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ABEX CORPORATION
INDUSTRIAL HYGIENE SURVEY
AMERICAN BRAKEBLOK DIVISION
WINCHESTER, VIRGINIA
OCTOBER 2-6, 1972

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ABEX-124

SPNY 000527

SCF-ABEX-1520

ABEX CORPORATION
INDUSTRIAL HYGIENE SURVEY
AMERICAN BRAKEBLOK DIVISION
WINCHESTER, VIRGINIA
OCTOBER 2-6, 1972

PURPOSE

This survey provides coverage of the majority of operations in the plant to determine the extent of asbestos exposure to plant personnel. One additional survey will be scheduled in the near future to complete the evaluation.

Several of the asbestos samples collected from locations processing lead compounds were also selected for analysis to determine airborne lead concentrations at various operations.

SUMMARY

Personal samples were collected at a majority of operations throughout the plant including Strip Finishing, Block Preform, Block Press, Block Finish, Block Inspection & Packaging, Compounding, Book Preform, and Disc Brake Manufacturing. In addition, a personal sample was also taken from the operator of the mobile Tennant sweeper during routine sweeping operations. The sweeper was emptied of collected dust twice during the 66-minute sampling period.

To verify that airborne asbestos levels were below permissible limits, general air samples were collected from work and traffic areas in Shipping and Receiving and in the Machine Shop.

Referring to the results in the Analyses of Air Samples for Asbestos, 24 of the 72 samples reported exceeded the 5 fiber/ml exposure limit. Of these 24 samples, seven (7) were in excess of the 10 fiber ceiling "C" limit.

Although the majority of the exposures were confined to Book Preform, Block Preform, and the Block Finish Department, excursions were also encountered at the automatic preform machines in Disc Brake Manufacturing, and at the controls of the Tennant Sweeper.

As pointed out in our previous reports, the eight hour time weighted average exposure limit established by OSHA will be reduced from 5 fibers/ml to 2 fibers/ml on July 1, 1976. During this survey, a total of 60 personal samples, representing 83% of all samples collected, exceeded this projected exposure limit. The plant should anticipate the 1976 reduction of the permissible limit. Plans for expansion of existing exhaust ventilation systems or provision of additional engineering controls should be based on the projected 2 fiber limit.

Analysis of the personal samples for lead disclosed no concentrations exceeding the proposed or "intended" threshold limit of .15 mg/M³. In most instances, a number of samples from each of the designated work areas were tested. None contained more than trace concentrations of lead. Control of exposure to airborne lead appears to be adequate at the present time.

DISCUSSION

Block Preform samples were collected on both the first and second shifts. As indicated, highest concentrations were encountered at Block Preform Machine No. P-4 operated by D. Jeffries. (Refer to sample numbers 45, 52, and 56.) Three samples were collected in series over three short time intervals to avoid filter loading and resultant masking of the fibers during analysis. This work station was selected for short term sampling because of the poor personal hygiene exhibited by the operator. Spillage, scattering, and generation of airborne particulates was most noticeable at this location.

Excessive concentrations encountered in the Block Preform Department may be partially attributed to the personal work habits and housekeeping practices of the individual operators. However, local exhaust systems at all work stations should be improved to affect maximum capture of airborne contaminants. Present design at each Block Preform unit consists of a flared exhaust hood suspended above the preform bench. Although face velocity is adequate, the design and location of the hood permits capture of only a fraction of the airborne material being generated during the preform cycle. In addition, an open, branch exhaust trunk is connected to the ventilation duct above the flared hood, but is serving no useful purpose at the present time. No ventilation is provided for the adjacent mix bin and weigh scale where a large share of the manual operations are conducted..

As point source collection of airborne asbestos fibers is not feasible due to the inherent design of the Preform units, enclosure of the presses and/or redesign of the existing hoods above the preform benches may be an acceptable alternative. Exhaust ventilation should also be provided at the mix bins and weigh scales. Intimate handling during this phase of the preform cycle contributes significantly to the total exposure.

Automation of all or any part of the preform cycle should be investigated as a possible means of eliminating exposures.

Samples numbered 25 through 32 were collected at representative work stations throughout the Block Finish Department, including Inspection and Packaging and the Printer Machine. As indicated, four of the eight samples exceeded the 5 fiber limit. Exposures in this department can be primarily attributed to continuous handling of the dusty brake shoes, although grinding and drilling may be contributing incidentally to the airborne concentrations. Please note the increased concentrations collected from Inspection and Packaging where exposure is caused exclusively by handling.

To control asbestos exposures in Block Finishing, the blocks should be thoroughly cleaned by brushing, vacuuming, and/or the use of enclosed air pressure prior to extensive handling in the Block Finish Department. Final removal of loose material should also be done after block finishing and before the shoes are inspected and packaged for shipment.

None of the samples collected in General Compounding exceeded the 5 fiber limit, although two of the samples closely approached it. (Refer to sample Nos. 20 & 57) Also please note that all but three of the Compounding samples exceeded the projected limit of 2 fibers/ml.

To aid in reducing airborne asbestos fibers throughout General Compounding, the feasibility of bulk storage of asbestos should be investigated in conjunction with enclosed conveyance or vacuum transport of the fibers. The elimination of bagged asbestos would decrease required handling and at the same time limit personnel exposures. It is our understanding that asbestos in compressed pellet form is available as a possible replacement for the loose fibrous product. If adaptable to brake shoe manufacturing processes, use of the pelletized product should be seriously considered.

Referring to pages 5 and 6 of the Appendix, Book Preform samples exhibited higher concentrations than those encountered during previous surveys. This condition may have resulted from cold weather closure of exterior openings supplemented by direct air disturbance from the Dravo make-up air unit adjacent to the Preform machines. However, the reduced sampling time of the more recent samples may also be a factor. Prolonged collection tends to overload the filter, masking the fibers during analysis of the sample. Filter loading is especially common in areas where increased concentrations of airborne particulates are generated.

Reduction of elevated asbestos concentrations in Book Preform will require increased enclosure of the existing hoods above the preform units. All sides including a portion of the open front should be enclosed. In addition, the sides of the hoods should be extended downward to provide greater capture of asbestos dust generated during the pressing cycle. Adequate hooding should also be considered for the mix bins and weigh scales where intimate handling is a problem. Design and engineering considerations should include the possibility of automation of all or any part of the preform cycle as a means of reducing or eliminating exposures.

In Disc Brake Manufacturing, two automatic preform machines were sampled. Both units disclosed concentrations exceeding the 5 fiber limit. Intimate handling is a problem at these locations, and provision of additional ventilation should be considered.

A personal sample was collected from the Tennant sweeper operator during normal sweeping operations. The mobile sweeper was emptied of collected dust at least twice during the sampling period.

It is apparent that the majority of the exposure to the operator is incurred while emptying the unit. Heavy concentrations of airborne dust are generated while this activity is in progress.

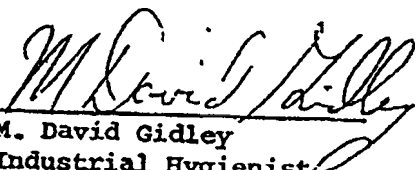
Until further samples can be collected to determine sweeping and dumping exposures separately, the operator should be required to wear respiratory protection. In addition, the Tennant Sweeper should be emptied outside the plant in a protected area where scattering or spreading of airborne asbestos can be minimized.

Methods of compliance, and required control measures were discussed in our previous Industrial Hygiene Survey Report dated August 14-18, 1972. Please note that the requirements outlined at that time apply to all areas listed in this report where asbestos concentrations exceed 5 fibers per milliliter.

A copy of the Occupational Safety and Health Standards in digest form is attached.

Our thanks to Charlie Mallory, Bob Brown, Charles Curtis, and associates for the cooperation extended during the survey.

SURVEY
CONDUCTED BY:


M. David Gidley
Industrial Hygienist

APPROVED BY:


C. H. Borcharding, Jr.
Mgr. Ind. Hyg./Loss Prevention

12/27/72

SPNY 000532

INDUSTRIAL HYGIENE SURVEY
ABEX CORPORATION

GLOSSARY

BM-approved	- Approved by the United States Bureau of Mines
BZ	- Breathing zone
cfm	- Cubic feet per minute
dB	- Decibels--symbol denoting the relative intensity of sound pressure levels (re 0.0002 dyne/square centimeter)
fpm	- Feet per minute
GRA	- General room atmosphere
mg/m ³	- Milligrams per cubic meter of air
mppcf	- Million particles per cubic foot of air
ppm	- Parts per million by volume
PS	- Personal sample
TLV	- Threshold limit value for an 8-hour daily exposure
Ventilation	- The terms ventilated, ventilating, or exhaust imply the use of mechanical means such as a fan for air movement, unless otherwise noted.

ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane filter with C-110 Pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

Sample No.	Field Lab.	Date	Time	Total(M ³) Air Vol.	BZ Samples unless otherwise noted, Location	Fibers/m. Conc.	Remarks
1	2715	10/2/72	9:49 AM	.180	Strip Finishing	<u>2.45</u>	Coil Saw #1 - Franklin Washington
			11:24 AM				
2	2716	10/2/72	9:34 AM	.202	Strip Finishing	<u>2.36</u>	Coil Saw #2 - O Ryan
			11:20 AM				
3	2717	10/2/72	9:37 AM	.204	Strip Finishing	<u>2.09</u>	Coil Saw #3 - E Kenney
			11:23 AM				
4	2718	10/2/72	9:40 AM	.192	Strip Finishing	<u>2.48</u>	Do-All Saw #7 - Lloyd Kinnia
			11:24 AM				
5	2719	10/2/72	9:44 AM	.189	Strip Finishing	<u>1.89</u>	Coil Saw #4 - Johnny Allowact
			11:21 AM				
6	2720	10/2/72	9:56 AM	.141	Strip Finishing	<u>2.35</u>	Backing Saw #12 - Albert Crosen
			11:07 AM				
7	2721	10/2/72	12:17 PM	.291	Block Preform	-	Loaded filter. Collection too
			2:52 PM		Machine #4	-	heavy for accurate fiber count
8	2722	10/2/72	12:14 PM	.305	Block Preform	<u>3.81</u>	Operator - Joe Roksandich
			2:51 PM		Machine #3		
9	2723	10/2/72	12:17 PM	.301	Block Preform	<u>3.8</u>	Operator - Leonard Good
			2:52 PM		Machine #2		
10	2724	10/2/72	12:20 PM	.301	Block Preform	<u>6.3*</u>	Operator - Orndorff
			2:53 PM		Machine #9		
11	2725	10/2/72	12:24 PM	.292	Block Preform	<u>3.7</u>	Operator - Carl Strosnider
			2:54 PM		Machine #8		
13	2726	10/2/72	12:30 PM	.283	Block Preform	<u>6.3*</u>	Operator - Blane Wolford
			2:53 PM		Machine #13		

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

Sample No.	Field	Lab.	Date	Time	Total(M ³) Air Vol.	(B2 Samples unless otherwise noted) Location	Fibers/m. Conc.	Remarks
14	2727		10/2/72	12:44 PM	.246	Block Preform	3.9	Service man - Harry Kackley
				2:50 PM		Service		
	2728		10/3/72	4:05 PM	.145	Block Preform	7.7*	Operator-B. Reynolds
				5:16 PM		Mach. P-11 (2nd shift)		
36	2729		10/3/72	4:13 PM	.136	Block Preform	8.1*	Operator - John Thomas
				5:20 PM		Mach. #1 (2nd shift)		
45	2730		10/4/72	12:23 PM	.58	Block Preform	26.4**	Operator - Jeffries
				12:51 PM		Mach. P-4		
52	2731		10/4/72	12:51 PM	.53	Block Preform	22.0**	Operator - Jeffries
				1:16 PM		Mach. P-4		
56	2732		10/4/72	1:16 PM	0.55	Block Preform	21.7**	Operator - Jeffries
				1:42 PM		Mach. P-4		
37	2733		10/4/72	8:09 AM	.334	Block Press	2.9	Press Operator - E. Shamholtz
				11:05 AM		Mach. B-10, B-11		
38	2734		10/4/72	8:12 AM	.334	Block Press	1.4	Press Operator - Walter Gray
				11:05 AM		Mach. B-4		
39	2735		10/4/72	8:16 AM	.323	Block Press	2.4	Press Operator - Kenneth Burkhardt
				11:04 AM		Mach C-4, C-5		
41	2736		10/4/72	8:30 AM	.302	Block Press	3.0	Press Operator - Milford Michael
				11:09 AM		Mach. C-8		
42	2737		10/4/72	8:34 AM	.293	Block Press	2.6	Press Operator - Clifton Spaid
				11:08 AM		Mach. C-13, C-14		
51	2738		10/4/72	12:55 PM	.222	Block Press	4.3	Operator - W. Haines
				2:44 PM		Deburring		

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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SPNY 000535

ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5µ in length

Sample No.	Field	Lab.	Date	Time	Total (M ³) Air Vol.	(B2 Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
25		2739	10/3/72	12:39 PM 3:15 PM	.314	Block Finish (Hammond Radius Grinder No. 1)	<u>5.5*</u>	Operator - F. W. Macomber
26		2740	10/3/72	12:43 PM 3:16 PM	.307	Block Finish (Hammond Finish Grinder)	<u>8.8*</u>	Operator - R. Bingaman
27		2741	10/3/72	12:45 PM 3:13 PM	.293	Block Finish (No. 1 Multiple Rivet Hole drill)	<u>3.13</u>	Operator - Billy Strother
28		2742	10/3/72	12:49 PM 3:14 PM	.287	Block Finish (No. 3 Spring Hole Drill)	<u>4.6</u>	Operator - Ronald Turner
29		2743	10/3/72	12:53 PM 3:17 PM	.289	Block Finish (No. F-16 Hand drill)	<u>3.25</u>	Operator - H. Doleman
30		2744	10/3/72	12:56 PM 3:18 PM	.281	Block Finish (Printer Machine)	<u>5.84*</u>	Operator - Donald Largent
31		2745	10/3/72	1:01 PM 3:19 PM	.273	Block Finish (Mill Groove Machine)	<u>3.07</u>	Operator - W. L. Smith
		2746	10/3/72	12:58 PM 3:20 PM	.281	Block Inspection and Packaging	<u>8.1*</u>	Inspector - Arnold Nesmith
17		2747	10/3/72	8:09 AM 11:18 AM	.348	Compounding-First floor	<u>2.14</u>	Dry Line Operator - Porter
18		2748	10/3/72	8:15 AM 11:22 AM	.352	Compounding- Second floor	0.98	Powder Pumper - Gene Kline
19		2749	10/3/72	8:18 AM 11:24 AM	.361	Compounding- Second floor	0.58	Powder Pumper - Byron Billmyre

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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SPNY 000536

ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 Pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

Sample No.	Field	Lab.	Date	Time	Total (M ³) Air Vol.	(BZ Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
20		2750	10/3/72	8:25 AM	.326	Compounding -	<u>4.72</u>	Asbestos Weigher - S. A. Dodson
"		2751	10/3/72	11:15 AM		Second Floor		
"		2751	10/3/72	8:29 AM	.343	Compounding -	1.15	Powder Weigher - Earl Largent
"		2751	10/3/72	11:26 AM		Second Floor		
23		2752	10/3/72	8:35 AM	.360	Compounding -	<u>2.0</u>	Mix Box Service man - H. B. Hisghman
"		2752	10/3/72	11:45 AM		First Floor		
24		2753	10/3/72	8:39 AM	.323	Compounding -	<u>2.96</u>	Wet Line Operator - C. Bean
"		2753	10/3/72	11:33 AM		Second Floor		
57		2754	10/5/72	8:18 AM	.404	Compounding -	<u>4.96</u>	Meter Operator - Frank McDaniel
"		2754	10/5/72	12:30 PM		First Floor		
58		2755	10/5/72	8:21 AM	.387	Compounding -	<u>2.14</u>	Operator - F. Bly
"		2755	10/5/72	12:26 PM		Rubber Mill #3		
59		2756	10/5/72	8:27 AM	.472	Compounding -	<u>2.6</u>	Operator - John Clowser
"		2756	10/5/72	12:28 PM		Rubber Mill #2		
60		2757	10/5/72	8:30 AM	.399	Compounding -	<u>2.4</u>	Operator - M. Estep
"		2757	10/5/72	12:27 PM		Rubber Mill #2		
65		2758	10/5/72	11:43 AM	.119	Compounding -	<u>3.54</u>	Operator - Paul Brooks
"		2758	10/5/72	12:43 PM		80 Mix Cabinets		
66		2759	10/5/72	11:45 AM	.323	Compounding -	<u>3.7</u>	Operator - J. Cheshire
"		2759	10/5/72	2:28 PM		80 Mix Cabinets		
71		2760	10/5/72	12:43 PM	.258	Compounding -	<u>3.14</u>	Operator - Paul Brooks
"		2760	10/5/72	2:27 PM		80 Mix Cabinets		
43		2761	10/4/72	8:44 AM	.310	Book Preform	<u>2.65</u>	Inspector - J. Gardner
"		2761	10/4/72	11:28 AM		(Heat & Pressure Inspection)		

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 Pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

Sample No.	Field Lab.	Date	Time	Total (M ³) Air Vol.	(BZ Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
44	2762	10/4/72	8:49 AM	.247	Book Preform	7.26*	Saw Operator - J. M. Anderson
			10:59 AM		(Vertical saw)		
61	2763	10/5/72	8:51 AM	.203	Book Preform	3.05	Operator - W. L. Clark
			10:36 AM		Mach. Nos. 2, 6		
62	2764	10/5/72	8:54 AM	.202	Book Preform	2.05	Operator - Robert Nave
			10:37 AM		Mach. Nos. 3, 7		
63	2765	10/5/72	8:58 AM	.195	Book Preform	7.85*	Operator - R. F. Putnam
			10:35 AM		Mach. Nos. 11, 15		
73	2766	10/5/72	4:05 PM	.166	Book Preform	7.3*	Operator - Ricky Ratliffe
			5:29 PM		Mach. Nos. 11, 15		
					(second shift)		
74	2767	10/5/72	4:07 PM	.163	Book Preform	10.5**	Operator - W. Carlyle
			5:30 PM		Mach. Nos. 12, 16		
					(Second shift)		
75	2768	10/5/72	4:14 PM	.154	Book Preform	7.24*	Operator - Lee Oates
			5:32 PM		Mach. Nos. 1, 5		
					(second shift)		
	2769	10/5/72	4:17 PM	.149	Book Preform	7.8*	Operator - Pat Veipe
			5:33 PM		Mach. Nos. 2, 6		
					(second shift)		
77	2770	10/5/72	4:11 PM	.161	Book Preform	10.7**	Operator - Mildred Hickey
			5:31 PM		Mach. Nos. 9, 13		
					(second shift)		
78	2771	10/5/72	4:22 PM	.145	Book Preform	12.5**	Operator - R. Gillespie
			5:34 PM		Mach. Nos. 3, 7		
					(second shift)		

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 Pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

Sample No.		Date	Time	Total (M ³) Air Vol.	(BZ Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
Field	Lab.						
79	2772	10/5/72	4:20 PM 5:35 PM	.151	Book Preform Mach. Nos. '4, 8 (Second Shift)	8.7*	Operator - Paul Meadows
60	2773	10/5/72	4:25 PM 5:36 PM	.143	Book Preform Mach. Nos. 17, 19 (Second shift)	13.1**	Operator - Daniel McKenzie
46	2774	10/4/72	12:34 PM 2:50 PM	.283	Disc Brake Mfg. (Automatic Pre- form Mach. #2)	5.7*	Operator - D. H. Clark
47	2775	10/4/72	12:35 PM 2:51 PM	.276	Disc Brake Mfg. (Automatic Pre- form Mach. #5)	5.3*	Operator - R. L. Dove
48	2776	10/4/72	12:39 PM 2:53 PM	.272	Disc Brake Mfg. (Disc Brake Press No. D-4 Side 1)	2.4	Operator - W. T. Wood
49	2777	10/4/72	12:42 PM 2:52 PM	.264	Disc Brake Mfg. (Disc Brake Press #D-4, Side 2)	3.3	Operator - David Brown
50	2778	10/4/72	12:45 PM 2:54 PM	.262	Disc Brake Mfg.	2.4	Disc Brake Service Man - Donald Clark
86	2779	10/6/72	12:09 PM 1:15 PM	.129	Tennant. Sweeper	5.9*	Collected during sweeping, and dumping of collected dust.
67	2780	10/5/72	12:23 PM 3:27 PM	.361	Machine Shop (Gen. Area sample)	1.5	Collected at south side of machine shop.

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

SPNY 000539

ANALYSES OF AIR SAMPLES
FOR Asbestos

METHOD OF COLLECTION:

Membrane Filter with C-110 Pump at 2 LPM

METHOD OF ANALYSIS:

Phase Contrast Microscopy

DATE ANALYZED: 10/19-11/17/72

ANALYST: M. D. Gidley

TLV: 5 fibers/ml > 5 μ in length

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Sample No.	Field Lab.	Date	Time	Total (M ³) Air Vol.	(B2 Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
68	2781	10/5/72	12:14 PM	.382	Machine Shop	0.9	Collected at north side of machine
	2782	10/6/72	3:27 PM		(Gen. area sample)		shop.
			8:28 AM	.502	Shipping & Stor-	.07	Front of shipping area (south).
			12:58 PM		age (Gen. area		
83	2783	10/6/72	8:36 AM	.493	Shipping & Stor-	0.16	East side of building.
			1:01 PM		age (Gen. area		
84	2784	10/6/72	8:45 AM	.492	Shipping & Stor-	0.15	Southeast corner adjacent to scales.
			1:00 PM		age (Gen. area		
					sample)		
85	2785	10/6/72	8:41 AM	.475	Shipping & Stor-	0.16	Center aisle.
			1:02 PM		age (Gen. area		
					sample)		

(*) Concentration in excess of TLV.

(**) Concentration in excess of ceiling "C" Limit

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ANALYSES OF AIR SAMPLES
FOR LEAD IN AIR

METHOD OF COLLECTION:

Membrane filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Atomic Absorption

DATE ANALYZED: 10/19/72

ANALYST: M. Desoukey

TLV: .15 mg/M³ (Intended)

Sample No.		Date	Time	Total(M ³) Air Vol.	(BZ SAMPLES) Location	mg/M ³ Conc.	Remarks
Field	Lab.						
7	2673	10/2/72	12:17 PM	.291	Block Preform	Trace	Operator - W. Jeffries
8	2674	10/2/72	2:52 PM		Machine #4		
			12:14 PM	.305	Block Preform	Trace	Operator - Joe Roksandich
			2:51 PM		Machine #3		
9	2675	10/2/72	12:17 PM	.301	Block Preform		
			2:52 PM		Machine #2	Trace	Operator - Leonard Good
10	2676	10/2/72	12:20 PM	.301	Block Preform	Trace	Operator - Orndorff
			2:53 PM		Machine #9		
11	2677	10/2/72	12:24 PM	.292	Block Preform	Trace	Operator - Carl Strosnider
			2:54 PM		Machine #8		
13	2678	10/2/72	12:30 PM	.283	Block Preform	.0024	Operator - Blane Wolford
			2:53 PM		Machine #13		
35	2678	10/3/72	4:05 PM	.145	Block Preform	Trace	Operator - B. Reynolds
			5:16 PM		Machine #P-11		
					(second shift)		
36	2680	10/3/72	4:17 PM	.136	Block Preform	Trace	Operator - John Thomas
			5:20 PM		Machine #1		
					(second shift)		
45	2681	10/4/72	12:23 PM	.58	Block Preform	Trace	Operator - Jeffries
			12:51 PM		Machine #P-4		
52	2682	10/4/72	12:51 PM	.53	Block Preform	Trace	Operator - Jeffries
			1:16 PM		Machine #P-4		
56	2683	10/4/72	1:16 PM	0.55	Block Preform	Trace	Operator - Jeffries
			1:42 PM		Machine #P-4		

(*) Concentration in excess of TLV.

SPNY 000541

ANALYSES OF AIR SAMPLES
FOR LEAD IN AIR

METHOD OF COLLECTION:

Membrane filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Atomic Absorption

DATE ANALYZED: 10/19/72

ANALYST: M. Dagoukey

TLV: .15 mg/M³ (Intended)

Sample No.		Date	Time	Total (M ³) Air Vol.	(BZ SAMPLES) Location	mg/M ³ Conc.	Remarks
Field	Lab.						
37	2684	10/4/72	8:09 AM	.334	Block Press	Trace	Press Operator - E. Shanholtz
			11:05 AM		Mach. B-10, B-11		
38	2685	10/4/72	8:12 AM	.334	Block Press	.002	Press Operator - Walter Gray
			11:05 AM		Machine B-4		
51	2686	10/4/72	12:55 PM	.222	Block Press	Trace	Operator - W. Haines
			2:44 PM		(deburring)		
25	2687	10/3/72	12:39 PM	.314	Block Finish	Trace	Operator - F. W. Macomber
			3:15 PM		(Hammond Radius grinder #1)		
31	2688	10/3/72	1:01 PM	.273	Block Finish	Trace	Operator - W. L. Smith
			3:19 PM		(Mill Groover machine)		
32	2689	10/3/72	12:58 PM	.281	Block Inspection	Trace	Inspector - Arnold Nesmith
			3:20 PM		& Packaging		
17	2690	10/3/72	8:09 AM	.348	Compounding-	Trace	Dry Line Operator - Porter
			11:18 AM		first floor		
18	2691	10/3/72	8:15 AM	.352	Compounding-	Trace	Powder Pumper - Gene Kline
			11:22 AM		second floor		
19	2692	10/3/72	8:18 AM	.361	Compounding-	Trace	Powder Pumper - Byron Billmyre
			11:24 AM		second floor		
21	2693	10/3/72	8:29 AM	.343	Compounding -	Trace	Powder Weigher - Earl Largent
			11:21 AM		second floor		
22	2694	10/3/72	8:31 AM	.339	Compounding-	.0045	Powder Man - L. Marpole
			11:35 AM		second floor		

(*) Concentration in excess of TLV.

SPNY 000542

ANALYSES OF AIR SAMPLES
FOR LEAD IN AIR

METHOD OF COLLECTION:

Membrane filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Atomic Absorption

DATE ANALYZED: 10/19/72

ANALYST: M. Desoukey

TLV: .15 mg/M³ (intended)

SPNY 000543

Sample No.	Field Lab.	Date	Time	Total (M ³) Air Vol.	(BZ SAMPLES) Location	mg/M ³ Conc.	Remarks
24	2695	10/3/72	8:39 AM	.323	Compounding -	Trace	Wet Line Operator - C. Bean
			11:33 AM		second floor		
57	2696	10/5/72	8:18 AM	.404	Compounding -	Trace	Meter Operator - Frank McDaniel
			12:30 PM		first floor		
58	2697	10/5/72	8:21 AM	.387	Compounding-	Trace	Operator - F. Bly
			12:26 PM		Rubber Mill #3		
59	2698	10/5/72	8:27 AM	.472	Compounding-	Trace	Operator - John Clowser
			12:28 PM		Rubber Mill #2		
60	2699	10/5/72	8:30 AM	.399	Compounding-	Trace	Operator - M. Estep
			12:27 PM		Rubber mill #2		
66	2700	10/5/72	11:45 AM	.323	Compounding -	Trace	Operator - J. Cheshire
			2:28 PM		80 Mix cabinets		
61	2701	10/5/72	8:51 AM	.203	Book Preform	Trace	Operator - W. L. Clark
			10:36 AM		Mach.Nos.2, 6		
62	2702	10/5/72	8:54 AM	.202	Book Preform	Trace	Operator - Robert Nave
			10:37 AM		Mach. Nos.3, 7		
63	2703	10/5/72	8:58 AM	.195	Book Preform	Trace	Operator - R. F. Putnam
			10:39 AM		Mach. Nos. 11, 15		
73	2704	10/5/72	4:05 PM	.166	Book Preform	Trace	Operator - Ricky Ratliffe
			5:29 PM		Mach.Nos.11, 15		
					(Second shift)		
74	2705	10/5/72	4:07 PM	.163	Book Preform	Trace	Operator - W. Carlyle
			5:30 PM		Mach.Nos. 12, 16		
					(second shift)		

(*) Concentration in excess of TLV.

ANALYSES OF AIR SAMPLES
FOR LEAD IN AIR

METHOD OF COLLECTION:

Membrane filter with C-110 pump at 2 LPM

METHOD OF ANALYSIS:

Atomic Absorption

DATE ANALYZED: 10/19/72

ANALYST: M. Desoukey

TLV: .15 mg/M³ (Intended)

SPNY 000544

Sample No.		Date	Time	Total (M ³) Air Vol.	(BZ SAMPLES) Location	mg/M ³ Conc.	Remarks
Field	Lab.						
75	2706	10/5/72	4:14 PM 5:32 PM	.154	Book Preform Mach. Nos. 1, 5 (Second shift)	Trace	Operator - Lee Oates
16	2707	10/5/72	4:17 PM 5:33 PM	.149	Book Praform Mach. Nos. 2, 6 (Second shift)	Trace	Operator - Pat Volpe
77	2708	10/5/72	4:11 PM 5:31 PM	.161	Book Preform Mach. Nos. 9, 13 (second shift)	.0076	Operator - Mildred Hickey
78	2709	10/5/72	4:22 PM 5:34 PM	.145	Book Preform Mach. Nos. 3, 7 (second shift)	.011	Operator - R. Gillespie
79	2710	10/5/72	4:20 PM 5:35 PM	.151	Book Preform Mach. Nos. 4, 8 (second shift)	Trace	Operator - Paul Meadows
80	2711	10/5/72	4:25 PM 5:36 PM	.143	Book Preform Mach. Nos. 17, 19 (second shift)	Trace	Operator - Daniel McKenzie
47	2712	10/4/72	12:35 PM 2:51 PM	.276	Disc Brake Mfg. (Automatic Pre- form Mach. #5)	Trace	Operator - R. L. Dove
49	2713	10/4/72	12:42 PM 2:52 PM	.264	Disc Brake Mfg. (Disc Brake Press #D-4, Side 2)	Trace	Operator - David Brown
86	2714	10/6/72	12:09 PM 1:15 PM	.129	Tennant Sweeper	Trace	Collected during sweeping, and dumping of dust.

(*) Concentration in excess of TLV.