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

HEALTH HAZARD EVALUATION DETERMINATION
REPORT NO. 74-45-150

TRIMTEX DIVISION OF WILLIAM E. WRIGHT COMPANY
WILLIAMSPORT, PENNSYLVANIA
OCTOBER 1974

I. TOXICITY DETERMINATION

It has been determined that asbestos dust is not toxic at the concentrations measured on April 24, 1974. This determination is based upon environmental measurements in the workplace; analysis of work practices, employees interviews and available literature regarding asbestos toxicity.

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, 508, 5th and Walnut Streets, Cincinnati, Ohio 45202. Copies have been sent to:

a) Trimtex Division of William E. Wright Company
b) U.S. Department of Labor - Region III
c) NIOSH - Region III

For the purposes of informing the approximately 4 "affected employees" the employer will promptly "post" the Determination Report in a prominent place(s) near where exposed employees work 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 a request from the employer regarding exposures to asbestos dust in the braiding and hand spooling rooms of the Trimtex Division of William E. Wright Company, Williamsport, Pennsylvania.

IV. HEALTH HAZARD EVALUATION

A. Description of Process - Condition of Use

Trimtex Division of William E. Wright Company is primarily engaged in manufacturing a large variety of trimmings and braids, using several types of materials. Two areas in the plant were evaluated for asbestos exposures - the braiding room and the hand spooling room. Thirteen braiding machines were using asbestos yarn during the survey. The construction of asbestos braid may be classified into two major classifications - the filler and the cover. The braid filler contains five ends of asbestos yarn and seven ends of fiberglas yarn. The twelve yarns are intertwined and covered with sixteen ends of fiberglas yarn. The purpose for intermingling and intertwining of the yarns is to produce a strong braid. A braid operator keeps the braiding machine operating and replaces consumed yarn with new yarn bobbins. The braid from the machine is fed to a holding spool. Braid spools from the braiding machine are further processed in the spooling room. In the hand spooling operation, which requires one operator, the braid is examined for defects and measured as it is transferred from one spool to another. Should a defect be detected the segment is removed. Both the braiding and spooling are continuous operations. However, asbestos yarn is used only on special orders.

B. Evaluation Design

An evaluation of the braid and spooling areas was made on April 23, 1974. Both personal and general area atmospheric samples were collected and analyzed for asbestos. Employees were interviewed to elicit symptomatology associated with their work environment.

C. Evaluation Methods

Asbestos dust exposures of employees assigned full time to braiding and spooling operations were measured by use of personal air sampling equipment. General room asbestos dust samples were obtained at both operations. The air samples were collected on "AA" millipore filters at a flow rate of one liter per minutes and asbestos fibers in length greater than 5 micrometers were counted utilizing phase contrast microscopy. In addition, the braiding and spooling operators were interviewed and asked to relate any health problems they associated with their work during the work shift.

D. Evaluation Criteria

1. Evaluation standards are intended to protect the health of workers and have been suggested by several sources. These standards are

established at levels designed to protect workers occupationally exposed to a substance on an 8-hour per day, 40 hours per week basis for a working life time. Based upon latest information available in the literature relative to the toxicity of asbestos, NIOSH in its "Criteria for Occupational Exposure to Asbestos - 1973"[1] has recommended that an 8-hour time weighted average airborne exposure to asbestos fibers greater than 5 micrometers in length not exceed 2.0 fibers per cubic centimeter of air.

Prolonged inhalation of asbestos may result in the production of a typical pulmonary fibrosis which may be accompanied by respiratory disability. If large quantities of the fibers are inhaled over an extended period of time, tissue reaction progresses until a generalized diffuse fibrosis (known as asbestosis) becomes evident. There is evidence that the frequency of bronchiogenic cancer is greater among workers in certain asbestos industries than expected in the general population as well as evidence of an increased rate of occurrence of mesothelioma of the pleura. The asbestos associated neoplasms may occur without radiological evidence of asbestosis. The 2 fibers per cc is considered to be low enough to prevent pulmonary fibrosis but may not be low enough to prevent mesothelioma.

E. Environmental Results and Discussion

1. Environmental

Breathing zone asbestos samples were obtained by monitoring a braid and a spooler worker. General room asbestos samples were also collected near the asbestos braiding machines and at the spooler work bench. The braiding machines are used 24 hours a day. However, only one braid operator per shift is assigned to service them. During our evaluation only one spooling machine was in use. In the braiding room the asbestos concentration ranged from 0.02-0.03 fibers per cc and in the spooling room from 0.04-0.06 fibers per cc.

2. Employee Interviews

A group of six employees were interviewed during their work shift. This group included two braid operators and one spooler. Their work employment period ranged from one to over 20 years. Most of the health complaints were related to skin irritation from the fiberglas yarns. The skin irritation is more prevalent during the hot weather. Skin irritation was the only symptom reported during the interview.

3. Discussion of Results

Since all measured asbestos dust exposure levels were about two orders of magnitude below the NIOSH recommended limit and no symptoms attributed to asbestos exposure were mentioned, we conclude no health hazard exists relative to asbestos.

TABLE I

ASBESTOS AIR CONCENTRATIONS
TRIMTEX DIVISION OF WILLIAM E. WRIGHT CO.
WILLIAMSPORT, PENNSYLVANIA
APRIL 24, 1974

Location	Type of Sample	Time of Sample	Asbestos Concentration* Fibers per cc
Braiding Room	Personal	6:48AM- 2:35PM**	0.03
" "	General Area	6:50AM- 3:00PM	0.02
" "	" "	6:50AM- 3:00PM	0.02
" "	" "	8:26AM- 2:00PM	0.02
" "	" "	2:00PM- 3:05PM	0.04
Spooling Room	Personal	7:08AM-11:12AM	0.04
" "	General Area	7:09AM-11:26AM	0.06

*Airborne concentration of asbestos fibers longer than 5 micrometers in length per cubic centimeter of air.

** Sampling pump was deactivated for 14 minutes during lunch period.

V. REFERENCES

1. U.S. Department of Labor (Federal Register, October 18, 1972), Title 20, Chapter XVII, Subpart G, Section 1910.93a.

2. U.S. Department of Health, Education, and Welfare: Criteria for a recommended standard...-Occupational Exposures to Asbestos, 1972.

3. American Conference of Governmental Industrial Hygienists, Documentation of Threshold Limit Values, 3rd Edition, 1971.

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Acknowledgment

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