PLAINTIFF'S EXHIBIT

AB-307

ABEX CORPORATION
INDUSTRIAL HYGIENE SURVEY,
FRICTION PRODUCTS GROUP
WINCHESTER, VIRGINIA
APRIL 19-23, 1976

ORIGINAL: C. B. Mallory
CC: C. C. Blackwell, Jr., M.D.
A. A. Borin
E. H. Feierabend
M. D. Gidley
G. Nicholson
M. C. Rauch, R.N.
D. K. Rennie
J. P. Pagan, IC Industries

Blackwell 6
[illegible] 19 84

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PURPOSE

This Industrial Hygiene survey was conducted to determine the extent of occupational disease exposure to airborne asbestos, lead, and solvent vapors. Recommendations for control are enumerated in the report.

SUMMARY

Of the 48 samples collected for airborne asbestos, thirteen exceeded the present limit of 5 fibers/ml greater than 5 microns in length, and twenty-six including the thirteen noted above, exceeded the 2 fiber limit which is scheduled for adoption by OSHA in July of this year. The majority of the exposures were confined to Book Preform and Blok Preform with lighter excursions observed at the dry line operation in Lower Compounding and at Disc Brake Inspection. Duplicate and triplicate samples were collected at seven of the aforementioned operations which accounts for 14 of the 48 samples. Averaging of the multiple samples revealed 8 hour time weighted levels at three blok preform units of from 5 to 6 fibers/ml. Fiber counts of multiple sample locations in Book Preform revealed average levels of 4 to 5 fibers/ml. Historically, book preform levels have been generally lower than those observed during this survey. The excursions were not anticipated since the installation of the hoods around the preformers should have significantly reduced the fiber counts. The increase may be attributable to normal ambient variations, but it is likely that housekeeping and excessive reliance on the systems by the operators are also factors. In addition, the mix buggies are not yet ventilated, and floated fibers are clearly visible where the operators lean over and scoop mix from the buggies.

The two short term samples taken from the dry line operator in Lower Compounding reveal that this operator is overexposed if we observe the 2 fiber limit. This obviously arises during loading of the mix buggies from the hoppers and to a lesser extent during shifting and transfer of the wheeled containers.

The three samples collected at Disc Brake Preform showed an unusual reduction in airborne fibers. Only one of the units (No. 3) has been redesigned to any extent and would not account for the dramatic decline at all units to 0.43, 0.8, and 0.53 fibers/ml from previous levels above the five fiber limit. Since the asbestos hoppers above the preform machines were not manually filled at any time during the sampling periods, the omission could account for the reduced exposure. Heavy concentrations of airborne asbestos are generated during this phase of the operation.

One other location, Disc Brake Inspection, was found to be above the 2 fiber limit. Inspection exposures are generally caused by dust adhering to the surface of the brake pads. Steps should be taken to reduce this exposure either through precleaning of the pads or provision of adequate exhaust ventilation.

All collected asbestos samples were also analyzed for airborne lead. As indicated in Appendix 2, only two of the samples reached or exceeded the Threshold Limit Value of 0.15 mg/M^3. The locations involved included Blok Preform No. 15 and Blok Preform No. 5. Since these were short-term samples, the listed values (Sample 19, .149 mg/M^3 and sample 25, .197 mg/M^3) do not represent time weighted concentrations or averaging over an 8 hour workday. The only inference that can be drawn from the values is that they may be representative of the airborne lead concentrations present during any other short term period during the 8 hour workday. This may or may not be the case. Blok Preform No. 5, which was sampled twice, showed the aforementioned short term level of .197 mg/M^3 and an earlier level of 0.137 mg/M^3 for an average of 0.167 mg/M^3. Since both exposure locations were Blok Preform units, it is apparent that further collection system improvements are needed.

Personal samples of printing inks were taken at Blok Finish Printer No. 2, Strip Finish Hand Printer No. 2, and Strip Finish Printer Machine No. 10. As anticipated, airborne concentrations of the methyl ethyl ketone solvent in the different inks were minimal, ranging from 2.17 mg/M^3 to 59.23 mg/M^3 versus the Threshold Limit Value of 590 mg/M^3. From the standpoint of a fire and explosion hazard, ambient concentrations are not a problem since the Lower Explosive Limit is over 53,000 mg/M^3 in air. However, smoking and open flames in the immediate vicinity of the printing units should be prohibited.

Vapors concentrated directly above a spill or open container of MEK can easily reach or exceed the lower explosive limit.

RECOMMENDATIONS

76-1 Existing exhaust ventilation design at blok preform units excludes shrouding or hooding which is the only effective way to contain floated asbestos fibers. As discussed in previous reports, each blok preform unit should be completely enclosed by an exhausted enclosure except for required access openings. If possible, the weigh scale should be incorporated into this enclosure.

76-2 Exhausted enclosures at the blok and book preform units should be provided for the mix buggies, or the mix should be confined in exhausted hoppers in such a manner that scooping and manual weighing can be eliminated or minimized.

76-3 Frequency of clean up of spilled, scattered asbestos mix at blok and book preform should be increased. Vacuum pickup should be used exclusively for this purpose.

76-4 Steps should be taken to reduce exposures at Disc Brake Inspection either through precleaning of the pads or provision of adequate local exhaust ventilation. It can be assumed that if one inspector is exposed, others in the immediate vicinity are also subject to exposure.

76-5 Although exposure levels were low at disc preform during this survey, it is likely that significant exposures still exist at Disc Preform Units No. 1 and No. 2. Hoppers similar to that installed at Disc Preform No. 3 should also be made available at units 1 and 2 to eliminate manual loading of the raw fibers.

76-6 The dry line operator in Lower Compounding should be provided with and required to wear an approved particulate respirator during filling of the mix buggies.

76-7 All operators in Blok Preform, Book Preform, and Disc Brake Inspection should be provided with and required to wear approved particulate respirators until ventilation controls have been proven to be adequate. This is a fundamental protective requirement which should not be further delayed. (Repeat recommendation)

76-3 Posting requirements in locations where excessive fiber levels are present are not being observed. Caution signs should be posted at all approaches to areas containing excessive concentrations of airborne asbestos fibers. This is an OSHA requirements as set forth in the Code of Federal Regulations, and is listed herein as a repeat recommendation dating back to our survey reports of August 14-18, 1972, October 2-6, 1972, and September 10-14, 1973.

76-9 Employees are not being notified of their own excessive exposure to airborne asbestos so that they can take appropriate protective measures whether it be through the consistent use of respirators or more [illegible] work habits. Employees should be notified in writing of their personal exposure as soon as practicable, but not later than 5 days of the finding. They should be advised of the corrective action being taken. This is an OSHA requirement as set forth in the Code of Federal Regulations, and is listed herein as a repeat recommendation dating back to our survey reports of August 14-18, 1972, October 2-6, 1972, and September 10-14, 1973.

DISCUSSION

During the survey, two or more short term samples were collected at each of several operators, particularly in Book and Blok Preform, to obtain averages of levels throughout the day. These particular locations are listed below with the actual and averaged values.

LOCATION	ACTUAL LEVELS fibers/ml	AVERAGE fibers/ml
Book Preform #19	3.78 and 4.26	4.02
Book Preform #2	4.41 and 6.85	5.63
Book Preform #4	3.56 and 6.55	5.05
Blok Preform #5	8.74, 3.01, and 5.19	5.65
Blok Preform #2	7.10, 4.41, and 5.33	5.61
Blok Preform #7	5.42 and 6.76	6.1

It would have been ideal if 5 separate samples could have been taken at each location for purposes of closer averaging and to comply with OSHA sampling requirements. However, in this instance, time was limited since some asbestos counting was

done on site in addition to sample collection. The above data do show fluctuations, but none are extreme, and it is apparent that the averages are reasonably representative of actual 8 hou time weighted exposure levels. The short term method of sampling is necessary when airborne particulate concentrations are elevated. Prolonged sampling at some locations overloads the filter, preventing accurate identification and sizing of fibers during microscopic examination. When this happens, erroneous fiber levels of from 10 to 100 times below actual concentrations may be reported.

As indicated in Appendix No. 1, book and blok preform samples continued to show elevated fiber levels, especially when related to the 2 fiber limit scheduled for adoption by OSHA in July. Since ventilation changes have not resulted in noticeable reduction from levels of December 16-20, 1974, it is apparent that sources or points of major dust release at each blok and book preform unit have not been adequately ventilated. Most past survey reports have stressed the need for proper exhaust enclosure of the mix buggies and hand transfer portions of the processes. This need is again reiterated. It is our understanding that engineering controls are to be installed at the mix buggy locations in Blok Preform in the near future. These plans should also include Book Preform where hooding installations have helped to reduce scattering and spillage, but have had moderate effect on airborne fiber concentrations.

A recent Industrial Hygiene survey at Salisbury-PPG has disclosed preform fiber levels ranging from 0.5 to 1.5 fibers/ml. One or two locations were above 2 fibers/ml, but the reasons for the excursions were easily pinpointed and were attributable solely to poor work practices. The mix buggies and weigh scales are provided with exhaust ventilation at the Salisbury plant which appears to be containing effectively airborne asbestos levels, at least to the 2 fiber level. It is suggeste that PPG-Winchester inspect the mix buggy enclosures at Salisbury and consider adopting some or all of their principles of asbestos containment.

There appears to be no clear pattern of asbestos exposure as it relates to the type of mix being used at the individual work station. Careless work habits and/or excessive scattering of the mix can be assumed to be a factor, but there are no pronounced variations except for airborne lead levels within the survey data to support this contention. The operator at blok preform No. 5 was selected for sampling because of the

presence of asbestos mix on floors, equipment, and clothing, and excessive dust generation during scooping and weighing. The levels during three different sampling periods were 8.74 fibers/ml, 3.01 fibers/ml, and 5.19 fibers/ml. These values do not vary significantly from those encountered at more fastidious blok preform operations. This lack of effect of personal variables tends to further indicate that the source of excessive asbestos exposure is common in origin. Remaining, heavy sources of exposure at both book and blok preform are the mix buggies and the manual operations associated therewith.

In relation to the airborne lead results in Appendix No. 2, excursions above the 0.15 mg/M^3 Threshold Limit Value were confined to two locations in Blok Preform. One of the locations was blok preform No. 5 (sample No. 25) which, as previously stated, was selected for sampling because of excessive dust generation and poor housekeeping conditions. This operator also worked at Blok Preform No. 3 during the morning hours (sample No. 10) where airborne lead levels were high (.135 mg/M^3) but not above the Threshold Limit Value. It would be advisable to provide this operator with instructions as to proper work habits and the need for consistent good housekeeping.

Throughout the plant, it was observed that only a few people were wearing respirators. In known exposure areas, only one man was so equipped. This operator's respirator was not worn continuously during dusty operations, but was only worn when the operator himself felt that protection was warranted. I inspected the respirator after the operator had deposited it on a dusty ledge, and found it to be dirty, and smudged both inside and out, and the filter was thoroughly caked with asbestos fibers and particulates.

It is imperative that a respiratory protection program be established in the plant whereby all exposed employees are provided with and required to wear approved, properly maintained respiratory protection. This recommendation has been set forth in several previous reports. Although respirators are provided on a voluntary basis within the plant, this is not sufficient since virtually all of the exposed employees remain unprotected. To have any positive or lasting effects the program must be implemented on a mandatory basis. In addition, the employees should be thoroughly instructed in the use of the equipment, and a central maintenance program should be established.

Maintenance is an important phase of any control procedure, and is as true for respirators as it is for ventilation equipment. No matter how well a respirator is designed, how good its performance, it cannot give satisfactory protection unless it is maintained in good condition. This is one of the most frequently neglected factors, particularly with routinely used respirators. The operations of a maintenance program, including frequent inspections, cleaning, replacing, or repairing worn or deteriorated parts, and storage, should be centralized. They should also be supervised carefully by a responsible and capable person since proper care and maintenance requires a thorough knowledge of the devices.

All routinely used respirators should be inspected frequently. The tightness of connections should be checked, as well as the condition of the facepiece, exhalation and inhalation valves, connecting tubes and/or cartridges, and cannisters.

Respirators should be cleaned after each use, and they should be collected at a central point at the end of each shift for cleaning and inspection. Each employee's respirator should bear some sort of identification, such as his initials or clock number. When a worker receives a respirator, he should be briefed on the cleaning procedure and assured that he will always get the same device. If the respirators are serviced between shifts, only one respirator per worker is needed. If the cleaning is done during a shift, each worker will require two respirators. When not in use, the respirators should be stored in clean cabinets at convenient locations in the work area. As long as each respirator is assigned to only one person, there is no reason to require special sterilizing. Scrubbing with warm water and soap, rinsing, and air drying is adequate. When the respirator is used by only one individual, a practical method of cleaning is as follows:

1. Remove the filter or cartridge and discard.

2. Wash in detergent or soap in warm water.

3. Rinse completely in clean, warm water.

4. Air dry the device in a clean area.

5. Inspect the valves, headstraps, and other parts; replace with new parts if defective.

6. Insert new filters or cartridges; make sure the seal is tight.

7. Place in a plastic bag for storage.

After cleaning, inspection, and necessary repair, the respirators should be stored in dustproof containers, away from sunlight, heat, extreme cold, and excessive moisture. Plastic bags are adequate for routinely used respirators. They should not be stored in clothes lockers or tool boxes. Care should be taken to see that they are packed or stored so that the rubber facepiece and exhalation valve will rest in a normal position and function will not be impaired by the rubber setting in a bent or twisted position.

CONCLUSIONS

Housekeeping had been improved at several locations throughout the plant, particularly in Lower and Upper Compounding. Further improvement is needed in Blok and Book Preform.

Significant asbestos exposures are limited to two departments where design and installation of exhaust equipment are underway. Efforts should be concentrated on ventilating mix buggies and ancillary manual operations in both Book and Blok Preform. Interim protection in the form of respirators should be provided for the operators. Use of the devices should be a condition of employment in these two areas.

Isolated asbestos exposures at Disc Brake Inspection and the dry line operation in Lower Compounding require engineering control. Interim protection in the form of respirators should be provided for the operators.

I would like to thank Bob Brown and Charles Mallory for their consideration and support during the course of the survey.

SURVEYED BY: M. David Gidley

M. David Gidley, Certified
Industrial Hygienist

6/30/76

ABEX CORPORATION
INDUSTRIAL HYGIENE SURVEY
GLOSSARY

cfm	- cubic feet per minute
Daily noise dose	- A numerical expression of the total noise exposure an employee receives during the day. If the daily noise dose exceeds 1.00, the noise exposure to the employee is excessive.
dBA	- Decibels symbol denoting the relative intensity of sound pressure levels (re: 0.0002 dyne/square cent meter)
fpm	- feet per minute
GRA	- General Room Atmosphere
mg/M^3	- milligrams per cubic meter of air
MS#	- Medical Study No.
›pcf	- million particles per cubic foot of air
NIOSH approved	- Approved by the National Institute for Occupationa Safety and Health
OBZ	- Operator's Breathing Zone
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 impl the use of mechanical means such as a fan for air movement unless otherwise noted.

CONVERSION CHART
DAILY NOISE DOSE/8 HOUR EXPOSURE TO dBA/8 HOUR EXPOSURE

Daily Noise Dose/8 hr.		dBA/8 hr.	Permissible Employee Work Exposure Time
0.50		85	16 hours
1.00	← OSHA MAX. LIMIT →	90	8 hours
1.14		91	7 hours
1.33		92	6 hours
1.50		93	5.33 hours
1.71		94	4.67 hours
2.00		95	4 hours
2.28		96	3½ hours
2.67		97	3 hours
2.99		98	2.67 hours
3.43		99	2.33 hours
4.00		100	2 hours
4.57		101	1.75 hours
5.33		102	1.50 hours
6.01		103	1.33 hours
6.83		104	1.17 hours
8.00		105	1.00 hours
8.88		106	0.90 hours
10.00		107	0.80 hours
11.42		108	0.70 hours
13.33		109	0.60 hours
16.00		110	0.50 hours
17.17		111	0.45 hours
20.00		112	0.40 hours
22.85		113	0.35 hours
26.66		114	0.30 hours
32.00		115	Less than 0.25

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APPENDIX No. 1
FPG - WINCHESTER
ANALYSES OF AIR SAMPLES
FOR ASBESTOS

METHOD OF COLLECTION: ODZ-PS_ membrane filter with personal sampling pump at 2LPM

METHOD OF ANALYSIS: Phase Contrast Microscopy

DATE ANALYZED: 5/27-28/76
ANALYST: M. Desouky
TLV: 2 fibers/ml >5μ in length (effective 7/76)

Sample No. Field	Lab.	Date	Time	Total (M^3) Air Vol.	Location	fibers/ml Conc.	OPERATOR
1	633-G	4/20/76	9:50am 10:37am	.093	Book preform #19 mix No. 551-D	3.70*	W. D. Bowen
2	634-G	"	9:46am 10:35am	.094	Book preform #2 mix No. 555	4.41*	Robert Weaver
3	635-G	"	9:53am 10:38am	.009	Book preform #20 mix No. 555	2.91*	J. F. Ganoe
4	636-G	"	9:56am 10:40am	.006	Book preform #4 mix No. 551-D	3.56*	Martha Ratliof
5	637-G	"	9:58am 10:44am	.092	Book preform #13 mix No. 551-D	3.97*	George Brown
6	630-G	"	10:00am 10:44am	.006	Book preform #14 mix No. 27E	7.12*	Holmes Patton
7	639-G	"	10:04am 10:45am	.080	Book preform #16 mix No. 551-D	4.70*	James Morris
8	640-G	"	10:07am 10:47am	.076	Book preform #21 mix No. 551-D	5.96*	O. W. Turner
9	641-G	"	10:11am 10:46am	.068	Book preform-transient operator	9.10*	Nelson Spencer
10	642-G	"	10:20am 10:53am	.065	Blok preform #5 mix No. 555	8.74*	Joanna Powell
11	643-G	"	10:20am 10:54am	.049	Blok preform #2 mix No.562-5	7.10*	Sally Albert
12	644-G	"	10:30am 10:55am	.046	Blok preform #1 mix No. 551-D	6.98*	Douglas Rinard

(*) Concentration in excess of TLV

APPENDIX . 1
FPG - WINCHESTER
ANALYSES OF AIR SAMPLES
FOR ASBESTOS

METHOD OF COLLECTION: OBZ-PS - Membrane
Filter with personal sampling pump at 2 LPM
METHOD OF ANALYSIS: Phase Contrast
Microscopy

DATE ANALYZED:5/27-28/76
ANALYST: M. Dessouky
TLV: 2 fibers/ml >5μ in length
(effective 7/76)

Sample No. Field	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	Location	fibers/ml Conc.	OPERATOR
13	645-G	4/20/76	10:20am 10:50am	.059	Blok preform #7 mix No. 551	5.42*	Louis Nicholson
14	646-G	"	10:35am 10:56am	.037	Book preform #2 mix No. 555	6.85*	Robert Weaver
15	647-G	"	10:37am 10:57am	.038	Book preform #19 mix No. 551-D	4.26*	W. D. Bowen
16	649-G	"	Blank	Blank	Book Preform	Blank	Blank
17	649-G	"	10:40am 10:58am	.034	Book preform #4 mix No. 551-D	6.55*	Martha Ratliff
18	650-G	"	1:40pm 2:21pm	.065	Blok preform #5 mix No. 555	3.01*	Joanna Powell
19	651-G	"	1:54pm 2:26pm	.064	Blok preform #15 mix No. 551	4.06*	Ralph Elsasser
20	652-G	"	1:44pm 2:10pm	.052	Blok preform #2 mix No. 551	4.41*	Sally Albert
21	653-G	"	1:46pm 2:12pm	.052	Blok preform #7 mix No. 562-5	6.76*	Louis Nicholson
22	654-G	"	2:05pm 2:20pm	.046	Blok preform #11 mix No. 539	11.47*	Glen Llewellyn
23	655-G	"	Blank	Blank	Blok preform	Blank	Blank
24	656-G	"	2:10pm 2:32pm	.042	Blok preform #2 mix No. 551	5.33*	Sally Albert
25	657-G	"	2:21pm 2:44pm	.044	Blok preform #5 mix No. 551-D	5.19*	Joanna Powell

(*) Concentration in excess of TLV

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APPENDI O. 1
FPG - WINCHESTER
ANALYSES OF AIR SAMPLES
FOR ASBESTOS

METHOD OF COLLECTION: ODZ-PS -Membrane filter with personal sampling pump at 2 LPM
METHOD OF ANALYSIS: Phase Contrast Microscopy

DATE ANALYZED: 5/27-28/76
ANALYST: M. Desouky
TLV: 2 fibers/ml >5u in lengt (effective 7/76)

Sample No. Field	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	Location	fibers/ml Conc.	OPERATOR
26	658-G	4/21/76	10:07am 2:42pm	.506	Inspection and packaging	0.78	James Bayliss
27	659-G	"	10:02am 2:03pm	.470	Strip finish O.D. grinder #2	0.56	George Chambers
28	660-G	"	10:20am 2:27pm	.437	Lower compounding rubber mill No. 1	1.01	James Royston
29	661-G	"	10:05am 2:10pm	.475	Strip finish backgrinder #3	0.14	Allan Carter
30	662-G	"	10:12am 2:14pm	.462	Disc brake insp.	3.07*	Eugene Willingham
31	663-G	"	10:20am 2:16pm	.442	Insp.(Grouping) at downdraft bench	0.62	Robert Clark
32	664-G	"	10:23am 2:26pm	.459	Lower Compounding Rubber Mill No. 3	0.66	Marcus Haines
33 +	665-G	"	11:30am 2:36pm	.342	Upper Compounding Dry Line Oper.	0.34	C. B. Fauver
34	666-G	"	11:40am 1:43pm	.243	Upper Compounding Powder pumper	0.38	Joseph Palmer
35	667-G	"	11:45am 1:50pm	.263	Lower compounding Dry Line oper.	4.53*	A. H. Foreman
36	668-G	"	11:31am 2:35pm	.380	Upper Compounding Powder pumper	0.71	Gene Kline
37	669-G	"	11:35am 1:45pm	.255	Upper compounding Asbestos weigher	1.45	S. A. Dodson

(*) Concentration in excess of TLV.

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APPENDIX 1. 2
FPG - WINCHESTER
ANALYSES OF AIR SAMPLES
FOR lead in air

METHOD OF COLLECTION: OBZ-PS-Membrane filter with personal sampling pump at 2 LPM
METHOD OF ANALYSIS: Atomic Absorption Spectroscopy

DATE ANALYZED: 5/27/76
ANALYST: M. Desouky
TLV: 0.15 mg/M^3

Sample No. Field	Lab.	Date	Time	Total (M^3) Air Vol.	Location	Conc. mg/M^3	OPERATOR
1	633-G	4/20/76	9:50am 10:37am	.093	Book preform #19 mix No, 551-D	Trace	W. D. Bowen
2	634-G	"	9:46am 10:35am	.094	Book preform #2 mix No, 555	Trace	Robett Weaver
3	635-G	"	9:53am 10:30am	.089	Book preform #20 mix No, 555	Trace	J. F. Ganoe
4	636-G	"	9:56am 10:40am	.086	Book preform #4 mix No, 551-D	Trace	Martha Ratliaf
5	637-G	"	9:58am 10:44am	.092	Book preform #13 mix No. 551-D	.076	George Drown
6	638-G	"	10:00am 10:44am	.086	Book preform #14 mix No, 27E	.045	Holmes Patton
7	639-G	"	10:04am 10:45am	.080	Book preform #16 mix No, 551-D	Trace	James Morris
8	640-G	"	10:07am 10:47am	.076	Book preform #21 mix No. 551-D	Trace	O. W. Turner
9	641-G	"	10:11am 10:46am	.068	Book preform tran - ient operator	Trace	Nelson Spencer
10	642-G	"	10:20am 10:53am	.065	Blok preform #3 mix No, 555	.135	Joanna Powell
11	643-G	"	10:28am 10:54am	.049	Blok preform #2 mix No, 562-S	Trace	Sally Albert
12	644-G	"	10:30am 10:55am	.046	Blok preform #1 mix No. 551-D	Trace	Douglas Rinard

(*) Concentration in excess of TLV.

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APPENDI). 2
FPG - WINCHESTER

ANALYSES OF AIR SAMPLES
FOR LEAD IN AIR

ETHOD OF COLLECTION: OBZ-PS-Membrane
filter with personal sampling pump at 2 LPM

ETHOD OF ANALYSIS: Atomic Absorption
Spectroscopy

DATE ANALYZED: 5/27/76
ANALYST: M. Desouky
TLV: 0.15 mg/M^3

ample No. ield	Lab.	Date	Time	Total (M^3) Air Vol.	Location	Conc. mg/M^3	OPERATOR
13	645-G	4/20/76	10:20am 10:50am	.059	Blok Preform #7 mix No. 551	Trace	Louis Nicholson
14	646-G	"	10:35am 10:56am	.037	Book preform #2 mix No. 555	Trace	Robert Weaver
15	647-G	"	10:37am 10:57am	.038	Book preform #19 mix No. 551-D	Trace	W. D. Bowen
16	648-G	"	Blank	Blank	Book preform	0.0	Blank
17	649-G	"	10:40am 10:58am	.034	Book preform #4 mix No. 551-D	Trace	Martha Rotlief
18	650-G	"	1:40pm 2:21pm	.065	Blok preform #5 mix No. 555	.137	Joanna Powell
19	651-G	"	1:54pm 2:26pm	.064	Blok preform #15 mix No. 551	.149*	Ralph Ellsaser
20	652-G	"	1:44pm 2:10pm	.052	Blok preform #2 mix No. 551	Trace	Sally Albert
21	653-G	"	1:46pm 2:12pm	.052	Blok preform #7 mix No. 562-5	Trace	Louis Nicholson
22	654-G	"	2:05pm 2:28pm	.046	Blok preform #11 mix No. 539	Trace	Glen Llewellyn
23	655-G	"	Blank	Blank	Blok Preform	0.0	Blank
24	656-G	"	2:10pm 2:32pm	.042	Blok preform #2 mix No. 551	Trace	Sally Albert
25	657-G	"	2:21pm 2:44pm	.044	Blok preform #5 mix No. 551-D	.197*	Joanna Powell

APPENDI .O. 2
FPG - WINCHESTER
ANALYSES OF AIR SAMPLES
FOR Lead in Air

ETHOD OF COLLECTION: ODZ-PS-Membrano filter with porsonal sampling pump at 2 LPM
ETHOD OF ANALYSIS: Atomic Absorption Spectroscopy

DATE ANALYZED: 5/27/76
ANALYST: M. Dsouky
TLV: 0.15 mg/M^3

ample No. ield	Lab.	Date	Time	Total (M^3) Air Vol.	Location	Conc. mg/M^3	OPERATOR
26	658-G	4/21/76	10:07am 2:42pm	.506	Inspection and packaging	Trace	James Baylios
27	659-G	"	10:02am 2:03pm	.470	Strip finish O.D. grinder #2	Trace	George Chambers
28	660-G	"	10:20am 2:27pm	.437	Lower compounding rubber mill No. 1	Trace	James Royston
29	661-G	"	10:05am 2:10pm	.475	Strip finish backgrinder #3	Trace	Allan Carter
30	662-G	"	10:12am 2:14pm	.462	Disc brake insp.	Trace	Eugene Willingham
31	663-G	"	10:20am 2:16pm	.442	Insp. (Grouping) at downdraft bench	Trace	Robert Clark
32	664-G	"	10:23am 2:20pm	.459	Lower Compounding rubber mill No. 3	Trace	Marcus Haines
33	665-G	"	11:30am 2:36pm	.342	Upper compounding dry line oper.	.069	C. D. Fauver
34	666-G	"	11:40am 1:43pm	.243	Upper compounding powder pumper	Trace	Joseph Palmer
35	667-G	"	11:45am 1:50pm	.263	Lower compounding dry line operator	Trace	A. M. Foreman
36	668-G	"	11:31am 2:35pm	.368	Upper compounding powder pumper	Trace	Gene Kline
37	669-G	"	11:35am 1:45pm	.255	Upper compounding asbestos weigher	Trace	S. A. Dodson

ID-19661

APPENDIX NO. 2

FPG - WINCHESTER

ANALYSES OF AIR SAMPLES

FOR Lead in Air

METHOD OF COLLECTION: ODZ-PS-Membrane filter with personal sampling pump at 2 LPM

METHOD OF ANALYSIS: Atomic Absorption Spectroscopy

DATE ANALYZED: 5/27/76

ANALYST: M. Desouky

TLV: 0.15 mg/M^3

Sample No. Field	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	Location	Conc. mg/M^3	OPERATOR
38	670-G	4/21/76	11:38am 2:37pm	.360	Upper compounding dry line operator	Trace	C. M. Jones
39	671-G	"	1:45pm 2:39pm	.102	Upper compounding asbestos weigher	Trace	S. A. Dodson
40	672-G	"	1:58pm 2:25pm	.052	Lower compounding dry line operator	Trace	A. M. Foreman
41	673-G	"	4:08pm 6:40pm	.287	Strip finish ripper No. 2	Trace	Robert Dean
42	674-G	"	4:11pm 7:00pm	.347	Compound helper (coal screening)	.048	Elwood Hentz
43	675-G	4/22/76	4:53pm 7:03pm	.258	Grouping-Mezzanine	Trace	Holmes Curl
44	676-G	4/21/76	4:23pm 6:38pm	.267	Plant sweeper 2nd shift	Trace	Winifred Henry
45	677-G	4/22/76	10:39pm 12:45am	.250	Maintenance oper. 3rd shift	Trace	Paul Jones
46	678-G	4/23/76	9:53am 11:48am	.222	Disc Brake Preform No. 3	Trace	R. L. Dove
47	679-G	"	9:57am 11:45am	.214	Disc brake preform No. 1	Trace	William Moreland
48	680-G	"	10:09am 11:49am	.180	Blok Finish I.D." Grinder No. 1	Trace	Donald Arnold
49	681-G	"	10:10am 11:49am	.201	Blok finish Burr Chamfer No. 2	Trace	Ed Farrell
50	682-G	"	9:55am 11:47am	.227	Disc brake preform No. 2	Trace	Douglas Clark

(*) Concentration in excess of TLV.

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APPENDI O. 3
FPG - WINCHESTER

ANALYSES OF AIR SAMPLES
FOR Methyl Ethyl Ketone

METHOD OF COLLECTION: OBZ-PS-Perbonal sampling pump with activated charcoal absorption tubes

METHOD OF ANALYSIS: Gas Chromatography

DATE ANALYZED: 5/6/76
ANALYST: M. Desouky
TLV: 590 mg/M^3

Sample No. Field	Sample No. Lab.	Date	Time	Total (M^3) Air Vol.	Location	Conc. mg/M^3	OPERATOR
1	630-G	4/23/76	9:49am 10:20am	.024	Blok finish printer No. 2	3.13	Richard Renner
2	631-G	"	9:43am 10:23am	.03	Strip finish hand printer No. 2	2.17	Calvin Fox
3	632-G	"	10:01am 10:39am	.03	Strip finish printer machine No. 10	59.23	Stephen Michael

in excess of TLV