

US EPA ARCHIVE DOCUMENT

DATA EVALUATION SHEET1. CHEMICAL: DS-37012. FORMULATION

Primary metabolite of Chlorothalonil 4-hydroxy-2,5,6-trichloroisophthalonitrile

3. CITATION

LeBlanc, Gerald A., 1977. Acute Toxicity of DTX-77-0071, (the Primary Metabolite of Chlorothalonil) to the water flea (Daphnia magna). Received February 25, 1980. An unpublished report prepared by EG & G Bionomics for Diamond Shamrock Corporation. (Accession Number 099247)

4. REVIEWED BY: Daniel Rieder  
Wildlife Biologist  
EEB/HED

5. DATE REVIEWED: April 9, 19806. TEST TYPE: Acute toxicity to aquatic invertebrates1. Test Species: Daphnia magna2. Test Material: DS-3701 (99% pure)7. REPORTED RESULTS

The 48-hour  $LC_{50}$  of DS-3701 for Daphnia magna was calculated to be 26 mg/l with 95% confidence limits of 21 to 31 mg/l.

8. REVIEWERS CONCLUSIONA. Validation Category:

~~Supplemental~~ Core (for primary metabolite of chlorothal  
SOL

B. Discussion

This study was conducted scientifically ~~but does not~~ <sup>and</sup> fulfill the requirements for an acute toxicity test for aquatic invertebrates. <sup>with a primary metabolite of Chlorothalonil</sup> The results of this test would indicate that DS-3701 is slightly toxic to Daphnia magna.

12/21/82

## METHODS/RESULTS

### A. Test Procedure

Procedures used in this acute toxicity test were based on protocols in "Methods for Acute Toxicity Tests with Fish, Macroinvertebrates, and Amphibians" (U.S. EPA, 1975). Acetone was used as a solvent and in a solvent control. Nominal concentration of 10, 15, 22, 32, 46, 68 and 100 mg/l were tested in 3 replicate exposure treatments.

### B. Statistical Analysis

A 48-hour  $LC_{50}$  and its 95% confidence limits were calculated using the moving average angle method.

### C. Results

The 48-hour  $LC_{50}$  for Daphnids exposed to DS-3701 was calculated to be 26 mg/l with 95% confidence limits of 21 to 31 mg/l. The lowest concentration at which 100% mortality occurred was 68 mg/l, while the highest concentration in which there were no deaths was 10 mg/l. Dissolved oxygen remained at 80 to 94% of saturation. The average percentage mortality was provided, as well as the results for each of the replicates at all test levels.

## REVIEWERS EVALUATION

### A. Test Procedures

The procedures described in the report comply with EPA guidelines.

### B. Statistical Analysis

The data provided was used to generate an  $LC_{50}$ .

### C. Discussion

The results of this test show that the 48-hour  $LC_{50}$  of DS-3701, a metabolite of chlorothalonil, as it affects Daphnia magna is probably between 22 and 32 mg/l. An approximate 48-hour  $LC_{50}$  is 26 ppm.

### D. Conclusions

1. Category: Core for DS-3701 (primary metabolite of chlorothalonil) RJR 12/22/8
2. Rationale: N/A
3. Repairability: N/A

DAPHNIA  
 DS-3701, PRIMARY METABOLITE OF CHLOROTHALONIL  
 Daniel Rieder  
 4/9/80

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
68	100	100	100	7.88861E-29
46	100	80	80.	5.57954E-8
32	100	87	87.	6.56491E-13
22	100	27	27.	2.34621E-4
15	100	7	7.	1.36307E-18
10	100	0	0	7.88861E-29

THE BINOMIAL TEST SHOWS THAT 22 AND 32 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 25.2252

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

SPAN	G	LC50	95 PERCENT CONFIDENCE LIMITS	
5	1.03746E-2	26.4585	25.0413	27.9591

-----RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
4	.324617	9.09966	0

A PROBABILITY OF 0 MEANS THAT IT IS LESS THAN 0.001

SINCE THE PROBABILITY IS LESS THAN 0.05, RESULTS CALCULATED USING THE PROBIT METHOD PROBABLY SHOULD NOT BE USED.

SLOPE = 5.74696  
 95 PERCENT CONFIDENCE LIMITS = 2.47262 AND 9.0213

LC50 = 26.5914  
 95 PERCENT CONFIDENCE LIMITS = 19.7308 AND 35.6276

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48 - from LC50 Daphnia - DS-3701