

US EPA ARCHIVE DOCUMENT

CASE GS0097 CHLOROTHALONIL

6-24-83
PM 400 ~~08/03/82~~

CHEM 081901 Chlorothalonil (tetrachloroisophthalon

BRANCH EEB DISC 40 TOPIC 05054547

FORMULATION 01 - TECHNICAL CHEMICAL

FICHE/MASTER ID 00068754 CONTENT CAT 01

LeBlanc, G.A. (1977) Acute Toxicity of DTX-77-0072 to the Water Flea ("Daphnia magna"). (Unpublished study, including submitter summary, received Jan 19, 1978 under 677-229; prepared by EG & G, Bionomics, submitted by Diamond Shamrock Agricultural Chemicals, Cleveland, Ohio; CDL:232729-B)

SUBST. CLASS = S.

DIRECT RVW TIME = (MH) START-DATE END DATE

REVIEWED BY: Daniel Rieder
TITLE:
ORG:
LOC/TEL:

SIGNATURE: Daniel Rieder

DATE: 6/24/83

APPROVED BY:
TITLE:
ORG:
LOC/TEL:

SIGNATURE:

DATE:

081901

VALIDATION SHEET

CRF #

00068754
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FORMULATION:			IA	IB	T	(FW)	EC	R			
% a.i.	SC #	CHEMICAL NAME	Validator:					Date:			
96%		Tetrachloroisophthalonitrile	D. J. Urban					6/14/78			
Technical DS-2787		(Chlorothalonil)	Test Type:								
			Aquatic								
			Invertebrate Acute 48-hour								
			LC ₅₀ - <u>Daphnia magna</u>								
Compound Code: DTX-77-0072			Test ID.# ES-H1								

CITATION: Accession #232729; Prepared by Gerald A. LeBlanc, EG &G, Bionomics, Aquatic Toxicology Laboratory, 790 Main Street, Wareham, Mass., Dated November, 1977; Submitted by Diamond Shamrock Corporation, 1100 Superior Avenue, Cleveland, Ohio 44114

VALIDATION CATEGORY: Core

RESULTS: The 48-hour acute LC₅₀ of Chlorothalonil technical in Daphnia magna is 70 (34.2-143) ppb. The 48-hour no effect level is 6.8 ppb.

- No mortality in the control or acetone control groups.
- The test procedures followed Stephan (1975) except that the daphnia were cultured and tested at 22 ±1°C instead of the recommended 17 ±1°C.
- The LC₅₀ and 95% C.L.'s were determined by using a least squares regression analysis.

VALIDATION CATEGORY RATIONALE: N/A

CATEGORY REPAIRABILITY/RATIONALE: N/A

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Additional Comments:

The above data was analyzed by the three different statistical methods. The results follow:

1) Regression Analysis

% mortalities → probits
Test Concentrations → logs

5.	N
0.871	R ²
3.953	M
-2.242	YINT
1.791	LW M
67.953	LD50
6.489	LOCL
711.577	UPCL
32.200	LD10
3.014	LOCL
343.969	UPCL
143.403	LD90
12.437	LOCL
1653.414	UPCL
95.	%CON
3.	DF
3.182	TVAL
3.	x
0.871	÷
2.613	(
1.	-
0.871	=
20.25581395	
20.25581395	FX
4.500645948 = t	

2) Finney Probit

2.937	M
-1.024	YINT
2.190	LW M
5.961	CHI ²
7.815	TABLE
112.540	LD50
80.110	LOCL
158.097	UPCL
41.186	LD10
24.362	LOCL
69.628	UPCL
307.513	LD90
179.557	LOCL
526.652	UPCL

3) Spearman - Kärber

10.	%TRM
127.39	LC50
92.25	LOCL
175.90	UPCL
5.	%TRM
125.56	LC50
89.36	LOCL
176.43	UPCL
0.	%TRM
117.02	LC50
85.00	LOCL
161.09	UPCL

t > TVAL ∴ regression is significant at 0.05 level.

D.81901

Duquenois magna 48 hr 2650
 Chloroethalonil
 Fione, proclit

6.8
 0.
 L. Turner 15.
 2/2/77

19.
 1.
 15.

53.
 1.
 15.

150.
 9.
 15.

410.
 15.
 15

2,937
 -1,024
 2,190
 5,901

M
 YOUT
 LU M
 CMF

112,540
 80,110
 158,097

L250
 LDCL
 UPCL

41,185
 24,862
 69,628

LD10
 LDCL
 UPCL

307,313
 179,567
 526,412

LD90
 LDCL
 UPCL

FORMULATION:			IA	IB	T	FW	EC	R		
% a.i.	SC #	CHEMICAL NAME	Validator:					Date:		
96		Chlorothalonil	Larry Turner					6/19/78		
			Test Type:							
			Aquatic invertebrate acute 48-hr. LC ₅₀ , <u>Daphnia magna</u>							
			Test ID.# ES-H 1							

CITATION: LeBlanc, Gerald A. 1977. Acute toxicity of DTX-77-0072 to the water flea (Daphnia magna). sp. Study conducted by EG&G Bionomics for Diamond Shamrock Corporation. Referenced by Chevron chemical Corporation; reg. #239-EUGI and 239-EUGE, acc. #232-729, 1/19/78.

RESULTS: Daphnia magna 48-hour LC₅₀ = 70 mcg/l (95% c.i. 34.2-143 mcg/l) No mortality occurred at the lowest concentration of 6.8 mcg/l; 100% mortality occurred at the highest level of 410 mcg/l.

VALIDATION CATEGORY: Core

CATEGORY RATIONALE: This test was classified as core; even though our statistical analysis yielded a different LC₅₀ value, it was within the submitted confidence intervals.

ABSTRACT: First instars of Daphnia magna were exposed to chlorothalonil in concentrations of 0 (control and acetone control), 6.8, 19, 53, 150 and 410 mcg/l. Test procedures closely followed Stephan (U.S.EPA 660/3-75-009-1975) although the temperature was 22°C. Three replicates of 5 daphnids each were tested at each level.

Statistical analysis was by least squares regression from logs and probits. A statistical check by this section using Finney probit yielded an LC₅₀ value of 112.5 mcg/l with an acceptable chi square value. Although this value is noticeably higher than the submitted value, it does fall within the 95% confidence intervals.