PLAINTIFF'S EXHIBIT WRG-1204

CAMBRIDGE

To: Grace Cepican/Portland

Date: 17 September 1986

From: H. Bekrani

cc: F. W. Eaton
L. K. Park
S. Venuti
T. E. Winkel/Santa Ana
J. W. Wolter
W. R. Wright

Subject: Industrial Hygiene Survey

On 28 July 1986 I conducted an Industrial Hygiene Survey at the Portland plant. The results of the survey are discussed below.

Air Sampling - Fiber

The results of the personnel fiber sampling are below the OSHA Permissible Exposure Limit (PEL) of 0.2 fibers/cc for an 8-hour Time-Weighted Average (TWA) and the "Action Level" of 0.1 fibers/cc.

Employee	Job	Ore	8-hour TWA
Bill Benjamin	Forklift driver	L-4, L-3	0.033
Felton Howard	Maintenance Man	L-4, L-3	0.015
David Stadtmuller	Shift Leader	L-4, L-3	0.023

The results of the engineering samples are also included, and they are all low.

Air Sampling - Total Dust

The results of the personnel dust sampling are above the American Conference of Governmental Industrial Hygienists (ACGIH) recommended Threshold Limit Value (TLV) and Grace Internal Limit (GIL) of 10 mg/m^3 for an 8-hour TWA.

Employee	Job	8-hour TWA
Ron Waggoner	Monokote Mixer/Bagger	14.274 mg/m^3

The results indicate that mandatory respirator protection is required for the Monokote mixer/bagger at the Portland plant. I recommend that the ventilation system at the Monokote station be thoroughly checked to ensure proper functioning and that employee work practices be reviewed and modified to reduce airborne dust.

Noise Monitoring

Both employee noise dosimetry and area sound level meter readings were taken at Portland. The results are indicated below and on the attached sheets.

Employee	S.S.#	Job	8-hour TWA
David Stadtmuller	568-62-3152	Shift Leader	87.5
Felton Howard	543-66-0106	Maintenance	82.5
Ron Waggoner	541-76-2264	Monokote Mixer-1/3 Bagger	84.5
Bill Benjamin	538-68-8372	Forklift truck	82.0

The noise monitoring was done using the 80 dB threshold level. An exposure greater than 85 dBA "Action Level" with the 80 dB threshold signals the need for a Hearing Conservation Program. Since one of the employees was above the 85 dBA "Action Level", a Hearing Conservation Program is required for that employee.

Safety Survey

At this time I have no recommendations.

H. Bekrani (TEM)

Hamid Bekrani

HB/al

Attachments

B010

10001101

To: All Employees Date: 17 September 1986

From: Grace Cepican

Subject: Air Sampling Results

The results of the air samples for fiber completed on 28 July 1986 by Health, Safety and Environmental Services are listed below. The present OSHA Permissible Exposure Limit is 0.2 fibers/cc of air for an 8-hour Time-Weighted Average (TWA).

Employee	8-hour TWA (f/cc)
1. Bill Benjamin	0.033
2. Fleton Howard	0.015
3. David Stadtmuller	0.023

Grace Cepican
Plant Manager

Dates:

Posted _____

Removed _____

Location: Portland, Oregon
Date: 28 July 1986
Operator: Hamidreza Bekrani

SOUND LEVEL METER MEASUREMENTS

LOCATION	DISTANCE	Reading (dBA)
D-18 Furnace -- bagging station	no operator	86- 87
Monokote bagging station:		
left	@ operator's ear	85- 86
right	@ operator's ear	83- 84
Monokote mixing station	1'	102-103
Lunch room, inside	15' from Monokote mixing station	63- 64
Forklift truck	@ operator's ear	82- 83

Instruments Used: Scott Type 453A Sound Level Meter -- ANSI Type S2A
Calibrated With: Scott Type 457 Acoustic Calibrator at 106 dB

HB/cs/8/12/86

B006

10001103

GRACE

NOISE DOSIMETRY RECORD II

Health, Safety & Toxicology

Plant Location Portland, Oregan

Date 7/29/86

Measurements by Hamid BeKrani

EMPLOYEE NAME	David Stadtmuller	*Felton Howard	Ron Waggoner	Bill Benjamin
SOC. SEC. NO.	568-62-3152	543-66-0106	541-76-2264	538-68-8372
JOB DESCRIPTION	Shift leader	Maintenance	monoKote mixer & bagger	ForKlift truck
PROTECTIVE EQUIP.	3M-8710	3M8710	3M8710 + earplug	None
DOSIMETER NO.	504746	504985	504110	502280
CALIBRATION PRE	0.117	0.125	0.120	0.119
CALIBRATION POST	0.118	0.124	0.119	0.118
MIN. IN WORKDAY	480	480	480	480
TOTAL BREAK MIN./monitored	60/60	45/45	45/45	45/45
DOSIMETER ON	0826	0830	0816	0820
DOSIMETER OFF	1604	1606	1543	1559
TOTAL TIME	458 min.	456 min.	447min	459 min.
(1) DOSE %	67.3	33.2	42.9	31.2
(1) L avg. (dB)				
(2) DOSE %				
(2) L avg. (dB)				
L max. (dB)				
TIME OF L max.				
PEAK L max. (1/16 sec.)				
PROJ. 8-hr DOSE				
TIME > 115 dB				
(1) 8-hr TWA (dB)	87.5	82.5	84.5	82.0
(2) 8-hr TWA (dB)				

Equipment: ~~DUPONT MK-2~~ GENRAD 1957-9710 dosimeter

Settings:

	(1)	(2)
Threshold Level	80	
Criterion level	90	
Doubling Rate	5	

Additional Comments 1st shift: 8am - 4pm

* radio on in the maintenance room about 3 feet away

10001104

TOTAL DUST

CONSTRUCTION

PRODUCTS

DIVISION

Report: _____

Group: CPD Manufacturing

Date: 11 August 1986

Charge No.: 1174

Requestor: Hamid Bekrani

Marketing or Manufacturing Approvals:

Name: Thomas E. Hamilton

Approved: T E Hamilton

REQUEST FOR TECHNICAL SERVICE

PROBLEM TITLE: Environmental Evaluation -- Air -- Total Dust.

SIGNIFICANCE: The evaluation of workplace air on a periodic basis is necessary to comply with the air sampling section of the OSHA Air Contaminants Standard.

SPECIFIC OBJECTIVE: Determine the Total Dust on the sample and calculate the rate of deposition in mg/M^3.

SUGGESTED APPROACH: Analytical Balance -- Filters have been pre-weighed.

DEADLINE (last day information will be of value): Two (2) weeks.

DETAILS OF PROBLEM: Please evaluate Personnel samples from Portland, OR

sample numbers SD-27, SD-14, SD-17, SD-36

ACCEPTED BY RESEARCH DEPT.: _____ DATE: _____

ASSIGNED TO: _____

ADDITIONAL COPIES: Original to Library; J.W.Wolter, R.J.Bettacchi, F.W.Eaton W.R.Wright, J.Yang, L.K.Park

10001105

CONFIDENTIAL

RFTS 76424

GRACE

AIR SAMPLING RECORD SHEET

HEALTH, SAFETY & TOXICOLOGY DEPT.

Plant Location: Portland, Oregan
Division: Construction Products Division
Sampling by: H. BeKrani Date: 7/29/86
Contaminant: Total Dust

Weather: Sunny & COOL
Temperature: 62°F
Pressure: 30.27" Hg
Housekeeping: good

Type of Sampling: Personnel ✓ Engineering
Collection Media: Polycarbonate membrane
Pump (type & model): Dupont-P-2500

Sample No.	Employee Name & Social Security No.	Personal Protective Equipment	Job Location and Description	Pump No.	CLOCK TIME On	CLOCK TIME Off	CLOCK TIME Total	Flow Rate	Total Volume Sampled	Lab Evaluation
SD 27	Ron Waggoner 541-76-2264	3M-8710	MonoKote mixer & bagger making 3300 product.	58	0815	1005	110	2.0	220	16.455
SD 14	Ron Waggoner 541-76-2264	3M-8710	(15 min break) Same as SD 27	58	1006	1209	123	2.0	246	13.455
SD 17	Ron Waggoner 541-76-2264	3M-8710	(30 min lunch break) Same as SD 27	58	1209	1400	111	2.0	222	26.081
SD 36	Ron Waggoner 541-76-2264	3M-8710	(15 min break) Same as SD 27	58	1400	1542	102	2.0	204	10.588

Additional Comments: Product: 3300 Thermal barrier
Unmanned Furnace D-18 running (1-3)

Laboratory Evaluation by: Sara K Nelson
Date: 8/13/86

10001106

CONFIDENTIAL

AUG 2[illegible] 1986

CONSTRUCTION

PRODUCTS

DIVISION

Report: 76422

Group: CPD Manufacturing

Date: 11 August 1986

Charge No.: 1174

Requestor: Hamid Bekrani

Marketing or Manufacturing Approvals:

Name: Thomas E. Hamilton

Approved: T E Hamilton

REQUEST FOR TECHNICAL SERVICE

PROBLEM TITLE: Environmental Evaluation -- Air -- Fibrous Materials.

SIGNIFICANCE: The evaluation of workplace air on a periodic basis is necessary to comply with the air sampling section of the OSHA Asbestos Standard.

SPECIFIC OBJECTIVE: Determine fiber counts for filter media.

SUGGESTED APPROACH: Phase contrast microscopy.

DEADLINE (last day information will be of value): Two (2) weeks.

DETAILS OF PROBLEM: Please evaluate Personnel samples from Portland, OR

sample numbers PO-1 through PO-13
products and ores involved: L-3 and L-4

ACCEPTED BY RESEARCH DEPT.: Charles L. Sanders, Jr. DATE: 08/11/86

ASSIGNED TO: B.J. O'Leary

ADDITIONAL COPIES: Original to Library; J.W.Wolter, R.J.Bettacchi, F.W.Eaton
W.R.Wright, J.Yang, L.K.Park

10001107

REQUEST FOR TECHNICAL SERVICE

NUMBER: 76422
GROUP: CPD Manufacturing
ESTIMATED COST: $350.00
REPORTING DATE: 8/14/86

CONSTRUCTION PRODUCTS DIVISION

SUMMARY AND RESULTS:

Thirteen personnel samples were received from Portland, OR and were evaluated for their fiber content.

The results are as shown on the attached Air Sampling Record Sheet.

Emily C. Onello

Emily C. Onello

ECO/hd

GRACE

AIR SAMPLING RECORD SHEET

HEALTH, SAFETY & TOXICOLOGY DEPT.

Plant Location: Portland, Oregan
Division: Construction Products Division
Sampling by: H. BeKrani Date: 7/29/86
Contaminant: Asbestos Fiber

Weather: Sunny & cool
Temperature: 62°F
Pressure: 30.27" Hg
Housekeeping: good

Type of Sampling: Personnel ✓ Engineering ____
Collection Media: 0.8 µm A.A. membrane
Pump (type & model): Du Pont - P - 2500

Sample No.	Employee Name & Social Security No.	Personal Protective Equipment	Job Location and Description	Pump No.	CLOCK TIME On	CLOCK TIME Off	CLOCK TIME Total	Flow Rate	Total Volume Sampled	fibers/ml. Lab Evaluation
P.O.1	Bill Benjamin 538-68-8372	None	Forklift truck driver	77	0820	0920	60	2.0	120	0.02
P.O.2	Felton Howard 543-66-0106	3M-8710	maintenance man (15 min. break)	45	0830	1045	135	2.0	270	0.02
P.O.3	David Stadtmuller 568-62-3152	3M-8710	shift leader/Furnace operator (15 min. break)	57	1001	1130	89	2.0	178	0.03
P.O.4	Bill Benjamin 538-68-8372	None	Same as P.O.1 & swept the silo pads	77	1047	1146	59	2.0	118	0.13
P.O.5	Felton Howard 543-66-0106	3M-8710	Same as P.O.2	45	1045	1225	100	2.0	200	0.03
P.O.6	David Stadtmuller 568-62-3152	3M-8710	Same as P.O.3 (30 min. lunch)	57	1130	1345	135	2.0	270	0.03
P.O.7	Bill Benjamin 538-68-8372	None	Same as P.O.1 (30 min. lunch)	77	1149	1348	119	2.0	238	0.01
P.O.8	Felton Howard 543-66-0106	3M-8710	Same as P.O.2 (30 min. lunch)	45	1225	1355	90	2.0	180	0.003
P.O.9	David Stadtmuller 568-62-3152	3M-8710	Same as P.O.3 (15 min break)	57	1346	1452	66	2.0	132	0.02
P.O.10	Bill Benjamin 538-68-8372	None	Same as P.O.1 (15 min break)	77	1348	1507	79	2.0	158	0.02

Additional Comments: 1st shift: 8am - 4pm
D-18 (L-4) Terralite
D-18 (L-3) 3300 Thermal barrier

Comments: Bill Benjamin dropped his sample 9:20 - 10:47 on the floor.

Laboratory Evaluation by: Emily C. Onello
Date: 8/13/86

10001109

GRACE

AIR SAMPLING RECORD SHEET

HEALTH, SAFETY & TOXICOLOGY DEPT.

Plant Location: Portland, Oregon
Division: CPD
Sampling by: H. BeKrani Date: 7/29/86
Contaminant: Asbestos Fiber

Weather: Sunny & cool
Temperature: 62°F
Pressure: 30.22" Hg
Housekeeping: good

Type of Sampling: Personnel ✓ Engineering
Collection Media: 0.8 µm A.A. membrane
Pump (type & model): Dupont- P-2500

Sample No.	Employee Name & Social Security No.	Personal Protective Equipment	Job Location and Description	Pump No.	CLOCK TIME On	CLOCK TIME Off	CLOCK TIME Total	Flow Rate	Total Volume Sampled	fibers/ml. Lab Evaluation
P.O. 11	Felton Howard 543-66-[illegible]06	None	Same as P.O. 2 (15 min. break)	45	1355	1606	131	2.0	262	0.01
P.O. 12	David Stadtmuller 568-62-3152	"	Same as P.O. 3	57	1452	1604	72	2.0	144	0.05
P.O. 13	Bill Benjamin 538-68-8372	"	Same as P.O. 1	77	1507	1559	52	2.0	104	0.02

Additional Comments: 1st shift 8am - 4pm
D-18 (L-4) Terralite
D-18 (L-3) 3300 Thermal barrier.

Laboratory Evaluation by: Emily C. Duello
Date: 8/13/86

10001110

CONFIDENTIAL AUG 20 1986

CONSTRUCTION

PRODUCTS

DIVISION

Report: 76423
Group: CPD Manufacturing
Date: 11 August 1986
Charge No.: 1174
Requestor: Hamid Bekrani
Marketing or Manufacturing Approvals:
Name: Thomas E. Hamilton
Approved: T.E. Hamilton

REQUEST FOR TECHNICAL SERVICE

PROBLEM TITLE: Environmental Evaluation -- Air -- Fibrous Materials.

SIGNIFICANCE: The evaluation of workplace air on a periodic basis is necessary to comply with the air sampling section of the OSHA Asbestos Standard.

SPECIFIC OBJECTIVE: Determine fiber counts for filter media.

SUGGESTED APPROACH: Phase contrast microscopy.

DEADLINE (last day information will be of value): Two (2) weeks.

DETAILS OF PROBLEM: Please evaluate Engineering samples from Portland, OR

sample numbers PO-30 through PO-34
products and ores involved: L-4

ACCEPTED BY RESEARCH DEPT.: Charles L. Sanders, Jr. DATE: 08/11/86

ASSIGNED TO: B.J. O'Leary

ADDITIONAL COPIES: Original to Library; J.W.Wolter, R.J.Bettacchi, F.W.Eaton
W.R.Wright, J.Yang, L.K.Park

10001111

REQUEST FOR TECHNICAL SERVICE

NUMBER: 76423

GROUP: CPD Manufacturing

ESTIMATED COST: $150.00

REPORTING DATE: 8/14/86

CONSTRUCTION PRODUCTS DIVISION

SUMMARY AND RESULTS:

Five (5) engineering samples were received from Portland, OR and were evaluated for their fiber content.

The results are as shown on the attached Air Sampling Record Sheet.

Emily C. Onello

Emily C. Onello

ECO/hd

GRACE

AIR SAMPLING RECORD SHEET

HEALTH, SAFETY & TOXICOLOGY DEPT.

Plant Location: Portland, Oregon
Division: Construction Products Division
Sampling by: H. BeKrani Date: 7/29/86
Contaminant: Asbestos Fiber

Weather: Sunny & Warm
Temperature: 62°F
Pressure: 30.27" Hg
Housekeeping: good

Type of Sampling: Personnel ____ Engineering ✓
Collection Media: 0.8 µm A.A. membrane
Pump (type & model): Dupont-P-2500

Sample No.	Employee Name & Social Security No.	Personal Protective Equipment	Job Location and Description	Pump No.	CLOCK TIME On	CLOCK TIME Off	CLOCK TIME Total	Flow Rate	Total Volume Sampled	f/ml. Lab Evaluation
P.O. 30	AREA	None	Soaking pit near model D-18	10819	0906	1023	77	2.0	154	0.04
P.O. 31	"	"	Model D-18 Beghouse drop	10819	1108	1213	65	2.0	130	0.03
P.O. 32	"	"	model D-18 Waste Rock Hopper	10819	1220	1350	90	2.0	180	0.04
P.O. 33	"	"	model D-18 Stoner - production end	10819	1503	1603	60	2.0	120	0.04
P.O. 34	"	"	model D-18 Stoner - Waste end	59	1503	1604	61	2.0	122	0.05

Additional Comments: Furnace D-18 (L-4) Terralite

Laboratory Evaluation by: Emily C. Onello
Date: 8/13/86

10001113

ZONOLITE PLANT - INDUSTRIAL HYGIENE AUDIT

Plant Location: Portland Oregan

Date: 7/28/86

Audited By: H. Bekrani

AIR SAMPLING LOCATIONS:

ASBESTOS (Personnel):

- ____ Vermiculite Baggers
- ✓ Furnace Operators + Shift leader
- ✓ Truck Loaders & ForKlift driver
- ✓ Maintenance (Clean-up)
- ____ Other, (List) ____

TOTAL DUST:

- ✓ Monokote Mixer
- ✓ Monokote Bagger } Same person.
- ____ Perlite Bagger
- ____ Soil Line Mixer
- ____ Soil Line Bagger
- ____ Product (List) 3300 Grey-

ENGINEERING SAMPLES:

- ✓ Stoner (Product End) - D-18 model
- ✓ Stoner (Waste End)- D-18 model
- ✓ Waste Rock Hopper- D-18 model
- ✓ Bag House Waste Drop D-18 model
- ✓ Other, (List) Soaking pit near model D-18

NOISE MONITORING: (list job descriptions)

- David Stadmuller; Shift leader
- Felton Howard Jr.; Maintenance man
- Ron Waggoner; Monokote mixer & bagger.
- Bill Benjamin; Forklift truck.
- AREA NOISE MEASUREMENTS: D-18 Furnace bagging station, Monokote bagging station Monokote mixing station, lunch room, Forklift truck.

10001114

(✓) = Satisfactory Condition

HEALTH SURVEILLANCE PROGRAM			Status (list)
	Pre-Employment Physicals	✓	last person: 4/3/1986
	Annual Surveillance: Chest X-ray	✓	4/3/86
	Lung-Function Test	✓	4/3/86
	Audiogram	✓	4/3/86
	Health Questionnaire	✓	

PROGRAMS, PROCEDURES AND RECORDKEEPING.		Status (list)
Copy of OSHA Regulations (29CFR1910)	✓	
General Safety Rules	✓	
Formal Inspection Program	✓	
Incident Investigation	✓	July 15, 1986
Safety Meetings	✓	April 1, 1986
First Aid Training & Equipment	✓	
Written Respirator Program		Needs to be given.
Respirator Training & Fitting Records		gave the copy.
Copy of Hearing Conservation Std.	✓	
Hearing Conservation Training Records	✓	
OSHA 200 Log (6 day up-to-date)	✓	
Lockout and Tag Procedures	✓	
Baghouse Entry Procedure	✓	
Employee Hazard Communication	✓	3/31/86 draft 4/9/86
Forklift Driver Training Program	✓	
Asbestos Training - "Picture Perfect"	✓	
Other Programs	✓	monthly inspection program.

10001115

PLANT WALK-THROUGH SURVEY:

(✓) = Satisfactory Condition

ENGINEERING CONTROLS		Status (list)
Waste Rock Hoppers	✓	
Stoner Flaps	✓	
Baghouse Waste Drop	✓	
Bag Waste Compactor	✓	
Monokote Mixing Ventilation	✓	
General & Miscellaneous Ventilation	✓	

GENERAL CONDITIONS		Status (list)
Employee Work Practices	✓	
Proper Respirator Use	✓	
Personal Protective Equipment Use	✓	
Plant Housekeeping	✓	
Forklift Trucks	✓	
Truck Wheel Chocks & Dock Plates	✓	
Machine Guards and Railings	✓	
Ladders	✓	
Fire Extinguishers	✓	
Battery Charging Stations	N.A	
Electrical Cords	✓	
Labeled Electrical Panels	✓	
Storage & Handling of Flammables	✓	
Warehouse Storage (Pallets)	✓	Pallets all nicely stored.
Stoner Deck Conditions	✓	
Secured Compressed Gas Cylinders	✓	

Comments:

The plant is maintained in very clean conditions. The Employees' work practices are very good and overall there were no problems whatsoever.

10001116

Signature: Grace Cipicar

Plant Manager

HAZARD COMMUNICATION PROGRAM:

Right-To-Know

	Status (list)	
	Yes	No*
1. Does the Health, Safety and Environmental Response Manual contain the procedures needed to implement the Right-To-Know Training Program, i.e. 005-A "In-House Labelling", 006-A "Material Safety Data Sheets" and 007-A "Written Hazard Communications Program"?	✓	
2. Has the Labelling Program been implemented?	✓	
Are labels easily visible and in satisfactory condition?	✓	
3. Is the "Workplace Notebook" containing the Chemical Inventory Lists, Material Safety Data Sheets and HITS Training Information Sheets available in a location "readily accessible during each work shift to employees when they are in their work areas"?	✓	
Do employees know where it is?	✓	
4. Do individual employee files contain records of Right-To-Know Training, including training dates, identity of specific information and individual chemicals covered and the person completing the training?	✓	
5. Some states require the use of state prepared Right-To-Know posters. Has the plant manager identified this requirement and posted where applicable?	Not Applicable	

Comments*:

10001117

P015

SAMPLE

FIT TESTING RECORD

NAME	DATE	RESPIRATOR Make Model Size	TYPE OF TEST*	RESULTS**	TEST ADMINISTRATOR
Felton Howard JR	7/28/86	Breathing Assist/ Wilson 3000 medium	Irritant smoke	Passed	Hamid Bekrani
Bill Benyamin	7-29-86	Breathing Assist(willson) 3000 m	Irritant smoke	Passed	Hamid Bekrani

*Irritant smoke, isoamyl acetate, sodium saccharin, quantitative

**Pass or fail

10001118

Figure 7

SAMPLE

RESPIRATOR TRAINING RECORD

Name	Date	Department or Work Area
Fe Hon Howard JR	7-28-86	Foreman / MAINT
Bill Benjamin	7-29-86	Forklift / MAINT.

Training Instructor: Hamid Bekrani

10001119