

Dust

DUST SERVICE OF
THE RAINESTON DIVISION
BRIDGEPORT & STRATFORD
PLANTS
MARCH - 1936

MAX GLAUBACH, Clerk
CERTIFIED IN
NEW JERSEY & NEW YORK

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Exhibit No.

For 12-1-36

6-12-77

Mr. Morton Judd:

Enclosure comment to conclusions and recommendations of the Survey of Raybestos Division of Raybestos - Manhattan - Bridgeport and Stratford Plants by Industrial Health Section, Metropolitan Insurance Company.

Conclusions and Recommendations - Bridgeport Plant

All of the dust counts in this plant show less than ten million particles per cubic foot of air sampled. While these counts are not considered as dangerous concentrations, they are much higher than on the previous survey made in 1930, with the exception of those in the warp room. All but four of the looms have been moved to different locations since the first survey. A check of the records would show a comparison of the type of yarn used and rate of production at the time of the two surveys.

Sample #15, taken at the inspection table on the second floor shows the highest count. The concentration at this point could be decreased materially by the proper exhaust equipment. The present system is not designed properly to take care of the dust generated.

COMMENT:

The correction of this hazard is of a mechanical procedure and I feel should be taken up by someone who is capable of designing and constructing a larger and more appropriate exhaust equipment.

Sample #54 shows the presence of lead. This amount is not considered dangerous, but it would be advisable to have the workmen at these looms examined periodically for any signs of lead poisoning. The only sample in the Brake Department showing lead was sample #29. This is not considered a dangerous amount, but does indicate that there is a potential hazard present.

COMMENT:

As lead is a slow accumulating poison and is detected early in the blood cells, it is advisable to arrange some course of procedure that at certain periods throughout the year men who have been exposed to lead compounds shall be examined for its early presence. As the amount present is not considered dangerous, the ones that would be discovered absorbing the toxin no doubt, would be those that are pre-disposed to poisoning by small amounts. In this way, we would be cautioned and be able to check the men to see just how compatible they are to the presence of lead.

Mr. J. J. J. J.

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Conclusions and Recommendations - Stratford Plant

Sample #6 taken at the fibre opener shows a high dust count. This is accounted for by the method of handling the fibre and not the opener itself. The fibre is dumped from bags onto the floor and then shoveled into the opener. The fibre is carried to a hopper above and then falls through a pipe into a truck which is located about six feet from the opener. The operator stands between the opener and the truck and shovels the fibre into the opener at the same time that it is falling into the truck. The dust concentration at this point could be decreased by the proper handling of the fibre.

COMMENT:

This matter should be taken up with the foreman of the Department to see if he cannot arrange to have some form of an enclosure placed over the units of this procedure, so as, the dust would not fly about the rest of the room. The man or men thus handling the fibre could be equipped with gas masks of some form to prevent them from inhaling the contaminated air and thus pre-dispose them to some form of pneumonokoniosis.

Samples #2, 3 and 4 show that there is lead present in the air at these points. While these samples do not show a dangerous amount, it would be well if the workmen engaged at these places were examined periodically for signs of lead poisoning. Notice was taken at the time of this survey of the method of handling litharge. This material is handled carelessly as it can be found lying on the floor in the room where it is weighed and around the mixers.

COMMENT:

It would be well to educate the foreman so as he could impress the men of the possibilities of the dangers of the material handled and in this way they would be more cautious. Emphasize should be made in describing the early symptoms of lead poisoning and the men should be assured that the little exposure to which they are in contact with is not dangerous if they are careful about their work.

Blood examination should be adopted with these individuals as a precautionary measure.

Sample #13 shows a low count. Three men were engaged in filling the beaters. Practically all of the material put into the beaters was waste asbestos board. Very little raw asbestos was added. No doubt the count at this position would be higher if more raw asbestos fibre were used out of the bags. It is recommended that the bags of asbestos fibre be stored in a room isolated from the remainder of the plant. This would eliminate dust generated in the piling and unpling of these bags in the room and exposing more people to the dust than is necessary.

COMMENT:

This matter should be adjusted and corrected by the foreman in charge.

Conclusions and Recommendations - Stratford Plant

Samples #15, 24, 28, 31 and 32 all show that lead was present in the air sampled. Sample #30 is the only one that approaches a dangerous amount. This sample also shows a high dust count. The high dust count at the two Blanchard grinders #3 and 4 is due to the method of handling the brake lining during the grinding operation. This lining is the P.G. molded type and a number of strips are placed together for grinding off the edges. After the edges are ground on one side, the operator blows off the clinging dust with an air hose and reverses the strips to grind the opposite edges. This type of grinding should be done on the grinding machines designed for this particular work. It was observed that a great amount of the dust present in the air is caused by the handling of the material after grinding. Dust clings to the individual places, and when the stacks are moved about they are not put down carefully. This results in dust clouds arising.

COMMENTS:

The report is conclusive evidence of the need for altering the type of machinery used. These men also should be checked for possible accumulation of lead in their body.

Samples #25 and 26 show high counts. Large size brake lining was used at the time these samples were taken. It was observed that the exhaust hood on machine #10⁵ did not catch all of the dust from this type lining. When smaller sizes of lining are ground on this machine the hood seems to catch most of the dust generated. The hood should be changed to take care of all sizes of lining ground on this machine.

COMMENTS:

This is a matter that the foreman should see adjusted. He is present at the plant supervising the work and there is no reason why he should not see that hoods are changed for the proper type of lining, as it is used.

PROPOSAL:

It is apparent that the need of a clinical laboratory is needed for the examination of blood smears to detect early lead poisoning. Some ways and means shall have to be adopted either (1) By maintaining facilities at the plants where the men are working and thus examine small groups and keep record of their blood at intervals say of, six month period or (2) To have them go to some laboratory on the outside where proper arrangements can be made for this prophylactic measure to be carried on.

A resume of the various health hazards in the plants has been narrated. I have tried as best possible to instruct the first aid attendants to inform me of the presence of individuals exposed to them and personally where I have found one who has an idiosyncrasy to them as some individuals are more susceptible than others to see that their position is changed and to adjust matter in the most compromising way between the men and the foreman. May I state cooperation to this extent has been favorable. The biggest problem has been with skin rashes of the coal-tar products causing a dermatitis. Miss Ella Tingard, has been most capable in handling this matter with me.

Ret to Judd

RAYBESTOS - MANHATTAN, INC.

BRIDGEPORT AND STRATFORD PLANTS

This survey was made on the 24th, 25th, and 26th of March, 1936.

BRIDGEPORT PLANT

It is evident from the dust counts of this survey that the dust conditions of the weave rooms have been improved. The change from the dry binder to wet binder is the reason for this improvement. This survey was made under winter conditions with most of the windows closed.

Comparing the survey of 1935 and that of 1936 other facts are noticed. At the time of the 1935 survey, seven looms were running on the third floor as compared with four at the time of the 1936 survey. There were fewer looms running on the second floor at the time of the 1936 survey than were running during the 1935 survey.

The dust concentrations at the warp machines may vary to a considerable extent depending upon the moisture content of the yarn, the speed at which the machines are operating, and the amount of natural ventilation; however, the operators have been supplied with approved respirators for protection against the dust generated.

The condition of the Brake Department has been improved by the removal of the drill presses.

The exhaust hood of the Pratt and Whitney Grinder has also been improved.

Table #1 shows results of 1936 survey

Table #2 shows comparative results of identical locations or operations of survey of 1935 and survey of 1936.

[illegible]

PROGRESS REPORT - PART - TABLE 12

Survey of March, 1936	Dust Count in Millions of Particles per cu. ft. of air sampled	Sample Number	Survey of June, 1935	Dust Count in Millions of Particles per cu. ft. of air sampled	Remarks
<u>2nd Floor</u>					
3	.65	12	9.9	Loon #10 removed since 1935 survey.	
1	.90	7	3.6		
2	1.2	34	4.5		
4	1.1	11	3.5		
7	3.6	15	9.6		
<u>3rd Floor</u>					
13	4.6	4	6.1	Loon #68 not running 1935 survey	
14	3.3	6	5.4		
<u>1st Floor</u>					
6	1.2	16	2.5		
11	5.8	19	3.3		
9	1.3	25	2.6		
<u>Brake Department</u>					
10	.90	18	1.3		
12	2.3	29	2.2		

Old No.	New No.	No. Specimens	Size	Type	Type of Test
230	225	16	2 x 5/32	B 50 E	Wet Binder & Filling- (1032 Male & Jute
31	227	16	2 x 5/32	B 50 E	" " " "
29	234	12	2 x 196	154 WOL	Stuffed Binder & Filling (1030 - 1 Cotton
37	236	12	2 x 196	154 WOL	" " " " (1032 - 1 C.C.
9	—	3	13/4 x 1/4	BPT.	" " " " (1033 - Male
	—	4	2 1/2 x 1	BPT.	Wet Binder & Filling (1032 - Male
	—				" " " " (1030 - 1 Cot.
	—				" " " " (1033 - 1 Cot.
25	220	3	1 7/8 x 1/8	2-120	Stuffed Binder & Wet Filling (1033 - Male
	—	3	1 7/8 x 133	2-120	" " " " (1030 - 1 Cot.
	—	3	1 11/16 x 133	2-120	" " " " (1032 - 1 C 2
	—	3	1 13/16 x 133	2-120	" " " " (1032 - 2
62	238	12	2 x 3/16	Rayb.	Wet Binder & Filling (1032 - Male
63	240	12	2 x 3/16	Rayb.	" " " " (1030 - 1 Cot.
62	—	1	2 1/2 x 5/16	P.W.	Wet Binder & Filling (1030 - 1 Cot.
	—	1	3 x 5/16	P.W.	" " " " (1033 - 1 Cot.
	—	2	5 x 5/16	P.W.	" " " " (1030 - 2 Cot.
	—				" " " " (1032 - 1 Cot. Since
83	—	1	9 1/2 x 1	No Wire	Dry (1030 - 2 Cot.
	—	1	9 3/4 x 1	No Wire	Dry (1030 - Rope
45	—	2	3 x 1/2	Bpt.	Wet Binder & Filling (1033 - Male
	—	1	3 1/2 x 1/2	Bpt.	" " " " (1033 - 1 Cot.
	—	3	4 x 1/2	Bpt.	" " " " " "
69	319	20	1 1/2 x 1/8	R.S.	Wet Binder & Filling (1032 - Male
68	321	20	1 1/2 x 1/8	R.S.	" " " " " "

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STRAITFORD PLANT

The samples taken during this survey show improvement in most of the locations.

* The dust concentration around the heaters may vary with the amount of raw material used. The heater room should be separated from the rest of the plant to guard against the pollution of the atmosphere of other sections of the building. The heater used in making pulp which contains litharge should be in a separate room from the others and employees should be required to wear approved respirators.

The dust concentrations at the Blanchard Grinders, Cincinnati Grinder, external grinders, and internal grinders, is probably caused more by the handling of the material than by the machines. Dust can be seen rising from the stacks of rings when they are moved. The employees at these machines have been supplied with approved respirators. The approval should be for lead dust as well as other dusts.

The exhaust equipment installed since the 1935 survey has improved dust conditions in that section of the building and around those machines that have exhaust hoods connected to it.

Sample #25 shows a very high count. This work is done on all clutch facing rings. The dust generated tends to pollute the atmosphere of the entire inspection room. This work should be done in a separate room or an enclosure that has an exhaust system installed to remove the dust generated. The employees doing this work should be supplied with positive pressure respirators supplied with clean air.

* Sample #1, taken in the fibre room of #6 Department, is high. The shaker screen should be enclosed; however, there is only one employee

working in this room, and he is supplied with a respirator which is adequate protection provided that it is maintained properly and used.

Table #3 shows results of 1936 survey.

Table #4 shows comparative results of identical locations or operations of survey of 1935 and survey of 1936.

STRATFORD PLANT - TABLE 1A

Survey of March, 1936	Survey of June, 1935	Dust Count in Millions of Particles per cu. ft. of air sampled	Dust Count in Millions of Particles per cu. ft. of air sampled	Remarks
Sample Number	Sample Number			
1	2	.94	2.3	
2	4	.73	2.6	
3		2.8		
4	12	3.2	4.4	
5	13	4.5	1.4	
6	18	1.4	6.5	
7	22	3.5	2.6	
8	20	2.7	1.4	
9	14	3.0	1.8	
10	27	1.9	4.1	
11	30	4.7	12.8	
12	24	2.0	1.9	
13	32	1.6	2.3	
14	28	.94	1.8	
15	26	1.3	12.0	
16	16	1.4	1.4	

Report No.	Drilling Job Description	Date	Dr. Dr.	Drillings & Per Cu. Ft. ... Barrels	Yard or Per	Less Revenue w/eff. 1/1/64	10/10 m. bar	Revenue
1.	From Room - Shutter Section and Section Number	3/25/56	32.6	19.0	11.2			From Falling into Room Thence
2.	Between sections 11, 12, 14, & 15	"	40.2	.94	5	.00348	.023	0.123
3.	Between sections 14, 15, 17, & 18	"	52.6	.73	4	"	0.00	0.00
5.	Between sections 17, 18, 19 from 10 feet on wall & backing into room 19	"	7.5	6.4	31	.00187	.066	0.66
4.	Falling section 22	"	76.0	4.5	27			
6.	at page 115 - section 1100 on ceiling panels	"	32.6	2.8	17			Room 1100 and 1100 into on to 1100
7.	at 1100 section 1100 (1) section 1100 1100	"	32.0	1.4	8		0.00	0.00
8.	at section 1100 1100 1100 = 3/25/56	"	28.0	3.5	21	.00353	.078	0.958
9.	at section 1100 1100 1100 3/25/56	"	52.6	2.7	16	"	0.00	0.00
10.	section 1100 1100 1100 on wall 1100	"	28.1	1.6	8	"	0.00	0.00
11.	section 1100 1100 1100 on wall 1100	"	3 1.6	3.0	12			0.00
12.	at section 1100 1100 1100 on wall 1100	"	40.6	1.9	11	.00345	.0122	0.122
13.	at section 1100 1100 1100 on wall 1100	"	55.4	1.2	7		0.00	0.00

Serial No.	Station	Date	Qr. Ft.	lit. of particles per cu. ft. of air sample	Type of test	Lead Exposure wd/cu.ft. m/mph	wd/100 sq. ft.	Remarks
14.	same as #6 but tests at station #17	3/26/36	34.0	3.2	1			
15.	between stations 14 & 15	"	43.0	4.7	2	.000326	.0115	0.115
16.	at station 16, 7123	"	21.6	2.0	1	.000	.000	0.000
17.	at station 17, 7124	"	22.6	1.6	1	.000	.000	0.000
18.	at station 18, 7125	"	30.5	.94	1	.000727	.0057	0.277
19.	between 18 & 19 - inspection and collection dept.	"	37.1	1.6	2	.000	.000	0.000
20.	at station 20, 7126	"	36.5	.82	1	.000	.000	0.000
21.	at station 21, 7127	"	27.7	3.5	2	.000	.000	0.000
22.	at station 22, 7128	"	36.9	4.2	2	.000779	.0064	0.264
23.	at station 23, 7129	"	32.6	1.3	1	.000363	.0120	0.120
24.	between station 24 & 25, 7130	"	31.6	2.1	2	.000006	.0313	0.313
25.	between station 25 & 26, 7131	"	26.0	22.1	2	.00051	.0021	0.021

THE RAYBECTOS DIVISION
of

RAYBECTOS-MANHATTAN, INC.

Stamford, Conn.

A third survey of this plant was conducted on October 12, 13 and 16, 1939 by the Industrial Health Section of the Metropolitan Life Insurance Company. The two previous surveys had been made during March, 1930 and June, 1935.

This plant is engaged in the manufacture of packing, gaskets, and brake linings. Since the previous surveys the seven brake lining processes have been eliminated and new processes have been installed.

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MAX GLAUBACH, C.S.R.
CERTIFIED IN
NEW YORK & NEW YORK

P. Pearlson U
Exam No. — — For M. L. H. Ind.

Exhibit F

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PLANT CONSTRUCTION

The plant is housed in a number of one and two story brick buildings of modern construction. Ample natural illumination and ventilation are supplied by numerous side wall windows and skylights. Offices are located in separate buildings apart from the manufacturing departments.

PLANT PROCESSES

Bldg. A, Dept. 12. Sheet Packing

In this building sheet packing is made, from which brake lining, gaskets, and packing are stamped or cut.

Asbestos Room

Asbestos used in sheet packing is prepared for use in a crusher and opener. The asbestos is graded on screens. The asbestos passing through the opener is dumped on the floor and then hand shoveled into the opener. The opened asbestos is then conveyed by air to a hopper on the roof and dropped through pipes into the grading screens or directly into a hand truck. Scrap material is ground in a pulverizer, then conveyed by air to hoppers on the roof and dropped through pipes directly into bags. The lone operator in this room is supplied with an approved dust respirator. This room opens directly into the dry mold mix room and the main mixing and roll room. Since the previous survey, the equipment in this room has been improved. Sample 6 of 1935 survey and sample 3 of the present survey show that good results have been obtained.

Dry Mold Mix Room

Material for the dry mold mix is hand scooped from original containers and dumped into a barrel on a scale. Most of the material used in

kept in loosely covered or uncovered containers. After the batch is weighed out, the operator carries the barrel up a flight of stairs to a platform and dumps the batch into the mixer. The mixed batch is then dropped from the bottom of the mixer into a truck. The materials used in these batches contain asbestos, carbolite, resin, anticiser (plasticiser) and scrap. Two rubber mills are located in this room. At the time of sampling one of these mills was operating. The rubber is thrown around the floor scattering some asbestrous dust. Respirators are available to the operator but it was noted that the respirator was not worn. No exhaust equipment is used in this department.

Rubber Compounding Room

This room is located at one end of the building and opens into the mixing and roll room. The operations in this room are intermittent. Batches containing large quantities of litharge (12% free lead) and mica are weighed out from original containers into a pan on a scale. The mica is received in bags. These bags are ripped open down the middle and allowed to lie on the floor. It was noticed that during the weighing considerable quantities of the litharge and mica were spilled upon the scale and floor where they were allowed to remain until close to the end of the shift. The floors and scale were then cleaned by dry sweeping. The complete batch contains liquid bekelite, sulphur, mica, asbestos, litharge, anticiser, scrap and rubber. The percent of litharge in the batch varies from 30 to 35%. The weighed batch is then trucked to the mixers into which it is dumped and mixed with carbolite and asbestos. The operator working in this department had been at one time supplied with a dust respirator but preferred to work without it, explaining that it interfered with his glasses. He also said it was too hot for comfort. This man stated that he has been engaged at this work for about seven years.

Mixing and Rolling

In this department the batches are mixed with gasoline in closed mixers. The mixed material is then hand shoveled from the mixer into the rolls. One roll is hot, the other cold. The material adheres to the cold roll. The material is rolled to the desired thickness. From the rolls the material is then run onto cutting tables where the sheets are cut to length. The gasoline used is recovered in a condenser located in the same room. From the sheets, rings, gaskets and packing are stamped out on power machines.

One end of the building is used for storage of raw material.

Main Building, Dept. 20 - Asbestos Board

Asbestos board used in making clutch facing and a special material called L8 is made in this department.

Scrap material and raw asbestos are hand dumped into paper beaters, mixed with water and starch and worked to the proper consistency. The pulp is then passed through the rolls to the required thickness. The L8 material which is composed of asbestos, atomized metallic lead, alum, gilsonite, graphite, and scrap are mixed in a beater and the pulp pumped to storage tanks. The atomized lead is about 200 mesh. The lead is dumped on a piece of cardboard on the floor in front of the beater and is sieved into the pulp by hand shoveling into a sieve resting on the top of the beater. The wet pulp is run from the beaters to storage tanks. From the storage tank the wet pulp is run into troughs (offline) where the water is drained out, leaving the solid material in the trough. The solid material is then transferred to a heated press where it is pressed to required thickness, removed and cut into strips by hand. It is noted that the operator handling the atomized lead as well as others is clothed

proximity did not wear respirators.

Cutting Dept. #21.

Asbestos board is cut to size for the punching machines. Facings are stamped out on machines by men and wiped and stacked on skips by girls. The composition of this board is practically 95% or more asbestos.

Finishing Dept. #24

Facings are cured and then finished. The finishing operations include grinding surfaces and edges on Blanchard, Cincinnati and cylinder grinders; drilling and shot blasting. All machines in this department are equipped with exhaust systems. On the Blanchard grinders and drilling operations these exhaust systems are augmented by the use of compressed air. At the time of this survey, the compressed air line on the grinder, machine #768, sample #19, had been moved out of position, causing puffs of dust to be dispersed into the atmosphere with each revolution of the grinder. This condition was readily remedied after attention had been called to the condition. Considerable dust adhering to the clutch facings is dispersed into the atmosphere when loading the machines and restacking the facings on the skips. No provision is made to entrain the dust at these points.

Dry Mold

This is a new operation. The mixture for this operation is made in building #5. At the time of this survey machines were being installed or renovated, so that tests taken at this operation would not have been representative. Therefore, no tests were made.

Wire-mold

The materials used in the wire-mold batch are mixed in small mixers

in a partitioned area on the main floor. These materials include asbestos, hardwood pitch, sulphur, lampblack, graphite, asbestos, powdered white lead and index oil. The hardwood pitch is run through a grinder four times to the required mesh. The pitch is hand scooped from the container into the grinder. This grinder is enclosed and exhausted. The powdered white lead, as well as the pitch and index oils, are kept in open barrels just outside the partition on the main floor. The compounded batch is used on the wire-mold machine which is also located in this partition. The men engaged at batch mixing wear dust respirators, but the men at the machine a few feet from the mixer are not so protected. The mixed material is pressed around a wire backing and is used to make brake lining. Information was advanced that plans and appropriations have been made to provide dust control at these operations.

Pants. 22 and 24 - Molded and Rubber Brake

Molded and rubber brake linings are finished in these departments. The operations consist of grinding and drilling. All machines, with the exception of a few small drill presses (machines #350, 277 and 93) are exhausted.

Pant. 27 - L6 Pressing

In this department L6 brake lining is shaped and pressed in molds. Soapstone is hand dusted to prevent the linings from sticking. The operator on this job wears an approved dust respirator.

Solvent Room

The ropes used on the brake linings and clutch facings are prepared and stored in a separate brick building. All solvents are kept and prepared in closed tanks. The main solvents used are xylol, formaldehyde, crotylic acid and acetone. The acetone is stored in tanks outside the building. The

prepared saturant is pumped to the saturation room as required. The asphalt used in the saturation is not a cold tar product.

Other operations and departments include inspection, assembly of parts and packing of finished product, also a machine shop and stock section. These operations are located in the newest section of the main building. There are no dusts produced by these operations.

PERSONAL FACILITIES AND PLANT HOUSEKEEPING

Ample washing and toilet facilities are provided. Drinking water is supplied from mechanically cooled bubbler fountains. A restaurant is available to all employees. A first aid room under the direction of a full time nurse is maintained.

Housekeeping in general is good. Aisles are well defined and are always kept free from obstructions. Vacuum cleaning is employed on the rafters, walls and floors in the main building. It is planned to extend this to other buildings.

Safety meetings are held once a week, at which time the employees' representatives, as well as the foreman, are present and take an active part in the proceedings.

METHOD OF SAMPLING AND ANALYSIS

Atmospheric dust samples were taken with the impinger⁽¹⁾ and the solvent fume with the interferometer at the breathing level of the workers at representative operations. The interferometer is an instrument designed for use in detecting gases and vapors. The impinger, developed by the United States Public Health Service, is the standard method used in this country. Air is drawn in through a glass tube at the rate of one cubic foot per minute.

(1)U.S. Public Health Service, Public Health Bulletin #217, Intermination and Control of Industrial Inst, J.J. Blockfield and J.M. Callaway, 1935.

The tube ends in a constricted orifice under the surface of distilled water contained in a flask. The air passes through the orifice and impinges upon a glass plate which breaks up the air stream, allowing the dust particles to be wet and entrapped in the water in the flask.

Alcohol is added to the sample as a preservative to inhibit the solution of the fine particles and also to prevent the formation of aggregates of the fine particles by clumping.

Suction is supplied for drawing the air sample through the impinger by means of an ejector, or else an electrically driven pump where compressed air is not available to actuate the impinger.

The dust counts were made by the methods and techniques developed and used by the United States Public Health Service.

The following table offers comparison of the results of analysis of samples taken at identical locations for the 1935 and 1939 surveys. As asbestos is involved at practically all operations, dust counts are given as total count in millions of particles per cubic foot of air.

[illegible]

Ab. of efflu- ence	10.0	2.0	1.0	0.5	0.25	0.125	0.0625	0.03125	0.015625	0.0078125	0.00390625	0.001953125	0.0009765625	0.00048828125	0.000244140625	0.0001220703125	0.00006103515625	0.000030517578125	0.0000152587890625	0.00000762939453125	0.000003814697265625	0.0000019073486328125	0.00000095367431640625	0.000000476837158203125	0.0000002384185791015625	0.00000011920928955078125	0.000000059604644775390625	0.0000000298023223876953125	0.00000001490116119384765625	0.000000007450580596923828125	0.0000000037252902984619140625	0.00000000186264514923095703125	0.000000000931322574615478515625	0.0000000004656612873077392578125	0.00000000023283064365386962890625	0.000000000116415321826934814453125	0.0000000000582076609134674071875	0.00000000002910383045673370359375	0.000000000014551915228366851796875	0.0000000000072759576141834258984375	0.00000000000363797880709171294921875	0.000000000001818989403545856474609375	0.0000000000009094947017729282373046875	0.00000000000045474735088646411865234375	0.000000000000227373675443232059326171875	0.0000000000001136868377216160296630859375	0.00000000000005684341886080801483154296875	0.000000000000028421709430404007415771484375	0.0000000000000142108547152020037078857421875	0.00000000000000710542735760100185394287109375	0.000000000000003552713678800500926971435546875	0.0000000000000017763568394002504634857177734375	0.0000000000000008881784197001252317428588896875	0.00000000000000044408920985006261587142944484375	0.000000000000000222044604925031307935714722421875	0.0000000000000001110223024625156539678573612109375	0.00000000000000005551115123125782698392868060546875	0.000000000000000027755575615628913491964340302734375	0.0000000000000000138777878078144567459821701513671875	0.0000000000000000069388939039072283729910850756589375	0.00000000000000000346944695195361418649554253782946875	0.000000000000000001734723475976807093247771268914734375	0.00000000000000000086736173798840354662388563445721875	0.000000000000000000433680868994201773311942817238609375	0.0000000000000000002168404344971008866559714086193046875	0.00000000000000000010842021724855044332798570430965234375	0.000000000000000000054210108624275221663992852154826171875	0.0000000000000000000271050543121376108319964260774130859375	0.00000000000000000001355252715606880541599821303870654296875	0.000000000000000000006776263578034402707999106519353271484375	0.0000000000000000000033881317890172013539995532596766357421875	0.00000000000000000000169406589450860067699977662983831787109375	0.000000000000000000000847032947254300338499888314919158935546875	0.0000000000000000000004235164736271501692499441574595794677734375	0.00000000000000000000021175823681357508462497207872978973388671875	0.000000000000000000000105879118406787542312486039364894866943359375	0.0000000000000000000000529395592033937711562430196824474334716796875	0.00000000000000000000002646977960169688557812150984122371673583984375	0.000000000000000000000013234889800848442778906254920611358367919921875	0.0000000000000000000000066174449004242213894531274603056791895999609375	0.00000000000000000000000330872245021211069472656373015283959479998046875	0.000000000000000000000001654361225106055347363281865076419797399990234375	0.0000000000000000000000008271806125530276736816409325382098986999951171875	0.00000000000000000000000041359030627651383684082046626910494934999755859375	0.000000000000000000000000206795153138256918420410233134552474674998779296875	0.0000000000000000000000001033975765691284592102051165672762373374998938984375	0.00000000000000000000000005169878828456422960510255828363811866874994694921875	0.000000000000000000000000025849394142282114802551279141819059334374973474609375	0.0000000000000000000000000129246970711410574012756395709095296671873737373046875	0.00000000000000000000000000646234853557052870063781978545476483359368686865234375	0.0000000000000000000000000032311742677852643503189098927273824167968434343434375	0.00000000000000000000000000161558713389263217515945494636369120839842171717171875	0.000000000000000000000000000807793566946316087579727473181845619699210858585859375	0.0000000000000000000000000004038967834731580437898637365909228098496054292929296875	0.00000000000000000000000000020194839173657902189493186829546140492480271464646484375	0.000000000000000000000000000100974195868289510947245934147730722462401357323232421875	0.0000000000000000000000000000504870979341447554736229670738653612312006786616161616171875	0.00000000000000000000000000002524354896707237773681148353693268061500339433080808080859375	0.000000000000000000000000000012621774483536188868405741768466340307501697165404040404296875	0.0000000000000000000000000000063108872417680944342028708842331701537508485827020202021484375	0.00000000000000000000000000000315544362088404721710143544211658507687542429135101010107421875	0.000000000000000000000000000001577721810442023608550717721058292538437712055675505050537109375	0.0000000000000000000000000000007888609052210118042753588605291462692188560278377525252685546875	0.0000000000000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FRONT

Location	Date of Sampling	Gm. Pts. Air Sampled	Millions Dust Particles per cu. ft.	Milligrams Lead per cc.	Milligrams Lead per 10-cc.	Type of Dust	Remarks
Room 6, Dept. 376 control room at laboratory	10/12/39	30.0	19.0	16		Asbestos	1 may approved dust respirator worn. No dust control applied at this sampling.
Verifier, under at	"	43.0	3.0	73		"	Sweep band removed from floor into polystyrene.
Operator	"	38.0	6.0	39		"	Asbestos escaped from fl. by hand late operator.
Yield side room	"	21.0	24.0	36		Asbestos slag perlite into barrel on the scale, in respirator worn. In plasticizer dust control applied.	All materials hand shovelled from original containers into barrel on the scale. No respirator worn. In plasticizer dust control applied.
Steam mixer #13 and roll #14 rolling batch #10	"	20.0	3.0	19	0.03	Litharge rubber oil soluble are for	Shredded closed valve running
Bottom sludge #13 and #14	"	30.0	49.0	7		Cerbelite	Considerable dust given off when sampling and mill material broken out.
Water evaporating room	"	9.0	20.0	7	0.007	Litharge slag rubber oil soluble are for	1 may intermittent spray they respirator had been applied but not worn so dust control applied.
Dust on sample #7	10/12/39	12.0	51.0	10	0.007	"	No dust control applied.
Ing table, line #14, steel	10/12/39	25.0	6.0	36	0	"	2 mm
on rolls #14 sludge #13 and	"	42.0	2.5	18	0	"	Mixers and rolls cleaned while operating.
r press, machine	10/12/39	38.0	3.0	1	0	"	
#14, Dept. 376 on bottom #1 & 3	"	50.0	3.5	21		Asbestos	Sweep material fed into bottom by hand.
of #1, 1B steel	"	70.0	6.0	39	0.007	Asbestos slag perlite into barrel on the scale, in respirator worn. In plasticizer dust control applied.	Ketallite lead dumped on a barrel on the floor and hand shovelled into a close over the boiler. Respirator worn not worn. In dust control applied.

CONCLUSIONS AND RECOMMENDATIONS

In the asbestos room the count at the crusher is high (sample #1). Apparently the operator was overloading the pans. Crushed asbestos was falling upon the floor, necessitating frequent sweeping and hand shoveling. It is recommended that the amount of material that can be handled without spilling on the floor be ascertained and controlled. Enclosing this crusher would also be of value. Since the other operations in this room are now well controlled, as evidenced by samples #2 and 3, it is not necessary to install an elaborate system for this one machine. The operator is supplied with and wears the proper type of respirator. *Lead filling*

The dry mold batch weighing is a dust dispersing operation (sample #4). The operator is exposed to the heavy concentrations because of the close proximity of his face to the containers while scooping out the ingredients and carrying the weighed batch up the stairs to the mixer platform.

It is recommended that all batch weighing operations - dry mold, wire-mold and rubber compounding - be done at one point where effective control by exhaust systems should be installed.

Hand handling of materials should be eliminated as much as possible. The resin (bakelite) used in this batch may produce a dermatitis. Therefore, it will be necessary to provide some protection for the skin if the resin is to be handled by hand. Weighed batches should then be kept in closed containers when transporting to the department where they are to be used. Vacuum system should be used for all cleaning purposes. *Yours*

The mixing and rolling operations do not present any dusty conditions, with the exception of mixers #312 and 313 (sample #6). At this point consider

Can mixing be done in a closed room? or enclosed? or in a hood?

While cordolite dust is dispersed when dumping and mixing, until the material becomes thoroughly wet. This is for a short time only. The floor around these mixers is slippery due to the spilled material and moisture. These operators could be adequately protected if they were supplied with and wore approved dust respirators while handling and dumping the cordolite. The floor should be kept free of the dust to eliminate the hazardous slippery condition that exists. Hendy

Concentrations of 128 to 150 parts per million of gasoline vapors were detected in department 19, mixing and milling room. This concentration is far below approximately 1,000 parts per million, which is the maximum concentration allowable for prolonged exposure.

The batch weighing operations in the rubber compounding room are definitely hazardous under the present methods of operation. Samples 7 and 11 show concentrations of lead far in excess of the toxic limits, which have been determined to be 1.5 milligrams in a ten-hour day. The dust respirators supplied to the operator are not approved for lead dust. As this operator has not worn the respirator supplied him and has been exposed for a period of seven years, on and off, it is recommended that he be physically examined. Symptoms of lead poisoning are given in the rear of the report for the information of your physician. new
room
approved
respirator

Sample #15 does not indicate the need for any further protection for the operators working in the vicinity of #1 heater, other than the proper type of respirator. As this is an intermittent and a comparatively short operation, the insistence by the formula that the respirators be worn should not be a serious hardship for the men.

Sample #19 (in the finishing department between Blanchard grinders #71 and #63) shows a definite hazardous condition. Although this result was

MAX GLAUBACH, C.S.R.
CERTIFIED BY
DIV. 10 NEW YORK

Exhibit No.

P. Pearson 12
for M. H. H. H.

Return to
A. Simpson
Bridgeport, Ct.

CHARLESTON 1930

Exhibit G