

*Industrial BIO-TEST Laboratories, Inc.*  
1810 FRONTAGE ROAD  
NORTHBROOK, ILLINOIS 60062

REPORT TO

(b) (4)

ACUTE VAPOR INHALATION TOXICITY STUDY WITH  
(b) (4) (b) (4)  
IN ALBINO RATS

OCTOBER 14, 1975

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ACUTE VAPOR INHALATION TOXICITY STUDY IN RATS

Test Material: (b) (4) (b) (4)  
Form Administered: Vapor  
Acute LC<sub>50</sub>: < 312,320 mg/m<sup>3</sup> air  
Strain: Charles River Rats  
Exposure Time: 30 minutes  
Observation Period: 30 minutes  
(b) (4)

Generation of Material Exposure:

The vapor was generated by passing a stream of clean, dry air (-40°C dewpoint) over the undiluted test material. The test material was heated to 300°C. The air-vapor mixture was introduced into the exposure chamber.

Chamber Conditions		Atmospheric		
Group No.	Size (liters)	Pressure (inches Hg)	Temperature (°C)	Air Flow (l/min)
I	80	30.20	27	4.33

Results Group No.	Total Number of Animals	Nominal Concentration	Mortality Male-Female	Weight Gain Male-Female (grams)
	Male/Female			
I	5/5	312,320 mg/m <sup>3</sup> air	5/5 - 5/5	0-0

Remarks

Reactions are presented in Table I.

All rats died within 30 minutes into the exposure.

The pathologist's statement is presented on the following page.

Respectfully submitted,

INDUSTRIAL BIO-TEST LABORATORIES, INC.


Prepared by: Terry W. Myers Approved by: John W. Goode  
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Inhalation Toxicity Decatur Research Laboratories

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Pathologist's Statement

This test material, under the conditions used in this experiment, was lethal to rats. All male and female rats used in this study died during the exposure period. At necropsy, the lungs of these rats failed to collapse when the thorax was opened, and the urinary bladders were distended with urine, without any evidence of obstruction to the urethra.

  
D. J. Sullivan, DVM  
Diplomate, American College  
of Veterinary Pathologists

Industrial BIO-TEST Laboratories, Inc.

TABLE I

TEST MATERIAL: (b) (4) (b) (4)

## Acute Vapor Toxicity Study - Rats

## Reactions

Reaction	Number of Animals Affected	Time of Onset After Start of Exposure (min)	Duration (min)
Ptosis	10	5	25
Enophthalmus	10	5	25
Ruffed fur	10	5	25
Hypoactivity	10	5	25
Dyspnea	10	5	25

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PROCEDURE FOR ACUTE VAPOR INHALATION TOXICITY STUDY

Young adult albino rats were employed as test animals. The rats were selected after having been under observation for at least 5 days to insure their general health and suitability for testing. The animals were housed in stainless steel cages and permitted a standard laboratory diet\* plus water ad libitum, except during inhalation exposure.

During the exposure period, observations were made with respect to incidence of mortality and reactions displayed. At the end of the exposure period, the rats were returned to their cages for observation.

A body weight was determined for each animal prior to inhalation exposure and for each surviving animal at the end of the observation period. The data were recorded as an index to growth.

Gross pathologic examinations were scheduled to be conducted upon all animals which might succumb during the test period and upon those sacrificed at the end of the observation period.

Test animals were exposed in a specially constructed inhalation chamber. The chamber was designed so that the animals could be introduced into the test atmosphere after 99 percent of the maximum vapor concentration was established. Each animal was caged separately during exposure to minimize filtration of inspired air by animal fur.

Vapor was generated by bubbling a stream of clean, dry air (-40°C dewpoint) through the undiluted test material. The resulting air-vapor mixture was introduced into the exposure chamber at the top center, dispersed by a baffle plate and exhausted at the bottom of the chamber. The vapor generator was of all-glass construction and was linked to the exposure chamber by a short length of Tygon tubing. The air flow rate through the system was measured with a rotameter connected upstream of the generator. The rotameter was calibrated with a wet-test meter after the exposure was completed. The average nominal vapor concentration was calculated by dividing the generator weight loss by the total volume of air used during the test.

Whenever possible, the LC<sub>50</sub> was calculated using the method of Litchfield and Wilcoxon\*\*.

\* Wayne LAB-BLOX for Rats, Allied Mills, Inc., Chicago, Illinois.

\*\* Litchfield, J. T., Jr. and Wilcoxon, F., "A Simplified Method of Evaluating Dose-Effect Experiments," J. Pharm. & Exp. Ther. 96, 99 (1949).