# DATA EVALUATION RECORD

1. **CHEMICAL:** Thiobencarb.
Shaughnessey No. 108401.

2. **TEST MATERIAL:** Thiobencarb (Bolero technical); SR No. V11339; Ref. No. VDL-112-10c; AS 609i; 96.9% purity; a clear light amber liquid.

3. **STUDY TYPE:** 71-1A. Avian Single Dose Oral $LD_{50}$ Test. Species Tested: Bobwhite quail (*Colinus virginianus*).

4. **CITATION:** Campbell, S.M. and M. Jaber. 1992. Bolero Technical: An Acute Oral Toxicity Study with the Northern Bobwhite. Project No. 263-126. Performed by Wildlife International Ltd., Easton, MD. Submitted by Valent U.S.A. Corporation, Walnut Creek, CA. EPA MRID No. 426002-01.

5. **REVIEWED BY:**

Mark A. Mossler, M.S.
Associate Scientist
KBN Engineering and
Applied Sciences, Inc.

**Signature:** Mark A. Mossler
**Date:** 2/18/93

6. **APPROVED BY:**

Michael L. Whitten, M.S.
Wildlife Toxicologist
KBN Engineering and
Applied Sciences, Inc.

**Signature:** Michael L. Whitten
**Date:** 2/25/93

F. Nicholas Mastrota
~~Henry T. Craven, M.S.~~
~~Supervisor, EEB~~/EFED
USEPA ERCB
2° Review Renée Costello

**Signature:** F. Nicholas Mastrota
**Date:** 5/17/95 Renée Costello 5/22/95

7. **CONCLUSIONS:** This study is scientifically sound and fulfills the requirements for an acute oral toxicity test using bobwhite quail. The $LD_{50}$ value of >2000 mg/kg classifies thiobencarb as practically non-toxic to bobwhite quail. The NOEL was determined to be 1000 mg/kg.

8. **RECOMMENDATIONS:** N/A.

9. **BACKGROUND:**

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




5.0 hrs

**11. MATERIALS AND METHODS:**

**A. Test Animals:** The birds used in the study were 27-week-old bobwhite quail (*Colinus virginianus*) obtained from a supplier in Belvidere, NJ. The birds were from the same hatch, pen-reared, and phenotypically indistinguishable from wild birds. They were acclimated to the laboratory for 13 weeks prior to testing and ranged in weight from 183 to 228 g at test initiation. Except for a 15-hour fasting period immediately prior to dosing, water and a game bird ration were offered *ad libitum* during acclimation and testing. Birds appeared to be in good health at test initiation and no antibiotics were administered during the test.

**B. Test System:** All birds were housed indoors in pens constructed of galvanized wire and galvanized sheeting (side walls). The floors (78 x 51 cm) of the pens were sloped giving a ceiling height which ranged from 20 to 25 cm. Fluorescent lights provided 8 hours of 250 lux illumination per day. The average temperature was 20 ±1.9°C and the average relative humidity was 64 ±18%.

**C. Dosage:** Fourteen-day single dose oral $LD_{50}$ test. Based on known toxicity data, six nominal dosages (62.5, 125, 250, 500, 1000, and 2000 mg/kg of body weight) and a vehicle (gelatin capsule) control were used in the test. The dosages were not corrected for the percent active ingredient of the test substance.

**D. Design:** Groups of ten birds (five males and five females) were assigned to each treatment and control group by indiscriminate draw. Each dosage group was assigned two pens in which the birds were segregated by sex.

The test substance was administered via a gelatin capsule. Each bird was individually weighed and dosed on the basis of milligrams of test substance per kilogram of body weight. The control birds received a single gelatin capsule only.

All birds were observed once a day during acclimation and at least twice daily during testing for mortality, signs of toxicity, and abnormal behavior. The birds were individually weighed one day before test initiation and by group on days 3, 7, and 14. Group food consumption was determined for days 0-3, 4-7, and

8-14 by measuring the change in feed presented to the birds over a period of time. However, this is an estimate due to wastage by the birds.

E. **Statistics:** Due to the pattern of mortality, the $LD_{50}$ was determined by visual assessment of the data.

12. **REPORTED RESULTS:** There were no mortalities in the control group. One bird was noted with an abrasion on the fourth digit of its right foot from day 7 through day 8, after which the abrasion had healed. This condition was attributed to incidental pen injury. All other birds were normal in appearance and behavior.

There were no mortalities or overt signs of toxicity at any test level. There was a marked loss in body weight among birds at the 2000 mg/kg level during days 0-3. A slight reduction in feed consumption was noted among males at this level for the same time period (Table 2, attached).

13. **STUDY AUTHOR'S CONCLUSIONS/QUALITY ASSURANCE MEASURES:** The acute oral $LD_{50}$ value for bobwhite quail exposed to Bolero technical was determined to be >2000 mg/kg. The no mortality level was 2000 mg/kg and the no-observed-effect level (NOEL) was 1000 mg/kg based on a loss in body weight observed at the 2000 mg/kg level.

Quality Assurance and Good Laboratory Practice (GLP) statements were included in the report indicating compliance with the regulations set forth in 40 CFR Part 160 with the following exception: the characterization of the test substance was the sole responsibility of the sponsor.

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

A. **Test Procedure:** The test procedures were in accordance with Subdivision E and SEP guidelines with the following exceptions:

Necropsies were not performed on any test birds. These are recommended, but not required by the guidelines.

Group body weights, rather than individual body weights, were taken on days 3, 7, and 14.

B. **Statistical Analysis:** Upon review of the mortality data, it is apparent that the $LD_{50}$ is greater than 2000 mg/kg.

C. **Discussion/Results:** Upon review of the body weight and feed consumption data, the reviewer concurs with the authors that the NOEL was 1000 mg/kg.

This study is scientifically sound and fulfills the requirements for an acute oral toxicity test using bobwhite quail. The $LD_{50}$ value of >2000 mg/kg classifies thiobencarb as practically non-toxic to bobwhite quail. The NOEL was determined to be 1000 mg/kg, based on a loss of body weight by birds in the highest treatment group.

D. **Adequacy of the Study:**

(1) **Classification:** Core.

(2) **Rationale:** N/A.

(3) **Repairability:** N/A.

15. **COMPLETION OF ONE-LINER:** Yes, 2-10-93.

TABLE 2
AVERAGE BODY WEIGHT AND ESTIMATED FEED CONSUMPTION OF NORTHERN BOBWHITE
DOSED WITH BOLERO TECHNICAL

| Dosage | | Average Body Weight in Grams | | | | | | | | Estimated Feed Consumption Grams/Bird/Day | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Change | | Change | | Change | | Total | | | |
| mg/kg | Sex | Day 0 | Days 0-3 | Day 3 | Days 3-7 | Day 7 | Days 7-14 | Day 14 | Change | Days 0-3 | Days 4-7 | Days 8-14 |
| Control | M | 207 | -2 | 205 | 4 | 209 | 1 | 210 | 3 | 15 | 21 | 16 |
| | F | 210 | -5 | 205 | 0 | 205 | 2 | 207 | -3 | 33 | 25 | 22 |
| 62.5 | M | 210 | -2 | 208 | 3 | 211 | 1 | 212 | 2 | 17 | 22 | 17 |
| | F | 208 | -2 | 206 | 2 | 208 | 2 | 210 | 2 | 14 | 28 | 16 |
| 125 | M | 213 | -2 | 211 | 2 | 213 | 2 | 215 | 2 | 21 | 23 | 21 |
| | F | 208 | 1 | 209 | 1 | 210 | 0 | 210 | 2 | 25 | 25 | 19 |
| 250 | M | 205 | -3 | 202 | 2 | 204 | 3 | 207 | 2 | 12 | 24 | 20 |
| | F | 192 | -4 | 188 | 2 | 190 | 2 | 192 | 0 | 25 | 22 | 22 |
| 500 | M | 219 | -4 | 215 | 3 | 218 | 4 | 222 | 3 | 18 | 27 | 23 |
| | F | 211 | -6 | 205 | 3 | 208 | 4 | 212 | 1 | 20 | 20 | 20 |
| 1000 | M | 197 | -6 | 191 | 2 | 193 | 3 | 196 | -1 | 15 | 26 | 21 |
| | F | 206 | -6 | 200 | 4 | 204 | 5 | 209 | 3 | 16 | 28 | 19 |
| 2000 | M | 204 | -17 | 187 | 7 | 194 | 7 | 201 | -3 | 7 | 26 | 23 |
| | F | 200 | -12 | 188 | 3 | 191 | 8 | 199 | -1 | 11 | 30 | 24 |

# Ecological Effects Branch One-Liner Data Entry Form

**Chemical** Thiobencarb **Shaughnessy No.** 108401 **Pesticide Use** Herbicide

| AVIAN ORAL TOX SPECIES (AGE) | % AI | $LD_{50}$ (95%CL) | SLOPE | NOEL | STUDY/REVIEW DATES | MRID/ CATEGORY | LAB | RC |
|---|---|---|---|---|---|---|---|---|
| 1. Colinus virginianus (22-weeks) | 96.9 | >2000 mg/kg (a/i) | n/a | 1000 mg/kg | 1992/1993 | 426602-01/Core | WLI ~~WIL~~ | MM |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

| AVIAN DIETARY SPECIES (AGE) | % AI | $LC_{50}$ (95%CL) | SLOPE | NOEL | STUDY/REVIEW DATES | MRID/ CATEGORY | LAB | RC |
|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | |
| 2. | | | | | | | | |
| 3. | | | | | | | | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

**COMMENTS:** _____