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1.	269	1939	Met Life Survey of Lancaster Floor Division of Armstrong Cork
2.	267	8/25/39	AM George to GB Blaisdell RE: Lancaster Survey
3.	848	1943	Health Aspects of Fiberglas Materials, OCF
4.	250	4/44	Armstrong Advertisement
5.	A 21	6/15/45	Memo on Asbestosis Regulations to R Newton
6.	279 (AC-64)	1948	Met Life Survey of Lancaster Floor Division of Armstrong Cork
7.		March 31, 1948	Inter-Office Communication to Morrison
8.	1028	April 25, 1949	Inter-Office Communication
9.	A 22	1951	Armstrong's Insulation Sundries
10.	283	11/52	Excerpted from Bureau of Industrial Hygiene Survey
11.	224	9/11/53	JH Appleyard to DM Wegman
12.	AC-306 221	May 6, 1954	Inter-Office Communication from Nunan to Wegman Re: Harriet Hardy
13.	212	5/25/54	Workers Comp Coase: Rothwell. Report of Evidence, Dr. Harriet Hardy
14.	1037	October 7, 1954	Occupational Health Hazards
15.	1009	1955	Raw Materials Testing Section Recommendation on Raw Material Hazards, Effective March 9, 1955
16.	214	10/4/55	Standard Accident Insurance Co. to Armstrong RE: Campbell Comp Claim
17.	A 9	7/56	Kaylo Advertisement
18.	AC-38	August 29, 1956	Alexander & Alexander, Inc., to Hughes with enclosures.
19.	215	7/30/57	Notice of Decision RE: Coll; Letters RE: Coll Comp Claim
20.	225	5/8/58	Alexander and Alexander to WL Hughes RE: Cuthbertson Comp Claim
21.	A 8	1959	Compensation Claim: EO McCarrell
22.	220	5/1/59	Alexander and Alexander to RC Schiedt RE: H Haake
23.	247	8/5/59	RC Schiedt to JS Taylor
24.	233	2/15/60	CA Moreland, Travelers, to Alexander and Alexander RE: Reed Claim
25.	221 (A 7)	9/21/61	Report of Referee on Harding Comp Claim
26.	234	11/3/61	Alexander and Alexander to WL Hughes RE: Riley Claim
27.	200	12/27/61	EH Shulz to JE Zeller
28.	201	1/17/62	WB Hofferth to JE Zeller
29.	202	5/31/62	RB Ross to JE Zeller
30.	245	7/11/62	RB Ross to FL Gardner RE: Staples Accident Claim
31.	218	1963	Gronenthal Comp Claim: Decision
1. A	213	2/19/63	Alexander and Alexander to AC Insurance Department Re: Brodale Comp claim
2. A	217	6/5/64	Industrial Accident Commission RE: Faulkner Comp Claim
3. A	232	10/21/64	Barnet to Bilchak
4. A	A44 (210)	1/19/67	WB Hofferth to FL Gardner
5. A	705 (AC 107)	August 16, 1967	Hofferth to Gardner
6. A		January 17, 1968	Inter-Office Communication from Taylor to All District Managers
7. A	1026 A - 98	February 14, 1969 12/16/68	Graduate School of Public Health, University of Pittsburgh to Walters
8. A	252	3/21/75	AE Mays to HA Scrimshaw, Gold Bond
9. A	NG 219 (251)	5/27/75	AE Mays to WL Reith
10. A	259	11/10/76	Minutes of the Enterprise Liability Study Group

EXHIBIT

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11. A	A 10a	12/16/82	Armstrong Answer to Master Set of Requests for Admission and Interrogatories
12. A	AC 11a	11/1/85	Armstrong Answer to Master Set of Interrogatories
13. A	A 12	8/2/88	Armstrong Answer to Plaintiff's Interrogatories
14. A	AC 11b	8/31/90	Amended Answers to Master Set of Interrogatories
15. A	262.1		Document Prepared by AE Mays
16. A	AC-93	1991	Document #309 Produced in Heathman v. GAF
17. A	A13a	1/13/91	Armstrong Answers and Objections to Interrogatories in Thrapp and Thrapp vs. Armstrong World Industries, et al.
18. A	A 13b	4/12/91	Armstrong Amended Answers and Objections to Interrogatories in Thrapp and Thrapp vs. Armstrong World Industries, et al.

ARMSTRONG CORK COMPANY

FLOOR DIVISION

LANCASTER, PENNSYLVANIA

A study of this plant was conducted from March 17 to April 7, 1946 by the Industrial Health Section, Health and Welfare Division of the Metropolitan Life Insurance Company to determine the health hazards, if any, associated with the manufacturing operations. Previous studies were made in 1935, 1939 and 1943.

The results of the current study led to the following recommendations:

1. All exhaust systems should be kept properly repaired and maintained.
2. Lead free pigments should be used wherever possible. If pigments containing lead in any form must be used, the Medical and Safety Departments should be informed.
3. Exhaust ventilating systems at pigment or color scales should be re-designed to efficiently entrap and remove all dust produced by the operation.
4. Periodic samples of urine and/or blood should be collected from those employees who handle or are exposed to lead pigments or litharge and should be analyzed for lead to determine possible absorption. In collecting the samples, necessary precautions should be taken to prevent contamination from the hands or clothes of the employees and the samples should be analyzed by trained, experienced personnel.
5. Eating should be forbidden in locations where lead pigments are used. Employees who work in these areas should be cautioned to wash hands and face thoroughly before eating.
6. Employees handling lead pigments should be instructed as to the need for careful operating procedures to prevent dispersion of the dust into the atmosphere.

7. Building #59-A - Litharge should be weighed directly into the bucket to be used for charging, rather than being dumped into the charging bucket from a tared weighing bucket.
8. The exhaust system at the welding table in the Sheet Metal Shop should be re-designed to remove the welding fumes at their source. This may best be done by the use of a flexible, easily adjustable exhaust duct, or by lateral exhaust if the nature and size of the work will permit.
9. Lids should be provided for the charging chutes in the Asphalt Tile Building. These chutes should be kept covered except when charging is taking place.
10. Positive exhaust ventilation should be applied to the lead melting pot and at the pouring table in the Machine Shop, Building #30-N.
11. The present shot blasting equipment in Building #72 should be replaced with modern equipment that will provide a more efficient method of entrapping and collecting the dust.
12. The use of compressed air for floor cleaning should be discontinued, also dry sweeping - especially in departments where lead bearing dusts are encountered. Vacuum cleaning methods should be employed.
13. Approved type dust respirators should be used by yard men, and car unloaders in the Sundries Department, when unloading bulk or bagged raw materials - especially when handling asbestos or siliceous materials.
14. The general ventilation in Building #406 should be increased by the use of wall or ceiling ventilating fans, especially in the area of #3 Lacquer Machine, front end.
15. Operators at all hopper or mixer charging operations should be instructed to handle with reasonable care all bags of raw material and, after emptying, the bags should be shaken within the effective range of the exhaust hoods. A separate exhausted hood should be provided to take care of the shaking and stacking of empty bags where required.
16. The inlay backing-in operation should be studied to devise a method of ventilation to prevent the vapors of mineral spirits from accumulating at the rear of the machine close to the wall.

Millions of dust
particles less
than 10 microns
in greatest di-
ameter per cu.
ft. air sampled.

Material
Determined
Meter
Parts
per
Million

Remarks

Four men in area.

Sample
No.

Location

Date

Asbestos

135 Yard Department. Bldg. #500.
Stacking bags of asbestos for
storage.

3/30/48

52.6

Gilsonite

159 Bldg. #500. Unloading bagged
Gilsonite from box cars.

4/1/48

22.2

Whiting

17 Yard Dept. - Inside freight car
while unloading bagged whiting.

3/20/48

77.8

Miscellaneous

18 Linotype Dept. - Bldg. #32.
6th floor, between two presses.

"

1.3

Iron oxide
and Metal

19 Bldg. #32 - 6th floor. Machine
Shop section. General air.

"

1.8

Miscellaneous

20 Bldg. #32 - 5th floor. At
"Back-in".

"

1.3

"

21 Bldg. #32 - 3rd floor. Be-
tween two saws.

"

1.5

0.000

Lead

2 Callender Dept. - Bldg. #44.
6th floor - At beef roll.

"

1.6

0.115

Lead

13 Bldg. #44 - 6th floor. Between
#11 & #12 Charging hoppers.

"

2.8

Wood flour

5 Bldg. #44 - 6th floor. Between
#1 and #2 charging hoppers.

"

2.7

Wood flour
Whiting
Pigment.

3/22/48

4.0

0.199

Lead

Wood flour
Whiting
Pigment.

7 Bldg. #44 - 5th floor. Between
wood flour screening and scrap
receiving.

"

3.7

Millions of dust particles less than 10 microns in greatest diameter per cu. ft. air sampled.

Sample No.	Location	Date	Type of Dust	Material Determined	Parts per Million	Remarks
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114	Bldg. 35-A - 2nd floor. Inspection and packaging end of line.	3/25/48	Serpentine			
		5.9	Asbestos			
115	Bldg. 35-A - 1st floor. Finishing and packaging of Cobin Base.	"	Resins			
		4.4	Pigment			
116	Boiler House - Bldg. #40 - General air on stoker floor.	"	Coal			Boilers stoker fired. Flue cleaned during sampling.
124	Yard Dept. - Bldg. #49, Cork Storage Bldg. Stacking bales of cork.	3/26/48	Cork			
125	Yard Dept - Unloading car of baled cork.	"	Cork			
		14.1				
132	Yard Dept - Unloading Superfine firwood flour from box cars.	3/30/48	Wood			Two men in car passing bags to two men on trucks.
133	Yard Dept. Bldg. #62-B, #4 shed. Storing bags of Superfine firwood flour.	"	Wood			Four men in area.
		271.				
134	Yard Dept. - Unloading bags of asbestos	"	Asbestos			Two men in car, one man on truck.
		148.				
126	Cut Order Dept. - Bldg. #150. General air sample.	3/29/48	Miscellaneous			
		2.7				
127	Inspection & Trimming, Bldg. #155. Alongside #7 trimming and roll-up table.	"	Miscellaneous			Working 1/8" plain burlap backing.
		3.6				
128	Inspection & Trimming, Bldg. #155. Between #6 & #7 trimming tables at trade-mark inking end.	3/30/48	Miscellaneous			Working #6 burlap backing.
		5.4				

this building.

Sizing Department

Dust concentrations in this department were low and the free silica content of the dust was negligible. No potential health hazard was detected.

Bag Cleaning

This operation is done in a separate building. The bags are attached to an exhaust duct which draws the bag inside out and into the exhaust duct. That dust is dispersed into the atmosphere is produced by hand handling prior to cleaning.

At the time of sampling in this area, bags that had contained wood flour principally, and a very few with serpentine, were being cleaned. The dust concentration found, considering the comparatively non-toxic nature of the dust, does not indicate any health hazard. However, when cleaning bags that had contained more toxic substances, such as asbestos or highly siliceous material, a dust concentration in the same range would indicate a potential health hazard.

Linotile Department

Dust concentrations were low and no potential hazard was observed.

Callender Department

The only potential hazard detected in this department was at the operations involving the handling of lead pigments. A mixed sample of colors #35 and #38 was analyzed and found to contain 35.5 per cent lead. An air sample, #49, collected at the color weighing operation showed the presence of an average lead concentration of 3.71 milligrams of lead per cubic meter. Samples #46 and #48,

that the vapor was produced by the heating of the various oils added to the mix. The irritating condition was noticed principally during unloading of the B & Q² Mixer on the 4th floor, and at the hopper charging area on the 3rd floor. A man cooler fan is located at the B & Q² hopper on the 4th floor. The vapors on the 3rd floor can be controlled by keeping the loading chutes closed.

Yard Department

Exceedingly high dust concentrations were found at wood flour, asbestos and whiting ear unloading operations. Samples #132 and #133, taken while unloading and stacking bags of Super-fine fir wood flour, and Sample #37, taken while unloading whiting, show concentrations exceeding 50 million dust particles per cubic foot of air - a standard now being suggested for non-toxic and non-siliceous dusts. No respirators are worn by the men while unloading.

Sampler #134 and #135 show very high dust concentrations for asbestos, exceeding the maximum allowable limit of 5 million particles per cubic foot of air. Although the exposure to the asbestos dust is not constant, it is, however, frequent enough to warrant dust control measures either by exhaust control equipment or by the use of personal respiratory protective devices. The same crews of men are used daily for unloading various raw materials. This means that their exposure to high dust concentrations of one kind or another is quite frequent.

Cut Order Department, Building #150 - Inspection and Trimming Building. #155. Crate Shop Dept., Building #435.

No excessive or toxic concentrations of dust or solvent vapors were found in these departments.

* Tube Winding Department, Building #158

Sample #138, taken while cleaning up, is the only sample to show a dust

ARMSTRONG CORK COMPANY

FLOOR DIVISION

Health Hazards

Asbestos

Asbestosis is a pneumoconiosis caused by the inhalation of asbestos dust. It is distinct from silicosis in its pathology and clinical course. As long as asbestos fibers continue to be inhaled, scar tissue develops as a gradually thickening sleeve about the respiratory bronchioles. The stimulus from inhaled asbestos may be mechanical rather than chemical. Asbestosis is a disease which must always be watched for where asbestos dust is present. With respect to tuberculosis and asbestosis, the two diseases may coexist, but there does not appear to be a predisposition to tuberculosis as is the case with silicosis. The Threshold limit for asbestos dust adopted by the American Conference of Governmental Hygienists at their 1948 meeting is 5 million particles of asbestos per cubic foot of air.

Wood Dust

Wood dust has possibly a tendency to irritate the upper respiratory tract and, in hypersensitive individuals, may cause asthma and the like. Very rarely fungous disease is reported as occurring due to the inhalation of wood dust on which molds have grown. Ordinarily, wood dust is not hazardous to the lungs.

Whiting

The dust of whiting, which is understood to be calcium carbonate, would not be expected to cause any lung trouble even in fairly high concentrations.