

REPORT OF SURVEY
OF
SOUTHERN ASBESTOS COMPANY AT
CHARLOTTE, NORTH CAROLINA

SEPTEMBER 21-OCTOBER 13
1943.

An environmental survey was conducted at the plant of the Southern Asbestos Company, Charlotte, North Carolina by this Division on five different days during the period of September 21-October 13, 1943. At the time of this survey, there existed at this plant potential health hazards of asbestos dust, halowax, and toluene. An evaluation of the workers' exposure to these hazards was made, the results of which are herein reported.

RESULTS OF SURVEY.

1. Asbestos dust.

The results of the atmospheric samples collected for particle count of asbestos dust are shown in the following table:

<u>Sample Location</u> <u>Preparation</u>	<u>Date Collected</u>	<u>Dust Concentration</u> (Mil. Part. per Cu. Foot of Air)	<u>Remarks</u>
Exposure of man tending feeder pipe in storage bin.	9/21/43	100.0	Bin exhausted; no respirator on operator.
General atmosphere in aisle in storage bin room.	9/21/43	7.8	Approx. 10' from feeder pipe during discharge
General atmosphere at picker mixing charging.		2.8	
Exposure of willower charging operator.	9/21/43	1.4	Reclaimed fiber being used.
Exposure of willower charging operator.	10/7/43	1.3	Crude fiber being used.
General atmosphere be- tween crushing rolls.	9/21/43	2.2	Both crushers oper- ating; long fibers in one, short fibers in other.



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<u>Sample Location</u> <u>Preparation</u>	<u>Date Collected</u>	<u>Dust Concentration</u> (Mil. Part. Per Cu. Foot of Air)	<u>Remarks</u>
General atmosphere between crushing rolls.	10/7/43	2.3	Both crushers operating long fibers in one, short fibers in other.
Exposure of screen operator.	10/7/43	.7	
General atmosphere in storage room during unloading of crude fiber from freight car.	9/23/43	.9	
<u>Slubber Room.</u>			
General atmosphere between slubber and creel racks.	9/21/43	2.4	
<u>Card Rooms.</u>			
General atmosphere east end of little (kitchen) card room.	9/23/43	1.2	Near card #29. Most windows open.
General atmosphere east end of little (kitchen) card room.	10/7/43	4.9	Near card #29. Most windows open.
General atmosphere, South center of little (kitchen) card room.	10/13/43	6.6	Near Cards #22 and #2
General atmosphere, North-east corner of little (kitchen) card room	10/13/43	1.3	Near Cards #30 and #3 Windows near cards cl
General atmosphere, West-end little (kitchen) card room.	9/23/43	1.0	Taken in aisle near c
General atmosphere, West end little (kitchen) card room.	10/7/43	2.3	Taken in aisle near c
North center of Main card room.	10/7/43	2.0	Near cards #4 and #5
<u>SPINNING and Twisting.</u>			
General atmosphere in aisle between two mule spinning machines.	9/23/43	.9	Between machines #3 and #4. Most windows open

<u>Sample Location</u>	<u>Date Collected</u>	<u>Dust Concentration</u>	<u>Remarks</u>
<u>Spinning and Twisting.</u>			
General atmosphere in aisle between two mule spinning machines.	10/7/43	1.2	Between Machines #1 and #2. Most windows open.
Exposure of ring spinner operator.	10/7/43	.7	Between machines #2 and #3
General atmosphere near center of building between spoolers and ring spinners.	9/23/43	.9	
General atmosphere in aisle between two twisting machines.	10/7/43	2.0	Between machines #6 and #7
General atmosphere in aisle along spooling frames.	10/7/43	6.1	At #1 Machine.
General atmosphere in aisle along spooling frames.	10/13/43	.5	At #2 Machine.
General atmosphere in aisle along spooling frames.	10/13/43	.7	At #1 Machine.
Cop winders' exposure	10/7/43	.8	Windows back of machine open.
<u>Tape Weaving.</u>			
Operator's exposure at tape weaving loom in #1 web weaving room.	9/21/43	1.6	At loom #3. Wet weaving.
Operator's exposure at tape weaving loom in #1 web weaving room.	9/23/43	1.3	At loom #10. Wet weaving.
<u>Cloth Weaving.</u>			
Loom operator's exposure, South center of weaving room.	9/23/43	.8	Wet weaving.
Creepler's exposure, at creeling racks, South center of weaving area.	9/23/43	1.1	
Loom operator's exposure, West side of weaving area.	9/23/43	1.4	Overhead sprays on Loom #7. Dry weaving, windows behind machines open.

<u>Sample Location</u>	<u>Date Collected</u>	<u>Dust Concentration</u>	<u>Remarks</u>
<u>Cloth Weaving.</u>			
Loom operator's exposure, west side of weaving area.	10/7/43	14.9	Overhead sprays on. Loom #5. Dry weaving, window behind machine closed.
Loom operator's exposure, west side of weaving area.	10/13/43	1.5	Overhead sprays on. Dry weaving. Loom #8. Window open.
Loom operator's exposure, west side of weaving area.	10/13/43	7.6	Dry weaving. Overhead sprays on. Windows open. Taken at Loom #2.
Loom operator's exposure, west side of weaving area.	10/13/43	.5	Dry weaving, new type exhaust recently installed on loom. Taken at loom #5. Overhead sprays on. Windows open.

The maximum permissible limit for asbestos dust has been set at five million particles per cubic foot of air. It will be noted from the above results that a few of the samples taken were in excess of this value. With the present arrangement in the storage bin area, it is recommended that the workers in this area be required to wear U. S. Bureau of Mines approved mechanical filter type respirators while inside the area. Consideration should, in the meantime, be given to more adequate exhaust ventilation in this area, and to the modification of present production methods whereby it would be unnecessary for a worker to remain in a storage bin during the discharge of the mixed stock.

One count in the little card room was somewhat in excess of the threshold value, while another was very close to it. These samples were collected while the windows and doors were mostly open. It appears, therefore, that more adequate ventilation should be supplied to the various cards in this area. It is believed that a more complete examination of this area during those periods of the year when the doors and windows are closed should be made before making specific recommendations. This last statement also applies to the spooling operation.

All of the samples collected at the dry weaving cloth looms were obtained with the windows near the machines open, excepting the one in which a count of 14.9 mil. part. per cu. ft. resulted. This indicates that under these operating conditions a hazardous exposure does exist. A second sample taken at the same loom after a newly designed exhaust hood had been supplied to it showed a count of 0.5 mil. part. per cu. ft. From this one sample, it appears that the type of exhaust being used was performing very satisfactorily. Consideration should be given to a similar type of installation on the remainder of the dry weaving looms.

2. Halowax and Toluene.

Two atmospheric samples collected in the yarn impregnating and treating room showed a chlorinated hydrocarbon (halowax) content of 0.0 mg/m³ (milligrams per cubic meter of air). There was, therefore, at the time of this survey, no industrial health hazard resulting from these vapors.

Three samples were collected in the same area and analyzed for toluene content. the results of these analyses were as follows:

<u>SAMPLE LOCATION</u>	<u>DATE COLLECTED</u>	<u>TOLUENE FOUND</u> p.p.m.	<u>REMARKS</u>
Center of east aisle of room near north spooling bank.	10/5/43	36	Windows open.
East side of South spooling bank.	10/5/43	9	windows open.
Center of west aisle near north spooling bank.	10/5/43	71	windows open.

All of the above samples showed a toluene content below the currently accepted maximum permissible limit of 200 p.p.m. (parts of toluene per million parts of air). It should be remembered, however, that during those periods of the year when the windows of the area are closed, the concentration of toluene may increase to above the threshold limit (200 p.p.m.). It is therefore recommended that periodic checks be made of the atmosphere in this area to determine to what extent this does occur.

At the time of this survey, several of the employees in this area were removing halowax compound from their hands by washing in the solvent (which was essentially toluene). This not only exposes the worker to additionally high concentrations of toluene during the cleaning operation, but removes the protective oils which are normally present on the skin, and thus may result in less resistance to infection and in skin dermatitis. This practice should be discontinued and the operators instead supplied with suitable protective clothing. Washing the hands frequently with a suitable soap of the powdered corneal composition type is also recommended.

SUMMARY OF RECOMMENDATIONS AND SUGGESTIONS:

1. Require the wearing of U. S. Bureau of mines approved mechanical filter type respirators by the workers in the storage bin area.
2. Provide suitable protective clothing and a non-irritating hand cleanser for workers in the area in which yarn is treated with halowax.
3. The current practice of the workers in the halowax area of washing their hands in the solvent should be eliminated.

In addition to the above recommendations, it is suggested that consideration be given to the following:

1. Supply more adequate local exhaust ventilation in the storage bin area.
2. Modify production operations so that it will be unnecessary for a worker to remain within a storage bin during the time of discharge of the fixed stock.
3. Provide local exhaust ventilation at the cloth weaving looms at which dry weaving is done.

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CHATTANOOGA
9/28/42

SAMPLE NO.	MIL. PART. PER. CU. FT. AIR	REMARKS
1	3.7	General atmosphere in center of large card room.
2	2.5	General atmosphere in center of South end of building between four mule spinners.
3	3.3	General atmosphere in center of building between spoolers and ring spinners.
4	4.1	General atmosphere around twisting frames in West Central area of building.
5	7.5	General atmosphere around ry looms in Southwest area of building; strong breeze and humidifiers in use.
6	2.7	Creelers exposure in rear of clothlooms.
7	1.03	General atmosphere in Southwest end of basement in area between formers (ropemakers), dry tape looms (only 1 in operation), creel racks and reels.
8	1.6	General atmosphere in Northeast corner of basement with 3 tape looms in operation; two girls calendering; and 1 man packaging rolls of tape. All looms have dampened warps.
9	2.7	General atmosphere between two looms, wet weaving asbestos cloth.
10	2.2	Exposure of picker feeder.
11	3.7	General atmosphere between crushers, two in operation, and willower.
12	1.4	General atmosphere in aisle in bin room.
13	6.1	General atmosphere in kitchen (smaller of two card rooms).
14	0.2	General atmosphere between slubber and creel racks in basement under card room.

Note: Winding at North end would be a compromise between wet weaving and creelers, samples Nos. 6 and 9.
Braiders in basement not running at time samples were collected.