DATA EVALUATION RECORD

MRID No. 458801031

1. Chemical: Vernam 97.3% a.i.

2. Test Material: Vernam (T-11445)

3. Study Type: A Dietary LC50 Study With The Mallard Duck.

4. Study ID: Vernam: A Dietary LC50 Study With The Mallard Duck Conducted by: Wildlife International Ltd, Project No.: 144-117; Submitted to: Stauffer Chemical Company, Richmond, California 94804; Completion Date: 04-26-84; Study Author: Mark Jaber; MRID No.: 458801031

5. Reviewed by: Daniel Balluff, Wildlife Biologist, EEB/EFED (H7507C) — Signature: Daniel Balluff — Date: 12-19-90

6. Approved by: Henry Craven, Head Section IV, EEB/EFED (H7507C) — Signature: Henry T. Craven — Date: 12/20/90

7. Conclusion:

This study appears scientifically sound but does not fulfill EEB guideline requirements for a dietary toxicity test of Vernam (T-11445) 97.1% a.i. with mallard duck due to the fact that the study authors did not indicate whether the test diet was provided to the birds on a daily basis or at the study initiation in an amount sufficient to last the entire five day exposure period. Since Vernolate is reported to be a highly volatile compound and nominal test concentrations were not confirmed, if the entire test diet was provide at the study initiation, an unknown amount of test material may have volatilized or degraded during the five day exposure period.

The LC50 was greater than 5620 ppm, the no-observed-effect level was less than 562 ppm, the lowest concentration tested, based upon a reduction in body weight gain. During the exposure period there was also a reduction in feed consumption at the 3160 ppm and 5620 ppm concentrations compared to the controls.

8. Recommendations: This study must either be repeated or additional information to substantiate the amount of test material present during the study must be provided.

9. Background: N/A

10. Discussion of Individual Tests: N/A

11. Materials and Methods:

a. Test Animals - Ten day old Northern Bobwhite (Colinus virginianus) were obtained from Fritts Quail Farm, RD # 3, Box 362, Phillipsburg, New Jersey 08865.

b. Test System - The birds were housed in pens with galvanized wire and sheeting with floor space measuring approximately 72 x 90 cm and ceiling height 23 cm. The average temperature in the brooding compartment was 37°C, average room temperature was 26°C, average relative humidity was 66%. The photoperiod was sixteen hours of light per day.

c. Dosing - Nominal doses were 562, 1000, 1780, 3160, 5620 ppm a.i.. The carrier was a 2% concentration of corn oil. The control groups were dosed with the 2% carrier only. An amount of diet sufficient to last the five day exposure period was presented to the birds at the initiation of the study. A test material stability study was not provided. The birds received no form of antibiotic during the study.

d. Design - Birds were assigned to five test groups and five control groups by random draw. Each treatment group and control group contained ten chicks that were not differentiated by sex because of there age. All birds were acclimated to caging for ten days prior to study initiation. Individual bodyweights were measured at initiation of the test, on Days 5, and at termination of the test on Day 8. Feed consumption was measured. Following test initiation birds were observed at least twice daily.

e. Statistics - Due to the lack of sufficient mortality, an estimation of the LC50 value was made by a visual inspection of the data.

12. Reported Results:

There were no mortalities in the control groups. The only mortality in the study was one bird at the 1000 ppm concentration. There were no other overt signs of toxicity at any of the concentrations tested. At 1780 ppm, lesions

from hockpicking were noted in as many as five birds from Day 6 until study termination. During the exposure period (Days 0-5) Vernam Technical (T-11445) did appear to cause reduction in body weight gain at all test concentrations when compared to control. All birds were normal in appearance and behavior throughout the study. There was also a slight reduction in feed consumption at the 3160 ppm and 5620 ppm concentrations compared to the control.

13. Study Authors Conclusion:

The dietary LD50 value for mallard duck exposed to Vernam technical (T-11445) was determined to be greater than 5620 ppm, the highest concentration tested. The no-observed-effect level was less than 562 ppm, the lowest concentration tested, based upon a reduction of body weight gain.

14. Reviewers Discussion and Interpretation of the Study:

a. Test Procedures -

The study authors did not indicate whether the test diet was provided to the birds on a daily basis or at the study initiation in an amount sufficient to last the entire five day exposure period. Since nominal test concentrations were not confirmed, if the entire test diet was provide at the study initiation, an unknown amount of test material may have volatilized or degraded during the five day exposure period.

Since Vernolate is highly volatile with a vapor pressure of 10.4 mm Hg at 25°C (EEB Chemical profile dated 1-6-84) an accurate determination cannot be made as to whether the nominal test concentrations accurately reflect actual concentrations of vernam in the test diets under the conditions of the study for the duration of the exposure period.

Test diets should be provided to birds on a daily basis unless it can be adequately demonstrated that the test material is not a volatile or rapidly degrading compound under the conditions of the study. In the absence of this information, the concentrations of test material in actual test diets should be measured.

The authors provided no information on the stability of vernam in avian diet under the avian dietary test conditions. For the duration of the five day exposure period, the test material may have been left out in the open air and exposed to 16 hours of light per day. These test conditions could significantly reduce the actual test material concentrations in the test diets thereby producing an underestimate of the toxicity of the test material to the birds.

b. Statistical Analysis -

The highest dosage level in the study (5620 ppm) did not result in mortality. Therefore, no statistical analysis was required.

c. Discussion/ Results -

This study appears scientifically sound but does not fulfill EEB guideline requirements for a dietary toxicity test of Vernam (T-11445) 97.1% a.i. with mallard duck due to the fact that the study authors did not indicate whether the test diet was provided to the birds on a daily basis or at the study initiation in an amount sufficient to last the entire five day exposure period. Since Vernolate is reported to be a highly volatile compound and nominal test concentrations were not confirmed, if the entire test diet was provide at the study initiation, an unknown amount of test material may have volatilized or degraded during the five day exposure period.

The LC50 was greater than 5620 ppm, the no-observed-effect level was less than 562 ppm, the lowest concentration tested, based upon a reduction in body weight gain. During the exposure period there was also a reduction in feed consumption at the 3160 ppm and 5620 ppm concentrations compared to the controls.

d. Adequacy of Study

1) Classification: Supplemental

2) Rationale: This study must either be repeated or additional information to substantiate the amount of test material present during the study must be provided.

3) Repairability: N/A

15. Completion of One-Liner: N/A