in units of weight rather than volume.

The relative humidity in the study area was not reported.

B. **Statistical Analysis:** The reviewer calculated the LD_{50} using EPA's Toxanal computer program (attached). Based on nominal dosage levels, the approximate LD_{50} calculated using the probit method is 0.29 ml/kg, with 95% confidence limits of 0.24 and 0.39 ml/kg. These values are similar to those presented by the author, and are therefore accepted.

C. **Discussion/Results:** The study has several deviations from recommended protocol (listed in Section 14-A). The most serious deviation is the lack of control groups in the study, resulting in invalidation of the study. In addition, the study does not provide sufficient detail regarding the time of onset or duration of symptoms during the study. The registrant should provide a more detailed description of behavioral symptoms in future studies. The registrant should also provide dosage information in mg/kg, rather than ml/kg. Without data on the density of the test material, the dosages in mg/kg are unknown.

D. **Adequacy of the Study:**

(1) **Classification:** Supplemental

(2) **Rationale:** Control groups were not included in the study.

(3) **Repairability:** Data for control groups should be provided, if available, as a basis for re-evaluating the validity of the study. Otherwise, the study should be rerun using controls.

15. **COMPLETION OF ONE-LINER:** Yes; May 29, 1992.

Carolyn F. Poppell Armohib B-101 Bobwhite quail 05-29-92

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB. (PERCENT)
4	10	10	100	9.765625E-02
2	10	10	100	9.765625E-02
1	10	10	100	9.765625E-02
.5	10	9	90	1.074219
.25	10	4	40	37.69531
.188	10	1	10	1.074219
.125	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT .188 AND .5 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 .2836608

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
6	8.005378E-02	.3559272	.2523756	.4743658

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
7	.2446054	1	.9948978

SLOPE = 6.15812

95 PERCENT CONFIDENCE LIMITS = 3.112462 AND 9.203778

LC50 = .2933625

95 PERCENT CONFIDENCE LIMITS = .2392936 AND .3891545

LC10 = .1824621

95 PERCENT CONFIDENCE LIMITS = .1174833 AND .2254516

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