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E. I. du Pont de Nemours and Company
Haskell Laboratory for Toxicology and Industrial Medicine
Elkton Road, Newark, Delaware 19711

HASKELL LABORATORY REPORT NO. 352-81

MR NO. [REDACTED]

Material Tested

Haskell No.
14,008

Other Codes

Study Initiated/Completed
6/4/81 - 6/6/81

Material Submitted by

[REDACTED]
Polymer Products Department
Wilmington, Delaware

48-HOUR LC50** TO DAPHNIA MAGNA

Procedure: The test material, as a 1 mg/mL stock solution in laboratory test water, was diluted with laboratory test water to yield the desired exposure concentrations. After mixing, 200 mL of each concentration was introduced into each of two separate 250 mL glass exposure vessels. Two identical jars, containing only laboratory test water, were designated as controls. Ten daphnids (Daphnia magna) less than 24 hours old were randomly assigned into each vessel. Food was not provided during the test. Test solutions were not aerated and temperature was maintained at 20°C. Photoperiod was maintained at 16 hours light:8 hours dark. Mortality counts and observations were made at 24 and 48 hours after the exposure was initiated. Dissolved oxygen and pH were measured in the control, low, medium and high exposure solutions at the beginning and end of exposure. The total alkalinity, hardness (EDTA) and conductivity of the control were measured at the beginning of the exposure. The 48-hour LC50 and 95% confidence limits were calculated by probit analysis (Finney, 1971).†

Results: Percent mortalities for Daphnia magna exposed to H-14,008 are presented in Table I. The 48-hour LC50 was 320 ppm with 95% confidence limits of 281 ppm and 362 ppm. The slope of the dose response curve was 5.1 with 95% confidence limits of 3.7 and 6.5. At concentrations of 560 ppm and greater the test solutions were too cloudy to complete an accurate mortality count at the 24-hour observation. No daphnids were observed swimming in the 1,000 ppm vessels, therefore, mortalities were noted at 24-hours by

withdrawing each daphnid via a manually operated suction tube and observing the animals. The chemical and physical parameters measured during the test are reported in Table II.

Summary: [REDACTED] exhibited slight acute toxicity to Daphnia magna under static, unaerated test conditions during a 48-hour exposure.

The 48-hour LC50 was 320 ppm with 95% confidence limits of 281 ppm and 362 ppm. The slope of the dose response curve was 5.1 with 95% confidence limits of 3.7 and 6.5.

* Other Names: [REDACTED]

Purity: [REDACTED]

Contaminants: [REDACTED]

** LC50 = The concentration which is lethal to 50% of a test population during the specified time period.

† Finney, D. J., Probit Analysis, 3rd ed., 1971, Cambridge University Press.

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[REDACTED]
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TABLE I

RESULTS OF A 48-HOUR ACUTE TOXICITY TEST
WITH DAPHNIA MAGNA EXPOSED TO H-14,008 [REDACTED]

Nominal Test Concentrations ppm	Observed Mortality (%)			
	24 Hours		48 Hours	
	A*	B	A	B
1000	100	100	100	100
750	**	**	100	100
560	**	**	100	100
420	0	0	60	50
320	0	0	40	30
240	0	0	20	40
180	0	0	20	20
100	0	0	0	0
Control	0	0	0	0

* Replicate exposure chambers containing ten daphnids each.

** A few daphnids were observed swimming, but the test solution was too cloudy to complete an accurate mortality count.

TABLE II

RESULTS OF PHYSICAL AND CHEMICAL PARAMETERS
 MEASURED DURING A 48-HOUR ACUTE TOXICITY TEST
 WITH DAPHNIA MAGNA EXPOSED TO H-14,008 [REDACTED]

Nominal Test Concentrations	1000 ppm (High)	420 ppm (Medium)	100 ppm (Low)	Control
<u>Dissolved Oxygen (ppm)</u>				
0 Hr.	5.6	6.8	7.8	8.1
48 Hr.	6.6*	6.5	7.4	7.7
<u>pH</u>				
0 Hr.	7.9	8.0	7.9	7.9
48 Hr.	8.1*	8.3	8.3	8.1
<u>Total Alkalinity (mg/L as CaCO₃)</u>				
0 Hr.	-	-	-	133
<u>EDTA Hardness (mg/L as CaCO₃)</u>				
0 Hr.	-	-	-	117
<u>Conductivity (umhos)</u>				
0 Hr.	-	-	-	265

* Final dissolved oxygen and pH were measured at 24 hours because 100% mortality had occurred within the first 24 hours of exposure.