

US EPA ARCHIVE DOCUMENT

081901

Mallard

4-10-80

DATA EVALUATION SHEET

1. CHEMICAL: DS-3701
2. FORMULATION: The primary metabolite of chlorothalonil, 4-hydroxy-2,5,6-trichloroisophthalonitrile
3. CITATION  

Beavers, Joann B., 1978. Acute Oral Toxicity of DS-3701 in the Mallard Duck. Received February 19, 1980. An unpublished report prepared by Wildlife International, Ltd. for Diamond Shamrock Corporation. (Acc. No. 099247)
4. REVIEWED BY: Daniel Rieder  
Wildlife Biologist  
EEB/HED
5. DATE REVIEWED: April 10, 1980
6. TEST TYPE: Avian Acute Oral Toxicity
  - A. Test Species: Mallard Duck (Anas platyrhynchos)
  - B. Test Material: DS-3701 (87% pure)
7. REPORTED RESULTS  

The study reported an LD<sub>50</sub>, for 14-day old mallard ducks treated with D5-3701, of 158 mg/kg body weight, with 95% confidence limits of 125 to 201 mg/kg.
8. REVIEWER'S CONCLUSION
  - A. Validation Category: Supplemental
  - B. Discussion  

This study was scientifically conducted but does not fulfill the requirements for an avian acute oral toxicity test. This substance would appear to be moderately toxic to 14-day old mallard ducks.

## METHODS/RESULTS

### A. Test Procedures

Fourteen-day old mallard ducks were used for the acute oral toxicity test. Test temperature was maintained at 22°C, and the photoperiod was 14 hours of light per day throughout the study. The following table indicates the treatment, number of pens and birds per pen, and the dosage level in mg of material to kg of body weight.

<u>Treatment</u>	<u>Pens</u>	<u>Birds/Pen</u>	<u>Dosage Level (mg/kg)</u>
Control	5	10	Corn-oil only
Lab Standard (dieldrin)	5	10	14.7, 21.5, 31.6, 46.6, & 68.2
Experimental (DS-3701)	5	10	46, 100, 215, 464, & 1000

Each bird was individually weighed and dosed, by direct intubation, according to dosage levels stated above.

### B. Statistical Analysis

The acute oral LD<sub>50</sub> was calculated using the probit method of statistical analysis.

### C. Results

No deaths occurred in any of the control pens. The acute oral LD<sub>50</sub> for the laboratory standard, dieldrin, was 36 mg/kg, with 95% confidence limits between 29 to 44 mg/kg.

The acute oral LD<sub>50</sub> for DS-3701 in 14-day old mallard ducks was 158 mg/kg, with 95% confidence limits of 125 to 201 mg/kg. The highest dose level at which no deaths occurred was 46 mg/kg. All birds died with dose levels of 464 mg/kg and 1000 mg/kg.

## REVIEWER'S EVALUATION

### A. Test Procedure

The reported laboratory complies with the EPA proposed guidelines except that the mallard ducks should have been at least 16 weeks old at the start of testing.

B. Statistical Analysis

The data provided were used to perform an independent statistical analysis of the acute oral LD<sub>50</sub> of DS-3701 in 14-day old mallard ducks. The results are attached to the original review.

C. Discussion

The acute oral LD<sub>50</sub> of DS-3701 in 14-day old mallard ducks was calculated to be 158 mg/kg with 95% confidence limits of 117 and 213 mg/kg. This calculation is essentially the same as that reported in the study. DS-3701, the primary metabolite of chlorothalonil, is considered moderately toxic to 14-day old mallard ducks, however this cannot be considered equivalent to results of the same test if 16-week old mallard ducks had been used.

D. Conclusion

1. Category: Supplemental

2. Rationale

The ducks used in this test were too young. Fourteen-day old ducks were used rather than 16-week old ducks. DS-3701 is not the technical grade of a manufactured product.

3. Repairability: N/A

Bravo 500  
 Acute Toxicity of DS-3701  
 the primary metabolite of  
 Chlorothalinal on Mallard ducks  
 Daniel Rieder  
 April 9, 1980

80/04/09.  
 BASIC PROGRAM S79LC50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
1000	10	10	100	9.76563E-2
464	10	10	100	9.76563E-2
215	10	8	80.	5.46875
100	10	1	10.	1.07422
46	10	0	0	9.76563E-2

THE BINOMIAL TEST SHOWS THAT 100 AND 464 CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LC50 FOR THIS SET OF DATA IS 156.673

-----RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
4	.114375	157.611	103.053	222.456

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
6	.352435	1	.999393

SLOPE = 6.49467  
 95 PERCENT CONFIDENCE LIMITS = 2.63903 AND 10.3503

LC50 = 158.488  
 95 PERCENT CONFIDENCE LIMITS = 117.362 AND 213.192

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