MRID # 408837-38

1-17-90

DATA EVALUATION RECORD

1. CHEMICAL: Chlorethoxyfos SN:129006

2. TEST MATERIAL: Technical Fortress$^{R-86\%\ a.i.}$

3. STUDY/ACTION TYPE: Avian dietary LC50

4. STUDY IDENTIFICATION: Grimes, J. & M. Jaber. 1987. A dietary LC_{50} study with the Mallard using Fortress^{R} technical. Final Report. Prepared by: Wildlife International, Easton, Maryland. Submitted by: E.I. DuPont de Nemours & Co., Newark, De. Acc. # 408837-38.

5. REVIEWED BY:

Jeffrey Bigler
Fishery Biologist
Ecological Effects Branch
Environmental Fate and Effects Division

Signature: Jeffrey D Bigler
Date: 1-17-90

6. APPROVED BY:

Ann Stavola
Acting Section Head 3
Ecological Effects Branch
Environmental Fate and Effects Division

Signature: Ann Stavola
Date: 1/17/90

7. CONCLUSIONS: This study appears to be scientifically sound and meets EPA guideline requirements for a dietary toxicity study for the mallard using chlorethoxyfos technical. An LC_{50} of 203 ppm indicates Chlorethoxyfos should be considered highly toxic to waterfowl on a dietary basis.

8. RECOMMENDATION: N/A

9. BACKGROUND: Submitted in support of an experimental use permit for Fortress 5G on corn.

10. DISCUSSION OF INDIVIDUAL STUDIES OR TESTS: N/A

11. METHODS AND MATERIALS:

Species. Bobwhite quail (Colinus virginianus)

Age. 10 days.

Source and rearing history. Whistling Wings, Hanover, IL

Selection of test birds. Birds were randomly assigned to pens.

Housing conditions. Birds were housed in batteries of brooder pens manufactured by Beacon Steel Products Co. (Model No. B735). Each pen measured 72 X 90 X 24 cm.

Temperature: 21°±2°C.

Humidity: 44%

Lighting: The lighting regime was 16 hours light and 8 hours dark. Chroma 50 fluorescent lights - ≈ 12 footcandles/bird.

Diet and preparation. See attached sheets on diet preparation.

Food consumption and weight gain. See attached tables.

Diluent. Corn oil.

Controls. Three control groups, 10 ducklings each.

Number of birds/concentration. 10 birds per concentration.

Treatment period. Five days.

Observation period. Three days.

Toxic signs. Reported daily.

Necropsies. None were done.

Statistical analysis. Probit analysis.

12. REPORTED RESULTS: Excerpted from study and attached.

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

"The mallard dietary LC_{50} value of H # 16,429 for this study was determined to be 203 ppm with a 95% confidence interval of 157 to 275 ppm. The no-observed-effect was 31.6 ppm, based on reduced body weight at the 56.2 ppm concebtration.

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

A. Test Procedure. The test procedures generally follows ASTM guidelines.

B. Statistical Analysis. Probit analysis used for determining the LC_{50}. Results were verified by EEB.

C. Results/Discussion. The LC_{50} (203 ppm) indicates chlorethoxyfos should be considered highly toxic to ducklings on a dietary basis.

D. Adequacy of the Study.

1. Category: Core

2. Rationale: N/A

3. Repairability: N/A

15. COMPLETION OF ONE-LINER Yes, 01-11-90.

BIGLER FORTRESS MALLARD 01-11-90

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
316	10	8	80	5.46875
178	10	5	50	62.30469
100	10	0	0	9.765625E-02
56.2	10	0	0	9.765625E-02
31.6	10	0	0	9.765625E-02
17.8	10	0	0	9.765625E-02

THE BINOMIAL TEST SHOWS THAT 0 AND +INFINITY 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 178

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
2	.214883	197.8861	155.8242	266.3981

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
8	.3132846	1	.8447826

SLOPE = 5.552617

95 PERCENT CONFIDENCE LIMITS = 2.444716 AND 8.660518

LC50 = 203.2955

95 PERCENT CONFIDENCE LIMITS = 156.8328 AND 274.7485

LC10 = 120.0623

95 PERCENT CONFIDENCE LIMITS = 59.62844 AND 155.8794

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Fortress

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Pages 5 through 8 are not included.

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____ Description of the product manufacturing process.

____ Description of quality control procedures.

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