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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. 866-80 [redacted]

Material Tested	Haskell No.	Other Codes/Synonyms
[redacted]	13,384	[redacted]

Study Initiated/Completed
7/17/80 - 8/19/80

Material Submitted by
[redacted]
C&P Dept.
Jackson Lab

INHALATION MEDIAN LETHAL CONCENTRATION (LC50)

Objective: The purpose of this investigation was to determine the 4-hour LC50 of [redacted] in male albino Crl:CD® rats.

Procedures:

A. General: Groups of 10 male, albino Crl:CD® rats, approximately 8 weeks old and weighing from 224 to 293 g, were exposed via inhalation to atmospheres of [redacted] in air for single 4-hr periods. Except during exposure, rats were housed in suspended stainless-steel wire mesh cages. Purina Certified Rodent Chow® #5002 and water were supplied ad libitum. During exposure all rats were observed, clinical signs noted and chamber temperature monitored. Following exposure, rats were weighed and observed daily (excluding weekends) for a 14-day recovery period.

Generation: The sample was liquified by heating to approximately 100°C. A 50 cc plastic syringe wrapped in heating tape was loaded with liquified sample and placed on syringe drive. The sample was syringe driven through a Spraying Systems Nebulizer. The aerosolized stream sprayed into a heated, 3 neck,

round bottom flask. Dilution air was added and the resultant vapor/aerosol mixture went through heated glass connectors into the top of a 20 l glass chamber containing the test r. .

Analytical: Chamber samples were collected approximately every 1/2 hr by drawing a known volume of chamber atmosphere through 2 tandem midget impingers. The impingers contained acetone (ACS grade) as the trapping solvent. Samples were analyzed using a Hewlett Packard 5730A gas chromatograph equipped with a flame ionization detector. The column was a 6' x 1/4" O.D. glass coil packed with 20% Neopentyl and Glycol Sebacate on 60/80 mesh chromosorb PAW. Oven temperature was programmed to hold at 80°C for 2 minutes then increase 8°C a minute to 220°C and hold at that temperature for 4 minutes.

[redacted] concentrations were based on the second largest peak to come out in the G.C. chromatograph. This peak is identified as [redacted] on the basis of the G. C. peak height area and the reported sample composition. Chamber atmosphere concentrations were then calculated and expressed as the equivalent [redacted] concentration (mg/l).

Results:

Observations: During all exposures rats exhibited reduced response to sound, irregular respiration. salivation, wet fur, and tearing from eyes. In exposures $\geq$ 18.2 mg/l rats exhibited occasional gasping and varying degrees of dark red ocular and nasal discharge. In correlation to dosage, rats exhibited slight to severe weight loss, lasting 24-96 hrs post-exposure followed by normal weight gain. All deaths occurred 24-96 hrs post-exposure.

Mortality Data:

Mean [redacted] Concentration mg/l (range)	Standard Deviation mg/l	Fractional Mortality (# deaths/# exposed)
3.5 (2.1-4.4)	$\pm$ 0.8	0/10
13.3 (9.2-15.9)	$\pm$ 2.0	1/10
18.2 (12.1-23.2)	$\pm$ 4.0	2/10
35.7 (27.3-51.4)	$\pm$ 7.5	5/10

The LC50** was calculated to be 35.3 mg/l with a lower limit of 23.8 mg/l and an upper limit of 790.4 mg/l with 95% confidence limits.

Summary: Groups of 8 week old Crl:CD® male rats were exposed to vapors of [redacted] for single 4 hr periods. The LC50** was calculated to be 35.3 mg/l (95% confidence limits and a range of 23.8 - 790.4 mg/l).

Clinical signs observed during exposure included reduced response to sound, irregular respiration, salivation, wet fur, and tearing from eyes. A dark red discharge was exhibited from eyes and nose of rats exposed to $\geq$ 18.2 mg/l. Slight to severe weight loss was observed 24-96 hrs post-exposure in accordance with dosage and followed by normal weight gain. All deaths occurred 24-96 hrs post-exposure.

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* Composition:

[redacted]

** D. J. Finney, Probit Analysis, 3rd Ed., 1971, Cambridge University Press.

+ This exposure was the highest concentration obtainable using the previously mentioned generation procedures and conditions.

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JCH:jrg
Study Director: B. A. Burgess
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[redacted]
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