

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45202

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HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. 75-120-220

STORM PRODUCTS COMPANY
PALO ALTO, CALIFORNIA
SEPTEMBER 1975

I. TOXICITY DETERMINATION

It has been determined that a potential health hazard does not exist in the extrusion area from vinyl chloride gas at the concentrations measured during normal operating conditions. The determination is based on the fact that all seven of the breathing zone environmental samples showed undetectable levels of vinyl chloride gas during normal operating conditions on the day of the investigation (June 30, 1975).

II. DISTRIBUTION AND AVAILABILITY OF DETERMINATION REPORT

Copies of this Determination Report are available upon request from the Hazard Evaluation Services Branch, NIOSH, U.S. Post Office Building, Room 508, Fifth and Walnut Streets, Cincinnati, Ohio 45202. Copies have been sent to:

- a) Storm Products Company, Palo Alto, California.
- b) U.S. Department of Labor - Region IX.
- c) NIOSH - Region IX

For purposes of informing the one "affected employee," the employer will promptly "post" the Determination Report in a prominent place(s) near where the exposed employee works for a period of 30 calendar days.

III. INTRODUCTION

Section 20(a)(6) of the Occupational Safety and Health Act of 1970, 29 U.S.C. 669 (a)(6), authorizes the Secretary of Health, Education, and Welfare, following a written request by any employer or authorized representative of employees, to determine whether any substance normally found in the place of employment has potentially toxic effects in such concentrations as used or found.

The National Institute for Occupational Safety and Health (NIOSH) received such a request from an authorized representative of an employer regarding exposure of an employee to vinyl chloride (VC) gas at the Storm Products Company, Palo Alto, California.

IV. HEALTH HAZARD EVALUATION

A. Introduction

The Storm Products Company produces and distributes finished cables of all diameters from raw wire or previously manufactured cable. A repeat evaluation of the extrusion operation was requested by management. In a previous survey, the local exhaust ventilation was not in operation and normally the ventilation system operates at all times.

B. Plant Process - Condition of Use

On June 30, 1975, NIOSH investigator conducted an environmental survey of the extrusion area for vinyl chloride gas.

A small extruder is located in one corner of the plant which is about 2,500 square feet in size. Wire is run off of a spool through the extruder, coated with plastic, and reound as the finished product. A small local exhaust canopy hood is located above the extruder. One worker is responsible for the extrusion operation. Polyvinyl chloride (PVC) is not the only coating material and a review of the extruder log indicated that PVC is run on the average about twice a week for 1-4 hours at a time. The PVC is run only when there is a demand for a certain type of cable.

C. Evaluation Criteria

Vinyl chloride is now suspected as being an etiological agent in the development of angiosarcoma of the liver. Based on theoretical considerations, as stated in NIOSH's Recommended Standard for Occupational Exposure for Vinyl Chloride¹, "there is probably no threshold for carcinogenesis although it is possible that with very low concentrations, the latency period might be extended beyond the life expectancy. In view of these considerations and NIOSH's inability to describe a safe exposure level as required in Section 20(a)(3) of the Occupational Safety and Health Act, the concept of a threshold limit for vinyl chloride gas in the atmosphere was rejected".

D. Worksite Evaluation

On June 30, 1975, Mr. Okawa conducted an environmental evaluation for vinyl chloride gas in the extrusion area. A typical run of PVC was scheduled for a period of 3 hours. During the day of the evaluation, the local exhaust ventilation was running normally.

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"NIOSH Recommended Standard for Occupational Exposure to Vinyl," March 14, 1974, memorandum from Director, NIOSH, to Assistant Secretary of Labor, OSHA.

E. Evaluation Methods

The employee's exposure to VC was measured via personal air sampling equipment. Breathing zone samples were obtained using Sipin Personal Sampler pumps and charcoal air sampling tubes. The sampling rate for VC was 45-50 cc/minute and the sample volumes ranged from 1.6-3.0 liters. The charcoal tubes were sealed and mailed immediately to NIOSH laboratories in Salt Lake City for analysis.

F. Evaluation Results

On June 30, 1975, 7 breathing zone samples were collected for VC while the extruder was running PVC. The local exhaust ventilation was running normally. The vinyl chloride levels in all 7 samples were below the lower limit of detection of 0.2 ppm for the method used in the investigation.

V. CONCLUSIONS

The Federal Standard for vinyl chloride gas promulgated by the U.S. Department of Labor is 1.0 ppm based on an 8-hour time-weighted average. This standard also calls for specific steps by an employer when the 8-hour time weighted average exceeds the "action level" of 0.5 ppm. The average level in the extrusion area is well below the 1.0 ppm standard and the 0.5 ppm "action level". Therefore, since vinyl chloride gas could not be detected on the day of the survey (June 30, 1975) while the operation was running normally, it is concluded that a potential health hazard from vinyl chloride gas does not exist.

VI. RECOMMENDATIONS

It is recommended that the employer run the polyvinyl chloride extrusion operation only while the local exhaust ventilation is operating normally and that periodic maintenance of the ventilation system should be performed.

VII. AUTHORSHIP

Evaluation conducted and report prepared by:

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