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Approximate Lethal Concentration of

[REDACTED] in Rats

Haskell Laboratory Report No. 276-85

MR No. [REDACTED]

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

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[REDACTED] in Rats

SUMMARY

Groups of 6 male Crl:CD®(SD)BR rats were exposed for single 4-hour periods to vapor concentrations of [REDACTED] in air. Under the conditions of this study, the approximate lethal concentration was 160 mg/L. This material is considered to have very low toxicity by inhalation.

HLR 276-85

Work by: Clarence W. Hutt, III 6/15/85
Clarence W. Hutt, III
Technician

Robert T. Turner 6/15/85
Robert T. Turner
Technician

Thomas A. Kegelman 6/15/85
Thomas A. Kegelman
Technician

Supervised by: Laura A. Kinney 6/15/85
Laura A. Kinney
Chemist

Reviewed by: David P. Kelly 6/15/85
David P. Kelly
Toxicologist

Approved by: Nancy C. Chromey 7/9/85
Nancy C. Chromey, Ph.D.
Study Director
Section Supervisor,
Acute Investigations

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DPK:TAK:smk:HLR9.6

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MR No. [REDACTED]

Haskell No. 14,808

Material Tested:

[REDACTED]

Sponsor:

Chemicals and Pigments Department
E. I. du Pont de Nemours and Company
Wilmington, Delaware

Material Submitted By:

[REDACTED]
Chemicals & Pigments Department
Jackson Laboratory

Test Facility:

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

Study Initiated-Completed:

3/22/83 - 4/11/83

[REDACTED]
There are 7 pages in this report.

Distribution:

[REDACTED]

INTRODUCTION

The purpose of this study was to determine a 4-hour approximate lethal concentration (ALC) for [REDACTED] in rats. The ALC is defined as the lowest atmospheric concentration tested that caused the death of one or more rats either on the day of exposure or within 14 days post exposure. Except as documented in the study records, this study was conducted according to the applicable Good Laboratory Practice Regulations.

MATERIALS AND METHODS

A. Animals

Young adult male CrI:CD®(SD)BR rats were obtained from Charles River Breeding Laboratories, Kingston, New York. Each rat was assigned a unique 6-digit identification number which corresponded to a numbered card affixed to the cage. Rats were quarantined for one week prior to testing, and were weighed and observed twice during the quarantine period. During the test, rats were housed in pairs in 8" x 14" x 8" suspended, stainless steel, wire-mesh cages. The rat assigned the lower number in each cage was identified by a slash in the right ear. Rats' tails and cage cards were color-coded with water-insoluble markers so that individual rats could be identified after exposure. Except during exposure, Purina Certified Rodent Chow® #5002 and water were available ad libitum.

B. Exposure Protocol

Groups of 6 rats, 8-9 weeks old and weighing between 231-322 grams were exposed whole-body for a single 4-hour period to a vapor atmosphere of [REDACTED] in air. Rats were weighed prior to exposure and were observed for clinical signs of toxicity during exposure. Surviving rats were weighed and observed daily for 14 days post exposure, weekends excluded, except when deemed necessary by the rats' condition.

C. Test Material

Physical Form:

Composition:



Synonyms:

CAS Registry No.:

Stability:

[REDACTED]

The test material was assumed to be stable throughout the exposure phase of the study.

D. Atmosphere Generation

Vapor atmospheres of [REDACTED] were generated by pumping the liquid into a round bottom flask. The flask was at ambient temperature for the first ALC exposure. In the remaining four exposures, the round bottom flask was heated to approximately 62-121°C to attain higher concentrations. The resulting vapors were carried by houseline air to the 17 liter glass exposure chamber.

Analysis

The atmospheric concentration of [REDACTED] was determined at approximately 30-minute intervals by drawing samples of the test atmosphere from the exposure chamber with a glass syringe. Samples were analyzed isothermally at 90°C with a Hewlett-Packard 5790A gas chromatograph equipped with a flame ionization detector and a 6' X 1/4" O.D. glass column packed with 10 % SE 30 on Supelcoport® 80/100 mesh. Concentrations were determined by comparison with standard curves, which were prepared daily. Gas standards were prepared by evaporating liquid [REDACTED] in calibrated glass bottles.

Chamber temperature was measured with a mercury thermometer, and chamber oxygen was measured with a BioMarine Model 225 Oxygen Analyzer.

F. Records Retention

All raw data and the final report will be stored in the archives of Haskell Laboratory for Toxicology and Industrial Medicine, Newark, Delaware, or in the DuPont Hall of Records, E. I. du Pont de Nemours and Co., Wilmington, Delaware.

RESULTSA. Exposure Conditions and Associated Mortality

Chamber temperatures ranged between 26-30°C and chamber oxygen content was 21%. Atmospheric concentration and mortality data are presented below.

Atmospheric Concentrations of [REDACTED] and Associated Rat Mortality

<u>Concentration (mg/L)</u>		<u>Range</u>	<u>Fractional Mortality</u> <u># deaths/ # exposed</u>
<u>Mean</u>	<u>S.D.</u>		
4.9	1.8	0.17-5.7	0/6
20	4.1	9.7-23	0/6
61	2.2	56-63	0/6
160	4.5	150-160	5/6
290	13	280-300	6/6

B. Clinical Observations

During exposure, no clinical signs of toxicity were observed in rats exposed to 4.9, 20, or 61 mg/L. Rats exposed to 160 mg/L exhibited labored breathing and salivation. Rats exposed to 290 mg/L exhibited pale ears, labored breathing, staggering and sporadic movement.

All deaths occurred during exposure. The sole surviving rat exposed to 160 mg/L exhibited slight weight loss (3.0%) on the day after exposure, followed by a normal weight gain throughout the recovery period.

During the 14 day recovery period, some surviving rats exhibited slight weight loss at 24 hours post exposure. No other abnormalities were observed.

CONCLUSIONS

Under the conditions of this test, the inhalation ALC of [REDACTED] in rats was 160 mg/L. This material is considered to have very low toxicity by inhalation.