

RESULTS OF AIR SAMPLES

WORLD BESTOS
New Castle, Indiana

Report Prepared By:
Jeremiah R. Lynch

June, 1967

June 1, 1967

World Bostes
The Firestone Tire & Rubber Company
New Castle, Indiana

Attention: Mr. Weber, Plant Manager

Comments

The analysis of the air samples collected in your plant during our survey in September 1966 has been completed and the results are attached. Due to data processing problems some of the interim results may differ slightly from the correct results contained in the attached final report.

The impinger samples were counted during the survey using the American Conference of Governmental Industrial Hygienists' method. The membrane filters were rendered transparent with a 50-50 mixture of diethyl amine, diethyl phthalate and counted at 100X magnification with phase contrast illumination. The interpretation of the impinger results was explained in the interim report. The membrane filter method is experimental and no standard has been set for its interpretation. Some relationships between the impinger and filter measurement and some results of surveys of other asbestos product areas are discussed in the enclosed reports.

Your cooperation in this study is sincerely appreciated and the data gained from your plant is of considerable value.

Sincerely yours,

Jeremiah R. Lynch
Senior Sanitary Engineer
Engineering Section
Occupational Health Program

Enclosures

JRLYCH:rg

cc: George L. Wilson, Firestone, Akron (w/oy of encl.)
J. F. Kopyer, Ind. State Board Health (w/oy of encl.)
Dr. H. Ray, Region V Program Director
Dr. L. J. Gralley
Asbestos File

RESULTS OF AIR SAMPLES OF SEPTEMBER 1966

WORLD ESTATES, NEW CASTLE, INDIANA

Operation		Impinger JOK IF			Membrane Filter JOK Phase				
		Sample #	mp/af	mf/af	Sample #	p/cc	f/cc	Fibers/cc	
								≥ 5	< 10
<u>Mixing and Coating</u>									
Mixer - Dry Pro.	B	140	14.7	0.1	141	603.2	3.7	3.7	1.6
		225	7.2	0.1	226	--	23.8	14.2	7.5
		221	7.8	0.0	222	--	3.1	1.7	1.0
Mixer - Wet Pro.	B	254	1.1	0.0	255	420.8	3.1	2.7	0.4
	P				213	--	3.7	3.1	1.4
					216	--	8.3	5.4	2.8
					272	--	7.4	6.6	2.2
Mixer - Ether	P				103	--	6.1	4.6	2.8
					111	155.3	4.6	2.7	1.4
Pulveriser	B	223	1.0	0.0	224	--	4.0	2.3	1.0
	P				102	--	0.6	0.5	0.2
					109	40.0	1.0	0.6	0.4
					215	156.0	1.5	0.9	0.5
Roll Mill Oper.	P				257	--	6.0	2.9	1.7
					214	--	2.5	1.3	0.4
Wigher	P				210	--	17.1	13.6	7.6
					217	--	4.4	3.7	1.7
Scrap Grinder	B	227	41.4	0.1	223	--	15.8	7.5	2.7
	P				205	--	7.0	6.2	2.6
Roll Lining Mach. Oper.	P				206	--	2.5	2.1	0.6
Mixing	G	8	0.5	0.0					

World Bestos, New Castle

Operation		Impinger 10X IF			Membrane Filter 13X Phase				
		Sample #	mg/cf	ml/cf	Sample #	v/cc	g/cc	Fibers/cc	
								< 5	< 10
<u>Forming</u>									
Pre-Form Oper.	B	101	4.9	0.1	100	---	19.0	14.7	7.7
		127	58.5	0.1	126	---	11.6	6.8	3.4
		229	2.5	0.0	230	---	12.8	8.4	5.5
		250	5.6	0.5	251	---	101.5	94.2	31.7
	P				110	---	10.5	7.7	4.5
					116	---	40.3	28.1	10.4
					118	---	15.5	11.0	5.0
					134	---	13.1	10.0	4.3
					200	---	23.8	16.3	7.9
					220	87.6	2.3	1.2	0.6
					249	---	33.5	24.2	12.1
					266	---	13.8	11.2	4.1
					269	---	5.9	3.3	2.6
					270	---	18.6	13.5	7.7
Arceor	P	11	0.4	0.0					
					179	---	5.9	4.4	2.7
					192	---	1.8	1.1	0.6
					302	---	10.2	6.8	3.9
Lunett Loader	B	314	1.5	0.0	315	157.0	4.5	3.8	1.4
					279	793.4	8.7	6.1	4.1
					280	---	14.8	13.1	6.3
					282	---	6.8	4.6	2.6
Lunett Forming	P				285	---	5.2	3.5	1.5

World Benton, New Castle

Operation		Impinger 10X LF			Membrane Filter 43X Phase				
		Sample #	mp/cf	mf/cf	Sample #	p/cc	f/cc	Fibers/cc	
								< 5	< 10
<u>Hot Pressing</u>									
Hot Press Oper	B	113	2.1	0.0	112	—	0.1	0.1	0.0
	P				104	—	19.6	14.4	5.6
					105	—	22.4	18.2	6.3
					106	—	7.2	5.8	3.6
					107	—	10.1	8.2	5.3
					108	—	14.0	11.6	4.4
					120	—	13.9	8.8	4.1
					122	—	15.0	10.1	5.3
					133	—	11.8	8.2	3.4
					135	—	27.5	17.8	8.6
					238	—	21.6	17.3	7.5
					240	—	44.6	33.6	12.0
					242	197.8	7.9	5.0	2.9
					267	—	29.9	22.9	8.2
					268	—	6.3	5.4	2.1
	G	21	2.0	0.0					
Curing	P				136	—	14.7	9.1	4.1
Slab Layout	P				121	—	15.2	9.6	4.7
<u>Grinding & Sanding</u>									
Rough Grinding	B	104	2.4	0.1	405	—	18.3	8.6	4.5
	P				132	—	3.7	2.9	1.6
					247	—	19.6	13.7	4.3
					273	676.1	10.4	5.4	2.7
Finish Grinding	B	37	4.1	0.1	38	—	18.5	8.6	4.1
		54	1.5	0.0	55	1143.6	10.9	12.3	3.7
MP		183	1.6	0.1	182	—	14.4	7.6	3.7
	P				150	—	7.2	6.1	2.4
					159	—	11.9	9.3	3.0
					165	—	10.1	8.0	4.1
					272	—	12.2	8.1	3.3

World Boston, New Castle

Operation		Lapinder 10X LF			Membrane Filter 40X Phase				
		Sample #	mm/cf	mf/cf	Sample #	g/cc	f/cc	g/ccs	g/cc
								< 5	< 10
<u>Grinding & Sampling (cont.)</u>									
Finish Grinding									
WP									
					183	—	1.5	0.8	0.4
					190	—	1.1	1.1	0.5
					191	—	0.6	0.3	0.3
					193	—	0.6	0.6	0.3
					195	—	-0.1	0.1	0.0
					197	—	2.1	2.1	0.7
					297	—	27.9	19.2	11.0
	G	51	0.5	0.0					
Bevel Grinder									
	P				300	—	30.6	21.1	12.5
					304	752.7	32.6	22.5	11.4
					245	447.2	24.0	14.7	7.2
					275	—	4.9	4.3	1.5
Brush Bowl									
	P				115	—	45.0	31.4	15.5
					139	—	19.0	12.0	5.1
Edge Grinder									
	B	312	1.6	0.1	313	463.1	21.2	14.6	7.2
	P				291	—	15.3	11.3	5.6
Grinder									
	B	262	4.7	0.4	263	—	10.6	6.5	2.4
DP									
	P				130	—	7.3	6.1	2.3
					147	—	17.0	12.7	7.8
					149	—	4.5	3.2	2.1
					151	—	7.5	5.1	2.6
					153	—	57.5	39.7	20.5
					154	—	20.5	13.8	7.3
					244	—	4.4	3.2	2.0
	G	66	0.6	0.0					
WP									
	P				160	—	12.3	11.2	3.1
					175	403.0	4.8	2.7	1.5
					176	—	2.7	2.7	1.1
					201	—	11.4	13.2	4.8
					207	—	15.2	7.2	4.3
					309	—	18.6	13.9	6.0

Operation

Iminger 10% LF

Membrane Filter 43X Phase

fibers/cc

Sample # no/cf

25/25

Sample # p/c

f/cg

35 10

Binding & Sealing (Cont.)

Groover	B	169	1.7	0.0	168	—	16.7	9.4	2.6
	P				157	—	23.5	19.4	7.4
					174	—	5.3	4.0	2.2
					243	—	14.0	10.5	4.4
					166	—	25.7	14.8	7.6
Drum Sander	P				133	243.7	6.2	3.6	1.6
					246	—	1.2	1.2	0.4
Sander	B	231	1.0	0.1	232	422.9	14.2	11.6	4.1
Duster	B	236	7.7	0.5	237	—	10.5	6.3	2.7
	P				241	—	3.4	2.3	1.1
Brusher (H/P)	B	185	2.5	0.0	184	—	33.2	17.9	9.7
	P				277	—	26.9	18.8	9.2

Attling and Drilling

Drill Press	B	102	2.4	0.1	103	—	22.8	16.4	4.9
		403	1.9	0.1	409	—	23.8	16.1	6.2
		260	1.2	0.0	261	—	2.1	2.0	0.3
		39	8.8	0.2	40	902.8	16.0	8.6	4.9
		56	1.1	0.0	57	1254.6	11.1	5.3	2.1
		181	6.5	0.1	180	—	10.7	25.5	14.4
	P				124	—	12.4	7.9	4.0
					142	—	36.0	27.0	8.5
					145	—	6.7	5.7	2.3
					148	—	6.8	4.2	1.5
					155	—	15.3	12.6	5.2
					156	—	8.7	7.9	2.6
					158	310.0	11.9	8.0	4.4
					162	—	14.3	9.7	4.3
					163	—	30.4	21.7	11.0
					164	552.4	11.3	8.0	3.4
					172	275.4	1.6	2.1	2.1
					224	—	8.9	5.5	3.2
					205	—	39.0	30.8	10.9

World Bestos, New Castle

Operation		Impinger 10X LP			Membrane Filter 43X Phase				
		Sample #	mp/cf	nf/cf	Sample #	n/cc	f/cc	fibers/cc	
								< 5	< 10
Cutting & Drilling (Cont.)									
Horiz. Drill Press	P				117	---	26.0	19.2	9.9
					143	---	9.7	6.3	3.4
					173	---	4.5	3.0	1.3
					170	471.6	10.4	5.7	2.9
Trimmer Saw	B	286	2.5	0.1	237	821.4	19.5	12.8	8.2
	P				123	278.7	10.1	6.2	2.5
					129	---	10.3	7.6	3.0
					274	---	7.6	6.2	2.1
					281	---	9.1	7.3	5.1
					306	---	11.1	8.0	4.5
Abrasive Cutoff Saw	B	252	4.8	0.2	253	900.6	36.6	20.3	9.6
		258	2.5	0.1	259	---	16.0	13.5	4.8
		310	2.1	0.1	311	343.3	12.2	6.8	2.4
		406	1.3	0.0	407	394.0	17.6	9.8	4.1
	P				119	---	32.4	22.1	11.6
					283	686.5	15.4	10.6	5.8
					284	---	10.1	6.0	3.5
					303	---	14.9	10.1	6.0
					308	---	8.4	6.8	2.7
	G	41	0.4	0.0					
Horiz. Table Saw	B	35	7.0	0.3	36	743.1	30.8	16.8	6.7
	P				146	---	17.4	11.2	5.3
					152	---	21.5	16.9	6.1
					178	---	44.1	30.4	14.1
Cradle Saw	B	264	60.6	2.1	265	---	180.8	117.1	58.2
	G	283	1.0	0.0					
Band Saw	P				276	---	11.3	7.3	3.4
Sanding	G	22	1.6	0.0					

Operation		Luniger 10X LP			Membrane Filter 43X Phase				
		Sample #	mp/cf	af/cf	Sample #	p/cc	f/cc	Fibers/cc	
								< 5	< 10
<u>Inspection & Packing</u>									
Inspector	B	187	3.5	0.2	196	---	33.3	15.2	7.8
		400	4.5	0.3	401	---	46.8	37.8	12.3
		414	1.0	0.0	415	---	0.9	-0.4	-0.9
	P				114	---	36.4	25.3	11.6
					144	---	11.4	8.2	4.0
					161	---	15.9	13.1	4.5
					177	---	22.5	17.0	9.2
					189	---	1.3	0.7	0.4
					194	241.4	1.1	0.8	0.5
					196	---	6.3	4.5	2.7
					278	---	18.8	12.7	6.1
					293	---	35.4	23.9	13.9
					295	---	33.9	26.5	12.1
					299	---	30.4	20.7	11.2
Packer	D	412	0.3	0.0	413	---	2.3	2.5	0.6
	P				427	362.5	7.7	6.7	2.7
					312	---	8.6	4.4	2.0
					313	463.1	21.2	14.6	7.2
					314	---	3.1	1.9	1.2
					315	157.0	4.5	3.8	1.4
					316	---	5.4	2.7	1.0
					317	254.3	1.3	0.4	0.1
					319	---	9.6	6.5	2.9
					425	279.4	2.7	2.3	1.0
					426	409.9	6.1	4.8	3.0
Branding Blocks	P	410	1.1	0.0	411	---	7.1	6.0	1.6
Making Cartons	B	69	0.1	0.0	70	---	0.1	0.1	-0.2
Inspector	G	233	2.5	0.1					

World Bestos, New Castle

<u>Operation</u>		<u>Impinger 10X LF</u>		<u>Membrane Filter 43X Phase</u>					
		<u>Sample #</u>	<u>mp/cf</u>	<u>mf/cf</u>	<u>Sample #</u>	<u>p/cc</u>	<u>f/cc</u>	<u>Fibers/cc</u>	
								<u>< 5</u>	<u>< 10</u>
<u>Miscellaneous</u>									
Utility	P				202	334.7	5.8	3.2	1.7
					218	—	2.3	1.2	0.7
Lab. Technician	P				209	—	10.4	7.6	4.5
Janitor	P				204	—	12.6	10.4	4.5
Generator	P				318	—	3.3	3.0	1.0
Fork Lift Oper.	P				201	642.3	17.9	14.7	7.6