



Professional Service Industries, Inc.
PTL/Shilstone Engineering Testing Laboratory Division

REPORT OF BULK SAMPLE ANALYSIS FOR ASBESTOS

TESTED FOR: John R. Herdt
GPIP
Post Office Box 96120
Houston, Texas 77213-6120

PROJECT: Asbestos Analysis
Houston, Texas



DATE: December 5, 1988 OUR REPORT NO 204-89029-01 Page 1 of 11

REMARKS:

On December 5, 1988 Professional Service Industries, Inc. (PSI) received thirty (30) bulk samples from ARMCO GPIP for determination of presence or absence of asbestos at the request of Mr. John R. Herdt. The samples were obtained by and the sample locations were provided by GPIP personnel. The results of the requested analysis are continued on the following pages.

If any additional information is needed, please do not hesitate to contact us at your convenience.

Respectfully submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Donald E. Champion
Don Champion
Asbestos Division Manager

Ruth Hindman
Ruth Hindman
Microscopist

ARM 588

TESTED FOR: John R. Herdt
GPIP
Post Office Box 96120
Houston, Texas 77213-6120

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Houston, Texas

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OUR REPORT NO: 204-89029-01

Page 2 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No	158028	158029	158027
Sample ID No.	114	113	115
Sample Location	"Shops" Area Piping East End	Eng. Off'E Ceiling	"Shops" Area Piping West End
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White	Brown	White
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4 Other (specify)	(1)	(1)	(1)
TOTAL PERCENT ASBESTOS	70%	35%	80%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3 Other (specify)	None	None	None
NONFIBROUS MATERIALS	30% Binder	65% Vermiculite	20% Binder

COMMENTS:

ARM 589

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DATE: December 5, 1988

OUR REPORT NO.. 204-89029-01

Page 3 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158024	158026	158025
Sample ID No.	118	116	117
Sample Location	Prod. P. Ceiling Area A-S	Prod. PT Ceiling Top Top Layer	Prod. PT ceiling Middle Layer
Gross Appearance	Friable	Ceiling Tile	Ceiling Tile
Is it homogeneous?	No	No	No
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Brown	Brown	Brown
DOES THE SAMPLE CONTAIN ASBESTOS?	No	No	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)			
TOTAL PERCENT ASBESTOS			
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	1. Mineral Wool 70% 2. Paper 20%	90% wood	85% Paper
NONFIBROUS MATERIALS	10% paint.	10% paint	15% paint
	2' x 4' tiles	12" x 12" tiles	12" x 12" tiles

COMMENTS:

ARM 590

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OUR REPORT NO 204-89029-01

Page 4 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158002	158001	158006
Sample ID No.	110	101	104
Sample Location	Drawing Room East Wall	#2 EMS Instr. Line	Big Line from B.H. Met. Shield
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Pink	Gray	Tan
DOES THE SAMPLE CONTAIN ASBESTOS?	60%	35%	No
ASBESTOS (Type & Percent; 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)	(1)	
TOTAL PERCENT ASBESTOS	60%	35%	
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	Synthetic 30% Fiberglass 5%	Synthetic 90%
NONFIBROUS MATERIALS	40% Binder	30% Binder	10% Binder

COMMENTS:

ARM 591

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OUR REPORT NO 204-89029-01

Page 5 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158004	158007	158008
Sample ID No.	111	106	105
Sample Location	At J. L. Office	Brown Ins. Back Room	BF MS Storage Brown Ins.
Gross Appearance	Friable	Non-Friable	Non-Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Pink	Yellow	Yellow
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	No	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4 Other (specify)	(2)		
TOTAL PERCENT ASBESTOS	60%		
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3 Other (specify)	None	20% synthetic	20% synthetic
NONFIBROUS MATERIALS	40% Binder	80% Binder	80% Binder

COMMENTS:

ARM 592

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DATE: December 5, 1988

OUR REPORT NO. 204-89029-01 Page 6 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158005	158003	158010
Sample ID No.	103	112	107
Sample Location	Insul. Inside Coal. Lab.	Store Room Area South St. Line	Gray Insul. Back Room
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White/Gray	Gray	Gray
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)	(2)	(2)
TOTAL PERCENT ASBESTOS	60%	75%	75%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	40% Binder	25% Binder	25% Binder

COMMENTS:

ARM 593

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OUR REPORT NO.: 204-89029-01

Page 7 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No	158011	158007	158030
Sample ID No	108	102	109
Sample Location	White, Small Dia No Flakes	East to West	Drawing Room West
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White	Gray	Pink/White
DOES THE SAMPLE CONTAIN ASBESTOS?	No	Yes	Yes
ASBESTOS (Type & Percent): 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)		(2)	(3) & (2)
TOTAL PERCENT ASBESTOS		80%	(3) 10% (2) 70%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	Synthetic 45% Fiberglass 5%	None	None
NONFIBROUS MATERIALS	50% Binder	20% Binder	20% Binder
	BF MS Storage	Steam Line BF Bldg. Office to Shop	

COMMENTS:

ARM 594

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Houston, Texas

DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 8 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158023	158022	158013
Sample ID No.	119	120	130
Sample Location	Prod. Pl. WAAL Rm. S	Prod Pl. Flr. Area BCDE Hall.	Eng. Office Floor
Gross Appearance	Wall Tile	Floor Tile	Floor Tile
Is it homogeneous?	No	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	No
What color is it?	Tan/Brown	Black	Gray
DOES THE SAMPLE CONTAIN ASBESTOS?	No	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)		(1)	(1)
TOTAL PERCENT ASBESTOS		5%	5%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	90% wood	None	None
NONFIBROUS MATERIALS	10% paint.	95% vinyl	95% vinyl
	12" x 12" Tiles	9" x 9" Tiles	

COMMENTS:

ARM 595

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DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 9 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158014	158016	158017
Sample ID No.	128	126	125
Sample Location	Prod. Pl. Flr., Area S	Prod. Pl. Flr. Area L	Prod. Pl. Flr., Area M
Gross Appearance	Floor Tile	Floor Tile	Floor Tile
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	No	No	No
What color is it?	Black	Off-white	Gray
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	No	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4 Other (specify)	(1)		
TOTAL PERCENT ASBESTOS	20%		
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	80% vinyl	100% vinyl	100% vinyl

COMMENTS:

ARM 596

ARM001076

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Houston, Texas

DATE: December 5, 1988

OUR REPORT NO: 204-89029-01 Page 10 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158018	158020	158019
Sample ID No.	124	121	123
Sample Location	Prd. Pl. Flr., Area 0 9*9	Prd. Pl. Flr., Area A. 12*12	Prd. Pl. Flr., Area 0 12*12
Gross Appearance	9x9 Floor Tile	12x12 Floor Tile	12x12 Floor Tile
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	No	No	No
What color is it?	Gray	Gray	Off-white
DOES THE SAMPLE CONTAIN ASBESTOS?	No	No	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)			(1)
TOTAL PERCENT ASBESTOS			2%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	100% vinyl	100% vinyl	98% vinyl

COMMENTS:

ARM 597

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Houston, Texas

DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 11 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158012	158021	158015
Sample ID No.	131	122	127
Sample Location	Eng. Off. Prnt. Room Floor	Prd. Pl. Flr., Area AA1FO 9*9	Prd. Pl. Flr., Area GHIJKNQR 9*9
Gross Appearance	Floor Tile	Floor Tile	9x9 Floor Tile
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	No	No	No
What color is it?	Off-white	Off-white	Tan
DOES THE SAMPLE CONTAIN ASBESTOS?	No	No	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)			(1)
TOTAL PERCENT ASBESTOS			2%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	100% vinyl	100% vinyl	98% vinyl

COMMENTS:

ARM 598

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DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 2 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158028	[REDACTED]	158027
Sample ID No.	114	[REDACTED]	115
Sample Location	"Shops" Area Piping East End	[REDACTED]	"Shops" Area Piping West End
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White	Brown	White
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(1)	(1)	(1)
TOTAL PERCENT ASBESTOS	70%	35%	80%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	30% Binder	65% Vermiculite	20% Binder

COMMENTS:

ARM 211

ARM000109

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DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 4 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.		158001	158006
Sample ID No.		101	104
Sample Location		#2 EMS Instr. Line	Big Line from B.H. Met. Shield
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Pink	Gray	Tan
DOES THE SAMPLE CONTAIN ASBESTOS?	60%	35%	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)	(1)	
TOTAL PERCENT ASBESTOS	60%	35%	
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	Synthetic 30% Fiberglass 5%	Synthetic 90%
NONFIBROUS MATERIALS	40% Binder	30% Binder	10% Binder

COMMENTS:

ARM 212

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DATE: December 5, 1988

OUR REPORT NO.: 204-89029-01

Page 5 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158004		
Sample ID No.	111		
Sample Location	At J. L. Office		
Gross Appearance	Friable	Non-Friable	Non-Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Pink	Yellow	Yellow
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	No	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)		
TOTAL PERCENT ASBESTOS	60%		
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	20% synthetic	20% synthetic
NONFIBROUS MATERIALS	40% Binder	80% Binder	80% Binder

COMMENTS:

ARM 213

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OUR REPORT NO.: 204-89029-01 Page 6 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158005		
Sample ID No.	103		
Sample Location	Insul. Inside Coal. Lab.		
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White/Gray	Gray	Gray
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)	(2)	(2)
TOTAL PERCENT ASBESTOS	60%	75%	75%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	40% Binder	25% Binder	25% Binder

COMMENTS:

ARM 214

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OUR REPORT NO.: 204-89029-01

Page 4 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.	158002		
Sample ID No.	110	101	104
Sample Location	Drawing Room East Wall		
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	Pink	Gray	Tan
DOES THE SAMPLE CONTAIN ASBESTOS?	60%	35%	No
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(2)	(1)	
TOTAL PERCENT ASBESTOS	60%	35%	
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	Synthetic Fiberglass 30% 5%	Synthetic 90%
NONFIBROUS MATERIALS	40% Binder	30% Binder	10% Binder

COMMENTS:

ARM 041

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OUR REPORT NO.: 204-89029-01 Page 2 of 11

REMARKS: Analysis by EPA recommended PLM with Dispersion Staining

Laboratory No.		158029	
Sample ID No.	114	113	115
Sample Location	East End	Eng. Off'E Ceiling	
Gross Appearance	Friable	Friable	Friable
Is it homogeneous?	Yes	Yes	Yes
Are there obvious layers?			
Is it fibrous?	Yes	Yes	Yes
What color is it?	White	Brown	White
DOES THE SAMPLE CONTAIN ASBESTOS?	Yes	Yes	Yes
ASBESTOS (Type & Percent) 1. Chrysotile 2. Amosite 3. Crocidolite 4. Other (specify)	(1)	(1)	(1)
TOTAL PERCENT ASBESTOS	70%	35%	80%
OTHER FIBROUS MATERIALS (Type & Percent) 1. Fibrous Glass 2. Cellulose 3. Other (specify)	None	None	None
NONFIBROUS MATERIALS	30% Binder	65% Vermiculite	20% Binder

COMMENTS:

ARM 042