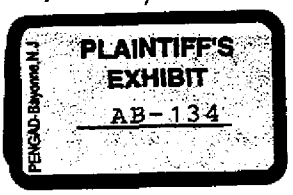
G-5-4



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

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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/M^3. 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
M. David Gidley
Industrial Hygienist

APPROVED BY: C. H. Borcherding, Jr.
C. H. Borcherding, Jr.
Mgr.Ind.Hyg./Loss Prevention

12/27/72

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 > 5μ in length

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

(*) 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 >5μ in length

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

(*) 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	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	(BZ 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)	5.5*	Operator - F. W. Macomber
26	2740	10/3/72	12:43 PM 3:16 PM	.307	Block Finish (Hammond Finish Grinder)	8.8*	Operator - R. Bingaman
27	2741	10/3/72	12:45 PM 3:13 PM	.293	Block Finish (No.1 Multiple Rivet Hole drill)	3.13	Operator - Billy Strother
28	2742	10/3/72	12:49 PM 3:14 PM	.287	Block Finish (No.3 Spring Hole Drill)	4.6	Operator - Ronald Turner
29	2743	10/3/72	12:53 PM 3:17 PM	.289	Block Finish (No. F-16 Hand drill)	3.25	Operator - H. Doleman
30	2744	10/3/72	12:56 PM 3:18 PM	.281	Block Finish (Printer Machine)	5.84*	Operator - Donald Largent
31	2745	10/3/72	1:01 PM 3:19 PM	.273	Block Finish (Mill Groove Machine)	3.07	Operator - W. L. Smith
1	2746	10/3/72	12:58 PM 3:20 PM	.281	Block Inspection and Packaging	8.1*	Inspector - Arnold Nesmith
17	2747	10/3/72	8:09 AM 11:18 AM	.348	Compounding-First floor	2.14	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 > 5μ in length

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

(*) 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 >5μ in length

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

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

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1/10

SPNY 000538

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.	(BZ Samples unless otherwise noted) Location	Fibers/ml Conc.	Remarks
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
80	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

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

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

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SPNY 000540

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/M^3 (Intended)

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

(*) 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/M^3 (Intended)

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

(*) 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/M^3 (intended)

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

(*) 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/M^3 (Intended)

Sample No. Field	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	(BZ SAMPLES) Location	mg/M^3 Conc.	Remarks
75	2706	10/5/72	4:14 PM 5:32 PM	.154	Book Preform Mach.Nos. 1, 5 (Second shift)	Trace	Operator - Lee Oates
76	2707	10/5/72	4:17 PM 5:33 PM	.149	Book Preform 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.