

HLR 411-85

FOR DU PONT USE ONLY

HASKELL LABORATORY REPORT NO. 411-85 [REDACTED]

Title of Report

STATIC ACUTE 48-HOUR EC50¹ OF [REDACTED] TO Daphnia magna

E. I. du Pont de Nemours & Company, Inc.
Haskell Laboratory for Toxicology and Industrial Medicine
P. O. Box 50, Elkton Road
Newark, Delaware 19714

Date Issued: September 13, 1985

Company Sanitized. Does not contain TSCA CB1

Title of Report

STATIC ACUTE 48-HOUR EC50 OF [REDACTED] TO Daphnia magna

Summary

[REDACTED] exhibited slight acute toxicity to a warm freshwater macroinvertebrate, Daphnia magna, under static unaerated test conditions during a 48-hour exposure period. The 48-hour EC50 was 210 mg/L, with a 95% confidence interval of 184 to 240 mg/L.

Report by:

James W. Wetzel
James W. Wetzel
Technician

8/29/85
Mo/Day/Yr

Study Director:

Ralph G. Stahl, Jr.
Ralph G. Stahl, Jr.
Research Aquatic Toxicologist

8/29/85
Mo/Day/Yr

Approved by:

Carol D. Litchfield
Carol D. Litchfield
Section Supervisor, Environmental Biology

9/10/85
Mo/Day/Yr

JWW:RGS:CDL:zh:5.11

Date Issued: September 13, 1985

There are 7 pages in this report.

Company Sanitized. Does not contain TSCA CBI

HLR 411-85

Haskell Laboratory Report 411-85

Material Tested

Haskell No.

Other Codes

15,866

CAS Registry Number

Composition:

Synonyms:

Sponsor:

Polymer Products Department
CHS 314

Material Submitted by:

Polymer Products Department
Washington Laboratory
Parkersburg, WV

Test Facility:

E. I. du Pont de Nemours & Company
Haskell Laboratory for Toxicology and Industrial Medicine
P. O. Box 50, Elkton Road
Newark, DE 19714

Study Initiated/Completed:

Initiated on 6/18/85 and completed on 7/4/85.

There are 7 pages in this report.

Distribution:

Company Sanitized. Does not contain TSCA CRI

Introduction/Purpose:

To determine the static acute toxicity of [REDACTED] (H-15,866) to a warm freshwater macroinvertebrate (Daphnia magna).

Materials/Methods (Environmental Biology Section Aquatic SOP-T04):

Aliquots of water were collected from all Daphnia mass culture tanks, pooled, and filtered for use as dilution water. The test material, [REDACTED], was received as an aqueous slurry containing 36.3% of the active ingredient, [REDACTED]. All stock solutions and nominal concentrations are based on the weight of the aqueous slurry and were not corrected for the amount of active ingredient. [REDACTED] was prepared as a 50 mg/mL (density of slurry = 1.2; 1.2 g = 1 mL) stock solution in Milli-Q filtered distilled water adjusted to pH 8.5 with 1N NaOH and diluted with filtered laboratory-mass-culture-well water to yield the desired nominal exposure concentrations. After mixing, 200 mL aliquots of each concentration were introduced into each of two separate 250 mL glass test vessels. Two identical vessels containing only filtered laboratory-mass-culture water were designated as H₂O controls.

Stability of the test and control materials in dilution water was not determined because it is not a critical factor in static acute aquatic tests.

Ten daphnids less than 24 hours old from Haskell Laboratory-bred stock were placed into each test vessel. Haskell Laboratory-bred daphnids are identified by labeling the culture and test vessels. Food was not provided during the test. Test solutions were not aerated, and temperature was maintained between 20.1 and 20.2°C. Photoperiod was maintained at 16 hours light:8 hours dark. Immobility counts and observations were made at 24 and 48 hours after the exposure was initiated.

Dissolved oxygen and pH were measured in the H₂O control and in the low, medium, and high exposure concentrations at the beginning and end of the exposure. The total alkalinity, hardness (EDTA), and conductivity of the H₂O control were measured at the beginning of the exposure. The 48-hour EC50 and 95% confidence limits were calculated by probit analysis (Finney, 1971).

All records from this test and the final report will be maintained at Haskell Laboratory for Toxicology and Industrial Medicine or archived at the Du Pont Hall of Records.

Results:

Percent immobilities for *Daphnia magna* exposed to H-15,866 are presented in Table I. The 48-hour EC50 was 210 mg/L, with a 95% confidence interval of 184 mg/L to 240 mg/L.

The chemical and physical parameters measured during the test of H-15,866 are reported in Table II. Most were within acceptable ranges for this study. By the end of the 48-hour exposure period, the D.O. fell to 30% of saturation in the high dose (500 mg/L). While this is below the level of D.O. recommended for this test (40%), it would not alter the conclusions drawn from this study.

Discussion/Conclusion:

██████████ has been tested for static acute toxicity with a warm freshwater macroinvertebrate, *Daphnia magna*, during a 48-hour exposure period. Under the conditions of this test, ██████████ was found to exhibit slight acute toxicity.

Footnotes:

¹ EC50 = That concentration which causes immobility to 50% of a test population during the specified time period.

References:

Finney, D. J., (1971). Probit Analysis, 3rd. Ed., Cambridge University Press, 333 pp.

TABLE I

RESULTS OF A 48-HOUR STATIC ACUTE TOXICITY TEST
WITH Daphnia magna EXPOSED TO 15,866. [REDACTED]

Nominal Test Concentrations (mg/L)	Observed Immobility (%)			
	24 Hours		48 Hours	
	A*	B*	A*	B*
500	40	30	100	100
380	40	30	90	80
280	20	10	90	50
210	10	0	60	30
160	0	0	40	10
130	0	0	30	20
90	0	0	0	10
H ₂ O Control	0	0	0	0

* Replicate exposure chambers containing ten daphnids each.

Company Sanitized. Does not contain TSCA CBI

TABLE II

RESULTS OF PHYSICAL AND CHEMICAL PARAMETERS
 MEASURED DURING A 48-HOUR STATIC ACUTE TOXICITY TEST
 WITH Daphnia magna EXPOSED TO 15,866. [REDACTED]

Physical/Chemical Parameters	Nominal Test Concentrations (mg/L)			
	500 (High)	210 (Medium)	90 (Low)	Control H ₂ O
<u>Dissolved Oxygen</u> (mg/L)				
0 Hr.	7.4	7.3	7.7	7.7
48 Hr.	2.7	6.2	8.3	8.7
<u>pH</u>				
0 Hr.	8.4	8.4	8.4	8.4
48 Hr.	7.7	7.9	7.9	8.0
<u>Total Alkalinity</u> (mg/L as CaCO ₃)				
0 Hr.	--	--	--	101
<u>EDTA Hardness</u> (mg/L as CaCO ₃)				
0 Hr.	--	--	--	90
<u>Conductivity</u> (umhos/cm)				
0 Hr.	--	--	--	180