

RESULTS OF SAMPLING

at

AMERICAN ASBESTOS TEXTILE
Meredith, New Hampshire

Report Prepared By:

Howard E. Ayer

July, 1964

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA 22161

ATTENTION

PORTIONS OF THIS REPORT ARE NOT LEGIBLE.
HOWEVER, IT IS THE BEST REPRODUCTION
AVAILABLE FROM THE COPY SENT TO NTIS.

REPORT DOCUMENTATION PAGE	1. REPORT NO. IWS-32.15a	2. NA	3. Recipient's Accession No. NA
4. Title and Subtitle Results of Sampling at American Asbestos Textile, Meredith, New Hampshire			5. Report Date July, 1964
7. Author(s) Ayer, H.E.			6. NA
9. Performing Organization Name and Address Environmental Investigations Branch Division of Field Studies and Clinical Investigations National Institute for Occupational Safety and Health Cincinnati, Ohio			8. Performing Organization Rept. No. NA
12. Sponsoring Organization Name and Address Same as Above			10. Project/Task/Work Unit No. NA
			11. Contract(C) or Grant(G) No. (C) NA (G)
13. Type of Report & Period Covered Industry-wide Study			14. NA
15. Supplementary Notes NA			
16. Abstract (Limit: 200 words) General air samples for asbestos (1332214) were collected at the American Asbestos Textile Company (SIC-3292) in Meredith, New Hampshire, and were analyzed by the membrane filter method and the impinger count method. Extensive measurements provided by each method from samples collected in the fiber preparation and blending, carding, spinning, twisting, winding, weaving and miscellaneous areas are listed. The author recommends control evaluation in areas where concentrations exceed 50 fibers per cubic centimeter measured by the membrane filter method, or 5 million particles per cubic foot measured by the impinger method.			
17. Document Analysis a. Descriptors Field-Study, Air-sampling, Textile-industry, Asbestos-dust, Health-survey, Dust-exposure, Industrial-health, Industrial-hygiene, Standards, Control-methods			
b. Identifiers/Open-Ended Terms			
c. COSATI Field/Group			
18. Availability Statement Available to the Public	19. Security Class (This Report) NA	21. No. of Pages 10	
	20. Security Class (This Page)	22. Price	

July 14, 1964

Through: State Health Officer

Mr. Forrest H. Burford, Director
Occupational Health Service
Division of Public Health
Department of Health and Welfare
61 South Spring Street
Concord, New Hampshire

Dear Forrest:

Enclosed are two copies of the results of sampling at the American Asbestos Textile Company's Meredith plant. The samples have been completed for some time now, but we have been reluctant to report the results until we had something to say about the significance of the fiber counts on the membrane filters.

Each of the membrane filters was rendered transparent and counted using a 4 mm (43X) phase contrast objective. Counts were recorded for all fibers and for fibers longer than 10 microns. Some of the samples taken purely for research purposes, i.e., pre-elutriated membrane and impinger samples are not reported here.

To determine the relationship between the fiber counts as determined by the above method and impinger counts by the "standard method," we compared the impinger-membrane pairs taken simultaneously. It was found that the ratios between the counts varied considerably from operation to operation and from plant to plant. Over-all, however, considering all operations in the four asbestos textile plants studied so far, it appears that total fiber counts less than 50 fibers per cubic centimeter or 10 micron fiber counts less than 15 per cubic centimeter are found about as often as impinger counts less than 5 m.p.p.c.f. We are told that present day asbestos contains much less "dust" than it did previously, so we have no way of knowing whether similar relationships would have been found in the 1930's when the epidemiological studies of asbestosis were made. Nevertheless, these values, 50 fibers per cubic centimeter or 15 ten micron fibers per cubic centimeter do appear to be representative of 5 m.p.p.c.f. impinger counts under present conditions, and I would suggest that operations where these values are approached be examined to see whether better control may be achieved.

We expect to gather a considerable amount of information from our electron micrographs to assist in further interpretation of the filter counts in respect to total exposure to fibers of various sizes. As yet, there have been too few electron micrographs to draw any conclusions.

Mr. Forrest H. Dunford - 7/14/64

I hope that the information included here will enable you to discuss the results with plant management. I am presently preparing a paper for delivery October 20 at the Conference on Biological Effects of Asbestos sponsored by the New York Academy of Science. This paper discusses the difference between various operations and plants, and will give the basis for these suggestions of fiber count limits. When it has been completed and cleared, I will send you a copy.

Good luck in the sweepstakes!

Sincerely yours,

Howard E. Ayer
Senior Sanitary Engineer
Asst. Chief, Engineering
Section
Research and Technical
Services Branch

Enclosure

cc: Dr. Siegal (2)

HEAYER:rg

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Total	Fibers/cc 10 μ +
Fiber Prep. & Blending (continued)					
General Air (cont.)	309	0.4			
	613	-			
			614	13.5	3.9
	615	1.6	616	6.4	1.6
	617	2.0	618	4.0	2.3
	619	0.46	620	4.5	1.1
	621	1.1	622	3.6	1.4
	623	1.5	624	3.0	0.9
	710	3.7	711	19.4	3.5
	712	3.6	713	23.2	4.4
	714	0.8	715	(1.0)	0.0
	716	0.3	717	15.0	0.7
	718	1.5	719	14.4	3.7
	720	1.1	721	27.0	6.7
Carding					
Foreman Fixer			312	6.8	2.2
	503	3.3	502	21.7	5.3
Second Hand			126	22.3	10.0
			314	16.7	5.1
			318	28.3	4.5
			125	31.7	6.9
Card operator	127	2.0	315	19.9	2.5
	319	3.0	371	11.4	2.2
	373	2.7	441	9.5	4.6
	441	4.3	442	11.2	4.2
	501	3.1	500		

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Total	Fibers/cc 10 μ +
Card Operator (continued)	515	2.3	514	13.4	2.6
	612	2.0	611	10.7	4.4
			116	33.9	7.4
			117	31.4	12.1
			118		
			119	11.9	4.4
			122	11.1	0.8
			123	15.3	1.2
			124	23.2	6.9
			311	12.8	3.9
			313	23.2	8.9
			440	17.9	4.8
			609	17.8	0.0
			439	11.5	8.0
			227A	10.4	4.7
General Air	437	0.8			
	228A	2.6	229A		
	230	3.6	231	15.4	4.8
	232	2.9	233	10.4	4.1
	234	4.0	235	3.0	2.4
	236	2.7	237	21.5	9.9
	238	1.3			
	400	2.4			
	226	0.6	229	1.5	0.50
	243	2.7	245	13.3	4.2
	247	2.7	249	13.3	2.1
Spinning Spinner			267	13.2	2.8
	266	4.1	269	4.3	1.6
	268	1.3	271	4.1	1.8
	270	1.6	273	4.6	3.3
	272	1.7	537	3.9	2.0
	538	0.50	603	11.6	6.8
	604	0.79			
			299	11.1	
			330	12.1	3.6
			343	7.7	2.3
			345	0.2	0.00
			346	18.7	10.6

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Fibers/cc	
				Total	10 μ +
Spinning (continued)			347	20.4	7.3
			539	4.8	2.8
			600		
			601	6.6	4.0
			602	21.8	13.1
General Air			135	1.1	0.7
	295	0.38	136	14.5	6.3
	296	0.52	137	3.6	2.7
	297	0.74	138	2.3	1.8
	298	0.46			
	224	3.1	222	29.8	4.1
	261	1.1	263	(0.92)	0.61
	276	1.0	278	0.0	0.0
Twisting	324	1.2	317	(0.66)	0.3
	329	1.3	328	0.0	0.0
	506	0.8	505	12.2	4.2
			509	5.1	2.4
	535	1.3	534	11.5	4.9
	608	0.78	607	5.8	1.6
			320	8.0	4.5
			321	(5.6)	2.9
			322	7.1	2.7
			323	9.0	5.5
General Air			504	3.8	1.6
			507	2.1	0.6
			508	5.4	1.1
			511	8.8	3.5
			536	23.8	5.9
			605	5.0	1.7
	252	0.8	608	5.4	2.3
			251	12.8	3.9
	259	0.6	256	(6.2)	2.6
			265	4.65	2.0
			331	1.2	0.0
	332	1.1	333	3.5	1.3
	334	1.0	335	22.6	2.6
	336	0.8	337	15.8	4.9

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Fibers/cc	
				Total	10 μ +
Twisting (continued)					
General Air (cont.)	338	2.6			
	340	0.7	339	12.7	8.2
	342	1.0	341	31.9	12.1
Winding					
Univ. Wind Operator	531	0.72	529	2.2	0.2
			344	10.5	7.1
			348	8.2	3.2
			349	16.7	2.4
			351	12.5	6.3
			352	8.1	2.7
			353	30.8	21.0
			530	1.1	0.3
General Air	429	1.8	431	12.6	8.5
Weaving					
Weaver Cloth	372	0.7	370	5.5	2.6
	513	2.5	512	11.8	1.6
	528	1.4			
			363	5.0	2.5
			366	11.2	2.9
			367	22.5	6.5
			368	10.4	4.4
			374	14.3	5.0
			375	12.5	5.2
General Air	152	1.4	154	4.2	1.5
	162	1.4	164	8.1	1.5
	169	3.0	170	0.4	0.2
Weaver Tape	335	0.3	341	(2.7)	1.2
	517	2.8	516	5.7	2.2
	521	0.57	520	5.0	2.5
	523	0.43	522	2.2	0.5
			376	17.1	0.0
			378	(0.82)	0.4
			380	0.0	0.0
			381	(0.7)	0.7
			382	4.1	2.7
			383	2.9	1.9

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Total Fibers/cc	10 μ +
Weaving (continued)					
General Air	166	0.11	168	(1.13)	.45
	425	0.46	427	6.7	4.6
Creel Operator			369	7.9	3.0
Warper & Bobbin Winder	365	0.9	362	3.6	2.6
			354	5.2	3.2
			356		
			357	(3.22)	1.1
			358	12.1	4.4
			359	10.7	5.2
General Air	283	0.4			
			284	3.9	1.8
	285	1.8			
			286	1.8	1.8
	287	1.3			
			288	3.6	0.0
	289	1.6			
			290	1.2	0.6
	291	1.8			
			292	8.5	2.4
Bobbin Winder	293	1.6			
			294	(0.61)	0.61
	282	0.8			
			280	(2.29)	0.98
	360	1.4	355	22.6	12.0
	519	3.0	518	15.6	5.5
	528	1.7	527	21.9	11.8
			159	15.5	6.9
			160	15.5	4.9
			349	16.7	2.4
			350	(2.95)	2.3
			351	14.0	6.3
General Air	156	2.3	352	8.1	2.7
			353	30.8	21.0
			158	24.8	5.9
Rope, Wick, B.C.					
Cord Former	443	-	444	0.0	0.0
			195	2.4	1.2
			196	2.0	0.7
			445	0.0	0.0

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Total	Fibers/cc 10 μ +
Rope, Wick, B.C. (cont.)					
Braid Former	189	0.81	190	4.7	1.0
	197	0.61	198	5.7	2.0
	199	0.79	130	3.9	2.5
	390	1.4	387	3.9	1.5
	525	0.12	524	(0.5)	0.0
			561		
	626	0.37			
			193	5.8	4.3
			204	10.0	1.7
			386	5.2	1.4
General Air			402	2.4	1.3
			403	6.5	1.8
	171	3.0			
			172	5.1	3.9
	173	2.1			
			174	0.5	0.3
	175	2.4			
			176	2.7	1.3
	177	3.2			
			178	5.5	1.3
Braid Winder	179	1.7			
			180	0.33	0.2
	181	1.1			
			182	14.5	7.3
	184	0.06	186	0.5	0.0
	409	0.26	411	3.6	1.9
	413	0.22	415	2.9	1.3
	391	3.9	389	0.0	0.0
			191	5.2	1.4
General Air			194	3.0	1.8
			388	3.0	1.0
	405	0.06	407	1.4	0.6
Finishing					
Calender	729	0.11	730	(3.39)	0.68
			731	7.4	1.2
			732	9.7	1.7
General Air	433	1.6	435	1.5	0.7-

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Fibers/cc	
				Total	10 μ +
Rope, Wick, B.C. (cont.)					
Shipping					
General Air			726	1.5	0.7
	727	0.11	728	0.40	0.32
Miscellaneous					
Laboratory					
General Air	700	0.29	701	1.11	0.7

Operation	Impinger		Membrane Filter		
	Sample #	mppcf	Sample #	Total Fibers/cc	10 μ +
Fiber Prep. & Blending					
Blending line operator	111	8.1	110	2.3	0.5
	305	0.7	304	18.5	4.4
			301	23.2	2.9
			202	27.5	7.6
			203	11.4	1.7
			702	39.5	6.5
			703	24.9	2.6
			704	45.4	7.9
			705	23.2	2.1
			308		
General Air	417	3.0	419	17.9	5.9
	421	4.1	423	9.6	2.0
Blending line operator ceiling condenser - BZ	106	5.4			
	109	8.2	108	39.8	8.5
Willow operator ceiling condenser	303	0.6	302	13.9	8.8
	306	3.1	307	44.7	8.4
Blending line operator ceiling condenser - personal sampler			706	26.5	5.4
			707	24.6	5.0
			708	45.3	5.4
			709	28.4	6.2
General Air	533	4.0	532	27.8	4.9
Willow operator	113	4.9	112	53.6	13.8
Chaser-Screen	115	11.0	114	41.8	4.3
	2219	28.0	218	51.2	4.1
			300	2.0	1.3
Asbestos Stock opening	105	2.7			
	216	12.0	217	36.0	10.2
	724	3.1	723	36.8	9.6
			103	44.7	5.5
Rayon Picker Stock Opening			204	10.0	1.7
Asbestos Stock Opening			201	16.4	3.8
			215	76.5	9.0
General Air	207	0.6			
	208	1.8			
	209	1.4			
	210	0.3			
	211	2.6			
			213	3.3	0.4