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COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF HEALTH
P. O. BOX 90
HARRISBURG

July 9, 1962

Asten-Hill Manufacturing Company
Henry & Roberts Avenue
Philadelphia 29, Pennsylvania

Attention: Mr. John McCormack
Plant Engineer

Gentlemen:

Submitted herewith is the report of survey made recently at the above-named location by personnel of the Division of Occupational Health.

The services of the Division are available to you at all times.

For your information we are enclosing a copy of our Hygienic Information Guide #7 entitled "Asbestos".

Very truly yours,

J. Lieben

Jan Lieben, M.D., Director
Division of Occupational Health

Enclosure

Commonwealth of Pennsylvania
Department of Health
DIVISION OF OCCUPATIONAL HEALTH

HYGIENIC INFORMATION GUIDE #7

ASBESTOS

PROPERTIES: Asbestos is composed of a number of different minerals which are silicates of variable composition, but basically are of a form of hydrous magnesium silicate. Their chief characteristic is a structure composed of long, parallel, flexible fibers, capable of repeated longitudinal subdivision. Many varieties are sufficiently flexible to be spun into yarn or woven on modified textile machinery. Consequently, manufacturing processes can cause this mineral to break up into many minute particles.

MAXIMUM ALLOWED ATMOSPHERIC CONCENTRATION (8-hour work period): 5 million particles per cubic foot of air.

PHYSIOLOGICAL CHARACTERISTICS: Long continued inhalation of asbestos dust may result in a form of pneumoconiosis known as asbestosis. The primary effect of such inhalation is a condition of pulmonary fibrosis. A characteristic finding of asbestosis is the presence of asbestos "bodies" in the lungs and sputum. Complete roentgenologic study of the chest and histopathological findings are necessary to establish the presence of this disease. The question of whether or not there is any relationship between the inhalation of asbestos dust and cancer of the lung is undecided at present.

MEDICAL SUPERVISION:

A. Preplacement: Occupational history is a necessity. Individuals should be examined with regard to the severity of the hazard of their prospective employment. A complete physical examination, including a chest x-ray, should be emphasized.

b. Periodic Examination: Physical examination, together with a chest x-ray study, about once a year. Cases where pathologic lung changes have occurred should be relocated from employment in dusty operations.

CONTROL MEASURES:

a. All dust-producing operations should be equipped with local exhaust ventilation. Where possible, isolation or segregation of the operation should be observed, together with the use of wet methods. Recirculation of contaminated exhaust air should be prohibited unless the air has been subjected to adequate dust removal processes.

b. The housekeeping should be maintained with a view to preventing any accumulation of deposited dust. Vacuum methods of cleaning, after workin hours, are preferred.

c. Where other methods of control are not feasible, dust respirators, of a type approved by the Bureau of Mines for this dust, should be supplied to those employees subjected to the dusty atmosphere.

d. A periodic determination of the dust levels of the plant atmosphere shoul be made to ascertain the efficiency of the control measures in use.

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Report of Survey

Asten-Hill Manufacturing Company
Henry & Roberts Avenue
Philadelphia 29, Pennsylvania

Arrangements had been made with Mr. John McCormack, plant engineer, to conduct a dust survey which was initiated on October 25, 1961. A fire in the baghouse that morning was thought to have affected the normal operation of the ventilation system. Consequently, the survey was continued on April 9, 1962 after repairs to the baghouse had been completed and the ventilation and dust-collecting systems were in normal operation.

RECOMMENDATION

Continue the existing program of periodic annual chest X-ray examinations for all employees exposed to asbestos dust.

DETAILED FINDINGS

This plant was engaged in the manufacture of asbestos mats for use in paper mills. Cotton or nylon was blended with asbestos and after carding, winding, twisting, and spinning was woven into the mats.

Atmospheric dust samples were collected at numerous locations throughout the plant by use of midget-impingers with water as the collecting medium. Dust counts were made by the standard light-field technique.

During the October 25, 1961 survey repairs were being made to the baghouse. The efficiency of the dust-collection system was thought to have been affected. The counts made on air samples collected throughout the plant indicated three samples to contain more than 5 m.p.p.c.f. (millions of particles per cubic foot of air), the value established as the threshold limit for asbestos to which workers may be exposed for an eight-hour working day. Of the three, the highest dust con-

centration was 5.9 m.p.p.c.f. (see Table 1)

During the April 9, 1962 survey repairs to the baghouse had been completed and the dust-collecting and ventilating systems were in normal operation. All dust counts were less than the threshold limit value. The highest dust concentration was 4.1 m.p.p.c.f. (see Table 2)

When in normal operation, the system of local exhaust ventilation and centralized collecting machinery seems adequate to maintain atmospheric dust concentrations within the threshold limit value. However, even low concentrations of asbestos dust can produce lung disease in some individuals, and therefore the recommendation for continued periodic chest X-ray examinations is made.

Tables of dust concentrations follow.

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DIVISION OF OCCUPATIONAL HEALTH

Table 1

Dust Concentrations
(October 26, 1961)

Asten-Hill Manufacturing Company
Henry & Roberts Avenue
Philadelphia 29, Pennsylvania

Location	Dust concentrations* (millions of particles per cubic foot of air)	Remarks
Loom #32	2.8	General air
Between looms #5 and #6	1.6	
Loom #23	1.5	
Loom #19	1.3	
Loom #11	1.8	
Loom #13	2.0	
Universal winding	1.2	
Between warp compressing machines #3 and #4	1.1	
Bobbin winding	2.6	
Loom #22	2.3	
Loom #25	2.6	
Batch mixing	5.7	
Between #5 and #6 carding machines, loading end	1.9	General air, partially enclosed with exhaust ventilation

Table 1, continued

Location	Dust concentrations* (millions of particles per cubic foot of air)	Remarks
Between #5 & #6 carding machines, discharge end	3.6	General air, partially enclosed with exhaust ventilation
Between #1 & #2 carding machines, discharge end, #2 not operating	4.4	
Between #2 & #3 twisting machines	5.9	General air
General air beneath baghouse hoppers	5.7	Men working in baghouse
#3 & #4 carding machines, loading end	3.4	General air, partially enclosed with exhaust ventilation
#3 & #4 carding machines, discharge end	1.8	
General air between #1 & #2 carding machines, loading end	3.4	
General air between #1 & #2 twisting machines	2.3	General air

*Threshold limit value, asbestos dust, eight-hour working day (as established by Article 432, Rules and Regulations, Pennsylvania Department of Health) - 5 million particles per cubic foot of air

Department of Health
DIVISION OF OCCUPATIONAL HEALTH

Table 2

Dust Concentrations
(April 9, 1962)

Asten-Hill Manufacturing Company
Henry & Roberts Avenue
Philadelphia 29, Pennsylvania

Location	Dust concentrations* (millions of particles per cubic foot of air)	Remarks
Vicinity of asbestos and fly blenders	2.0	Machine not in operation, local exhaust, general air
Between bobbin winding machines #3 and #4	1.0	#4 machine not operating, general air
Between #3 and #4 carding machines	1.1	Partly enclosed exhaust ventilation, general air
Between #3 and #4 twisting machines	1.6	General air
#2 loom, on platform	0.6	General air
#3 Universal winding machine	3.8	Exhaust ventilation, general air
#20 loom	3.9	General air on platform
Cotton blender	3.7	General air
Between #3 and #4 warp compressing machines	3.8	
Between #1 and #2 and #3 and #4 twisting machines	3.9	

Table 2, continued

Location	Dust concentrations* (millions of particles per cubic foot of air)	Remarks
General air between #5 and #6 bobbin winding machines	3.0	General air, #5 machine not operating
Loading end, between #3 and #4 carding machines	4.1	General air, exhaust ventilation, partially enclosed

*Threshold limit value, asbestos dust, eight-hour working day (as established by Article 432, Rules and Regulations, Pennsylvania Department of Health) - 5 million particles per cubic foot of air

Survey by -

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July 9, 1962

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