

Report of Results: MVA0607

Micarta Experiment (GHP Project No. 93026.02)

Prepared for:

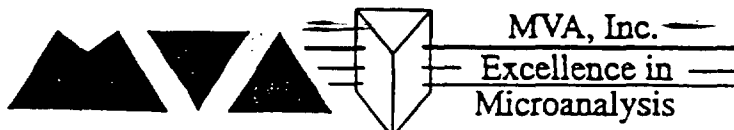
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Prepared by:

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13 July 1993

D:PROJECTS:0607:RPT0608



**5500 Oakbrook Parkway #200
Norcross, Georgia 30093
404-662-8509**

Micarta Experiment (Cutting)
GHP Project #93026.02 07/02/93
MVA Project No. 0607

Field Sample #	MVA #	Description	PCM f/cc	TEM f/cc*
0105	D1823	Saw Test (Personal)		<0.28**
0106	D1824	Saw Test (Personal)		<0.13**

* Asbestos only >5 μm by >0.25 μm and >3:1 aspect ratio.

** No fibers detected.

Micarta Experiment (Cutting)
GHP Project #93026.02 07/02/93
MVA Project No. 0607

Field Sample #	MVA #	Description	PCM f/cc	TEM f/cc*
0200	D1830	Background	0.017	
0201	D1831	Background	0.019	
0202	D1832	Background	0.018	
0210	D1840	Saw Test (Personal)	<0.17	<0.3**
0211	D1841	Saw Test (Personal)	<0.08	<0.15**
0212	D1842	Cutting (Area)	2.08***	THL
0213	D1843	Cutting (Area)	1.59***	THL
0214	D1844	Cutting (Area)	3.71***	THL
0217	D1847	Cutting (Personal)	16.1	16.7
0218	D1848	Cutting (Personal)	10.9	11.3
0219	D1849	45 Min. Settling (Area)	1.83	1.5
0220	D1850	45 Min. Settling (Area)	2.18	1.4
0221	D1851	45 Min. Settling (Area)	1.50	1.1
2001	D1861	Sealed Blank	ND	ND
2002	D1862	Field Blank	ND	ND

* Asbestos only >5 µm by >0.25 µm and >3:1 aspect ratio

** ND = No fibers detected. Value for detection limit is given.

*** Sample nos. 0212, 0213 and 0214 were heavily loaded and some fibers may have been obscured.

ND = No fibers detected. Blanks 2001 and 2002 are for sample nos. 0105-0106 and 0200-0218. No asbestos fibers >5 µm long were observed.

THL = Too heavily loaded to count. Chrysotile asbestos fibers were identified in the sample.

Micarta Experiment (Sweeping)
GHP Project #93026.02 07/02/93
MVA Project No. 0607

Field Sample #	MVA #	Description	PCM f/cc	TEM f/cc*
0224	D1854	During Sweeping (Area)	1.34	
0225	D1855	During Sweeping (Area)	1.49	
0226	D1856	During Sweeping (Area)	1.45	
0229	D1859	During Sweeping (Personal)	2.18	1.5
0230	D1860	During Sweeping (Personal)	2.45	1.4
0231	D1865	2nd 45 Min. Settling	0.88	
0232	D1866	2nd 45 Min. Settling	0.75	
0233	D1867	2nd 45 Min. Settling	0.90	
3001	D1863	Sealed Blank	1.2 f/mm ² **	ND
3002	D1864	Field Blank	3.0 f/mm ² **	ND

* Asbestos > 5 µm by >0.25 µm and > 3:1 aspect ratio.

** Blanks 3001 and 3002 are for sample nos. 0219-0233; fiber density of 3.0 f/mm² (Field Blank Value) was subtracted out in calculating airborne fiber concentrations for these samples.

ND = No fibers detected.

MVA, Inc.

PLM Constituent Analysis

Date: 07/05/93

MVA #: 0607

Location:

Sample I.D. #: D1870

Client Sample I.D. #: 444

Examination using the stereomicroscope: D1870 is a green consolidated material with white fibers and a tan powdery surface layer with a smooth finish.

<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>	<u>CONSTITUENT</u>	<u>%</u>
Fibers:		Pigment:		Fillers:	
Cotton	---	Binders:		Diatoms	*
Fiberglass	---	Kaolinite	---	Iron Chromite	---
Filament	---	Montmorillonite	---	Iron Oxide	---
Wool	---	Gypsum	---	Limestone	---
Mineral Wool	---	Anhydrite	---	Magnetite	< 1
Hair	---	Portland Cement	---	Mica	---
Paper/Wood	---	Lime (hydrated)	---	Perlite	---
Chem. Proc.	~ 35	Precipitated		Synthetic Foam	---
Mech. Proc.	---	Carbonate	---	Pumice	---
Synthetic	---	Starch (+)	~ 2	Quartz	---
		Other	*	Talc	---
				Vermiculite	---

Asbestos Minerals

Chrysotile	~ 35	Anthophyllite	---	Tremolite/	
Amosite	**	Crocidolite	---	Actinolite	---

Comments: No asbestos was detected in the tan surface layer and it is not included in the above percentages. *The binder is a green resinous material that comprises ~ 28% of the sample. Diatoms and/or radiolaria are included in this percentage. **A trace amount of amosite was found adhering to the back of the sample along with an adhesive material; the amosite therefore appears to be a contaminant,

Analyst: Randy Boltin

APPENDIX A

PCM (Phase Contrast Microscopy) Data Sheets

Summary of Results PCM Data

MVA, Inc.
5500-200 Oakbrook Parkway
Norcross, GA 30093
(404) 662-8509

Project Name: Micarta Experiment (93026.02) : Project No: 0607. Method: 7400 "A"
Site: 2nd Floor, 217 5th Ave., Nashville, TN Filler Area: 385 mm²
Relc. Area 0.00833 mm²

Sample No.	Date	Sample Location/ Description	Average			Fibers Counted	Fields Counted	Concentration	
			Flow (L/Min)	Duration (Min)	Volume (L)			Density f/mm ²	Result f/cc
0200		Area, Background, Chamber #2 C. Rear	9.5	60	570	20.5	100	24.61	0.017
0201		Area, Background, Chamber #2 Rt. Front	9.9	60	594	25	100	30.01	0.019
0202		Area, Background, Chamber #2 Lt. Front	9.7	60	582	23	100	27.61	0.018
0210		Personal, Echols, Saw Test	0.99	15	14.85	4.5	100	5.40	0.140
0211		Personal, Echols, Saw Test	2.1	15	31.5	4	100	4.80	0.059
0212		Area, General, Chamber #2, Cutting	10.2	15	153	138	20	828.33	2.084
0213		Area, General, Chamber #2, Cutting	9.8	15	147	101	20	606.24	1.588
0214		Area, General, Chamber #2, Cutting	9.7	15	145.5	233.5	20	1401.56	3.709

Summary of Results PCM Data

MVA, Inc.
5500-200 Oakbrook Parkway
Norcross, GA 30093
(404) 662-8509

Project Name: Micarta Experiment (93026.02)
Site: 2nd Floor, 217 5th Ave., Nashville, TN

Project No: 0607

Method: 7400 "A"
Filler Area: 385 mm²
Relc. Area 0.00833 mm²

Sample No.	Date	Sample Location/ Description	Average			Fibers Counted	Fields Counted	Concentration	
			Flow (L/Min)	Duration (Min)	Volume (L)			Density f/mm ²	Result f/cc
0217		Personal, Echols, Chamber #2, Cutting	0.98	21	20.58	143.5	20	861.34	16.114
0218		Personal, Echols, Chamber #2, Cutting	2.1	21	44.1	207	20	1242.50	10.847
0219		Area, General, Chamber #2 45 Min. Settling	10.2	30	306	243	20	1458.58	1.835
0220		Area, General, Chamber #2 45 Min. Settling	9.7	30	291	275	20	1650.66	2.184
0221		Area, General, Chamber #2 45 Min. Settling	9.5	30	285	185.5	20	1113.45	1.504
0224		Area, General, Chamber #2, Sweeping	10.1	15	151.5	110.5	25	530.61	1.348
0225		Area, General, Chamber #2, Sweeping	9.8	15	147	119	25	571.43	1.497
0226		Area, General, Chamber #2, Sweeping	9.9	15	148.5	117	25	561.82	1.457

Summary of Results PCM Data

MVA, Inc.
5500-200 Oakbrook Parkway
Norcross, GA 30093
(404) 662-8509

Project Name: Micarta Experiment (93026.02) Project No: 0607 Method: 7400 "A"
Site: 2nd Floor, 217 5th Ave., Nashville, TN Filter Area: 385 mm²
Relc. Area 0.00833 mm²

Sample No.	Date	Sample Location/ Description	Average			Fibers Counted	Fields Counted	Concentration	
			Flow (L/Min)	Duration (Min)	Volume (L)			Density f/mm ²	Result f/cc
0229		Personal, Echols, Sweeping	0.97	20	19.4	94	100	112.85	2.239
0230		Personal, Echols, Sweeping	2.1	20	42	112.5	50	270.11	2.476
0231		Area, General, Chamber #2 Second 45 Min.	10.1	30	303	116.5	20	699.28	0.889
0232		Area, General, Chamber #2 Second 45 Min.	9.9	30	297	102	21	583.09	0.756
0233		Area, General, Chamber #2 Second 45 Min.	9.8	30	294	115.5	20	693.28	0.908
2001		Sealed Blank	0	0	0	0	100	0.00	N/A
2002		Field Blank	0	0	0	0	100	0.00	N/A
3001		Sealed Blank	0	0	0	1	100	1.20	N/A

Summary of Results

PCM Data

MVA, Inc.
5500-200 Oakbrook Parkway
Norcross, GA 30093
(404) 662-8509

Project Name: Micarta Experiment (93026.02) : Project No: 0607 Method: 7400 "A"
Site: 2nd Floor, 217 5th Ave., Nashville, TN Filter Area: 385 mm²
Relc. Area 0.00833 mm²

Sample No.	Date	Sample Location/ Description	Average			Fibers Counted	Fields Counted	Concentration	
			Flow (L/Min)	Duration (Min)	Volume (L)			Density f/mm ²	Result f/cc
3002		Field Blank	0	0	0	2.5	100	3.00	N/A

IWA = Inside Work Area OWA = Outside Work Area O.L. = Loaded D = Damaged PF = Pump Failure NA = Not Applicable

APPENDIX B

TEM (Transmission Electron Microscopy) Data Sheets

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1840
CLIENT SAMPLE NO: 210

DATE: 07/05/93

Amount collected:	14.85 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	10
Number of asbestos structures counted:	0
Number of fibers longer than 5 µm:	0 PCM Equivalent
Initials of Analyst:	JRM

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1	E2	NSD*				
	G1	NSD				
	B3	NSD				
	D8	NSD				
	J9	NSD				
2	A4	NSD				
	C5	NSD				
	H3	NSD				
	D9	NSD				
	H6	NSD				

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1841
CLIENT SAMPLE NO: 211

DATE: 07/05/93

Amount collected: 31.5 liters
Amount prepped: Direct liters
Area of collection filter: 385 mm²
Magnification used for fiber counting: 21600
Aspect ratio for fiber definition: 3:1
Mean dimension of grid openings: 0.008 mm²
Number of grid openings examined: 10
Number of asbestos structures counted: 0
Number of fibers longer than 5 µm: 0 PCM Equivalent
Initials of Analyst: JRM

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1	B7	NSD*				
	C5	NSD				
	H4	NSD				
	G1	NSD				
	D6	NSD				
2	A5	NSD				
	C5	NSD				
	E3	NSD				
	J2	NSD				
	I4	NSD				

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1847
CLIENT SAMPLE NO: 0217

DATE: 07/05/93

Amount collected:	20.37 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	10
Number of asbestos structures counted:	71
Number of fibers longer than 5 µm:	71 PCM Equivalent
Initials of Analyst:	JRM

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 E2	1	B	9.26	0.93	CDX	
	2	B	5.09	0.28	CD	
	3	B	8.33	0.46	CD	
	4	B	5.09	0.46	CD	
	5	B	13.89	0.56	CD	
	6	B	41.67	0.93	CD	
	7	B	6.94	0.28	CD	
	8	B	5.09	0.93	CD	
	9	B	11.57	0.46	CD	
B4	10	B	20.83	0.46	CD	
	11	B	9.26	0.65	CD	
	12	B	9.26	0.56	CD	
	13	B	6.94	0.93	CD	
C2	14	B	6.94	0.37	CD	
	15	B	8.33	0.28	CD	
	16	B	9.26	0.32	CD	
	17	B	9.26	0.69	CD	
	18	B	5.09	0.46	CD	
	19	B	6.94	0.46	CD	
	20	B	7.41	0.93	CD	
H9	21	B	7.41	0.37	CD	
	22	B	13.89	0.28	CD	
	23	B	39.35	1.39	CD	
	24	B	46.30	0.93	CD	
	25	B	9.26	0.46	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/05/93
MVA SAMPLE NO: D1847
CLIENT SAMPLE NO: 0217

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1	H9	26	B	11.57	0.46	CD
		27	B	5.09	0.46	CD
		28	B	22.22	0.28	CD
		29	B	23.15	0.46	CD
	J2	30	B	13.89	0.93	CD
		31	B	5.09	1.02	CD
		32	B	5.09	0.46	CD
		33	B	23.15	0.69	CD
		34	B	9.26	0.69	CD
		35	B	9.26	0.46	CD
		36	B	9.26	0.46	CD
		37	B	10.19	0.93	CD
	H3	38	B	6.94	0.56	CD
		39	B	6.94	0.60	CD
		40	B	5.09	0.37	CD
	D5	41	B	13.89	0.46	CD
		42	B	39.35	0.74	CD
		43	B	6.94	0.93	CD
		44	B	7.87	0.65	CD
		45	B	10.19	0.46	CD
		46	B	9.26	0.93	CD
		47	B	11.57	0.46	CD
		48	B	5.56	0.37	CD
	I4	49	B	5.09	0.28	CD
		50	B	23.15	0.65	CD
		51	B	46.30	0.46	CD
		52	B	37.04	0.93	CD
		53	B	7.41	0.93	CD
		54	B	6.94	0.46	CD
		55	B	6.94	0.56	CD
		56	B	8.33	0.65	CD
		57	B	20.83	0.74	CD
		58	B	23.15	0.93	CD
2	B2	59	B	13.89	0.93	CD
		60	B	9.26	0.93	CD
		61	B	6.94	0.46	CD
		62	B	5.09	0.69	CD
		63	B	5.56	0.32	CD
		64	B	23.15	0.28	CD
	C9	65	B	27.78	0.56	CD

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/05/93
MVA SAMPLE NO: D1847
CLIENT SAMPLE NO: 0217

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
2 C9	66	B	9.26	0.32	CD	
	67	B	5.09	0.42	CD	
	68	B	5.56	0.46	CD	
	69	B	6.48	0.46	CD	
	70	B	6.94	0.93	CD	
	71	B	7.41	0.46	CD	

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1848
CLIENT SAMPLE NO: 0218

DATE: 07/05/93

Amount collected:	44.1 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	10
Number of asbestos structures counted:	104
Number of fibers longer than 5 µm:	104 PCM Equivalent
Initials of Analyst:	JRM

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 C8	1	B	5.56	0.37	CDX	
	2	B	8.56	0.28	CD	
	3	B	6.94	0.56	CD	
	4	B	5.09	0.32	CD	
	5	B	7.87	0.69	CD	
	6	B	5.09	0.42	CD	
	7	B	7.41	0.28	CD	
	8	B	6.94	0.56	CD	
	9	B	10.19	0.46	CD	
	10	B	6.94	0.32	CD	
	11	B	13.89	0.60	CD	
	12	B	41.67	1.39	CD	
	13	B	0.83	2.31	CD	
	14	B	9.26	0.46	CD	
H2	15	B	9.26	0.93	CD	
	16	B	13.89	0.56	CD	
	17	B	27.78	0.93	CD	
	18	B	18.52	0.93	CD	
J2	19	B	39.35	0.46	CD	
	20	B	23.15	0.46	CD	
	21	B	10.19	0.28	CD	
	22	B	6.94	0.37	CD	
	23	B	11.11	0.46	CD	
	24	B	16.20	0.93	CD	
	25	B	18.52	0.93	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/05/93
MVA SAMPLE NO: D1848
CLIENT SAMPLE NO: 0218

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1	J2	26	B	6.48	0.46	CD
		27	B	9.72	0.28	CD
	C5	28	B	9.26	0.28	CD
		29	B	13.43	0.32	CD
		30	B	18.52	0.46	CD
		31	B	6.94	0.46	CD
		32	B	11.57	0.46	CD
		33	B	37.04	0.93	CD
		34	B	23.15	0.46	CD
		35	B	5.09	0.32	CD
		36	B	9.26	0.46	CD
	A1	37	B	18.52	0.93	CD
		38	B	16.20	0.46	CD
		39	B	23.15	0.46	CD
		40	B	9.72	0.46	CD
		41	B	6.94	0.46	CD
		42	B	7.87	0.32	CD
	B6	43	B	10.19	0.46	CD
		44	B	6.48	0.28	CD
		45	B	5.09	0.32	CD
		46	B	37.04	0.93	CD
		47	B	13.89	0.46	CD
2	G9	48	B	7.41	0.37	CD
		49	B	23.15	0.32	CD
		50	B	9.72	0.28	CD
		51	B	6.48	0.28	CD
		52	B	13.89	0.37	CD
		53	B	30.09	0.46	CD
		54	B	9.26	1.85	CD
		55	B	8.33	0.28	CD
		56	B	9.26	0.32	CD
	D6	57	B	46.30	0.46	CD
		58	B	9.26	0.32	CD
		59	B	5.09	0.28	CD
		60	B	23.15	0.46	CD
		61	B	6.94	0.93	CD
		62	B	8.33	0.69	CD
		63	B	5.09	0.93	CD
		64	B	9.26	0.28	CD
		65	B	11.57	0.32	CD

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/05/93
MVA SAMPLE NO: D1848
CLIENT SAMPLE NO: 0218

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
2 D6	66	B	6.94	0.46	CD	
	67	B	8.33	0.69	CD	
	68	B	5.09	0.46	CD	
	69	B	10.19	0.46	CD	
	70	B	13.89	0.32	CD	
	71	B	5.09	0.46	CD	
	72	B	18.52	0.28	CD	
	73	B	7.41	0.93	CD	
	74	B	37.04	0.69	CD	
	75	B	39.35	0.46	CD	
	76	B	10.19	0.46	CD	
	77	B	20.83	0.32	CD	
	78	B	13.89	0.32	CD	
	79	B	6.94	0.32	CD	
	80	B	7.41	0.37	CD	
B1	81	B	7.41	0.46	CD	
	82	B	16.20	0.46	CD	
	83	B	41.67	0.93	CD	
	84	B	5.09	0.32	CD	
	85	B	8.33	0.93	CD	
	86	B	11.57	0.93	CD	
	87	B	5.09	0.28	CD	
	88	B	11.57	1.16	CD	
	89	B	11.57	0.69	CD	
	90	B	27.78	0.46	CD	
	91	B	8.33	0.93	CD	
	92	B	23.15	2.08	CD	
	93	B	41.67	1.39	CD	
	94	B	5.09	0.93	CD	
	95	B	19.44	0.69	CD	
	96	B	12.50	0.28	CD	
	97	B	8.33	0.32	CD	
	98	B	6.94	0.32	CD	
	99	B	5.09	0.32	CD	
	100	B	6.48	0.46	CD	
	101	B	8.33	0.46	CD	
	102	B	18.52	0.46	CD	
	103	B	16.20	0.46	CD	
	104	B	9.26	0.28	CD	

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1849
CLIENT SAMPLE NO: 0219

DATE: 07/06/93

Amount collected:	306 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	8
Number of asbestos structures counted:	98
Number of fibers longer than 5 µm:	78 PCM Equivalent
Initials of Analyst:	ATC

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 C6	1	B	1.39	0.32	CD	
	2	B	5.56	0.37	CD	
	3	B	23.61	0.56	CD	
	4	B	5.09	0.69	CD	
	5	B	10.65	1.39	CD	
	6	B	7.41	0.46	CD	
	7	B	16.67	1.39	CD	
	8	B	3.70	0.32	CD	
	9	B	6.48	0.46	CD	
	10	B	2.78	0.46	CD	
	11	B	7.87	0.37	CD	
	12	B	6.48	0.93	CD	
	13	B	5.56	0.56	CD	
D4	14	B	3.70	0.60	CD	
	15	B	11.57	1.85	CD	
	16	B	23.61	0.83	CD	
	17	B	13.89	0.46	CD	
	18	B	27.78	0.37	CD	
	19	B	9.26	0.60	CD	
	20	B	6.94	0.56	CD	
	21	B	7.41	0.69	CD	
	22	B	5.56	0.93	CD	
	23	B	9.72	0.56	CD	
F2	24	B	5.56	0.69	CD	
	25	B	6.02	0.46	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1849
CLIENT SAMPLE NO: 0219

Grid/ Opening	Structure Number	Structure Type	Length μm	Width μm	Identi- fication	Comments
1 F2	26	B	6.94	0.42	CD	
	27	B	7.41	0.93	CD	
	28	B	4.17	0.46	CD	
	29	B	6.94	0.93	CD	
	30	B	3.70	0.37	CD	
	31	B	8.33	1.06	CD	
	32	B	24.07	0.65	CD	
	33	B	7.41	1.16	CD	
	34	B	4.63	0.46	CD	
	35	B	3.70	0.56	CD	
	36	B	11.11	0.46	CD	
	37	B	19.44	1.30	CD	
	38	B	2.31	0.37	CD	
	39	B	2.78	0.46	CD	
	G1	40	19.44	1.62	CD	
		41	2.31	0.46	CD	
		42	6.02	1.39	CD	
		43	5.56	0.46	CD	
		44	4.63	0.60	CD	
		45	18.52	2.08	CD	
		46	20.83	0.60	CD	
		47	5.56	0.56	CD	
		48	13.43	0.46	CD	
		49	9.26	0.56	CD	
	B4	50	17.13	1.39	CD	
		51	5.56	0.32	CD	
		52	1.39	0.46	CD	
		53	3.70	1.39	CD	
		54	5.09	0.56	CD	
		55	10.19	1.85	CD	
		56	8.80	1.85	CD	
		57	25.93	3.70	CD	
		58	17.13	0.60	CD	
		59	16.67	0.56	CD	
		60	24.07	5.56	CD	
		61	9.26	0.46	CD	
		62	6.48	1.39	CD	
		63	3.70	0.42	CD	
		64	8.33	0.69	CD	
		65	9.72	9.26	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1849
CLIENT SAMPLE NO: 0219

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 B4	66	B	18.52	1.85	CD	
	67	B	16.67	2.08	CD	
	68	B	4.17	0.46	CD	
2 B5	69	B	3.70	0.46	CD	
	70	B	6.48	1.16	CD	
	71	B	2.78	0.46	CD	
	72	B	17.59	0.28	CD	
	73	B	2.31	0.46	CD	
	74	B	5.56	0.42	CD	
	75	B	8.80	0.46	CD	
	76	B	5.56	0.42	CD	
	F3 77	B	7.87	0.93	CD	
	78	B	8.80	0.93	CD	
	79	B	2.78	0.46	CD	
	80	B	12.96	0.79	CD	
	81	B	15.74	2.78	CD	
	82	B	2.78	0.56	CD	
	83	B	4.17	0.37	CD	
	84	B	6.48	0.69	CD	
I10	85	B	3.70	0.46	CD	
	86	B	9.26	0.56	CD	
	87	B	10.65	1.85	CD	
	88	B	9.72	0.60	CD	
	89	B	5.56	0.37	CD	
	90	B	6.02	0.46	CD	
	91	B	9.72	0.93	CD	
	92	B	34.72	1.39	CD	
	93	B	4.40	0.69	CD	
	94	B	9.72	2.78	CD	
	95	B	3.24	0.69	CD	
	96	B	4.17	0.46	CD	
	97	B	3.70	0.32	CD	
	98	B	1.85	0.37	CD	

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1850
CLIENT SAMPLE NO: 0220

DATE: 07/06/93

Amount collected:	291 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	7
Number of asbestos structures counted:	93
Number of fibers longer than 5 µm:	61 PCM Equivalent
Initials of Analyst:	ATC

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 D3	1	B	2.55	0.37	CD	
	2	B	14.81	0.93	CD	
	3	B	2.55	0.37	CD	
	4	B	3.24	0.37	CD	
	5	B	19.44	0.60	CD	
	6	B	2.78	0.46	CD	
	7	B	4.40	1.16	CD	
	8	B	8.33	0.56	CD	
	9	B	16.67	0.97	CD	
	10	B	19.44	0.60	CD	
	11	B	29.63	2.55	CD	
	12	B	20.37	0.32	CD	
	13	B	18.52	0.93	CD	
	14	B	4.17	0.42	CD	
	15	B	26.39	1.39	CD	
B6	16	B	4.17	0.56	CD	
	17	B	3.24	0.46	CD	
	18	B	2.78	0.56	CD	
	19	B	7.41	0.93	CD	
	20	B	5.56	0.42	CD	
	21	B	4.17	0.32	CD	
	22	B	9.49	0.42	CD	
	23	B	2.78	0.37	CD	
	24	B	13.43	0.56	CD	
	25	B	1.39	0.46	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1850
CLIENT SAMPLE NO: 0220

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 B6	26	B	2.31	0.37	CD	
	27	B	7.87	0.46	CD	
F4	28	B	1.39	0.42	CD	
	29	B	3.24	0.46	CD	
	30	B	5.56	1.39	CD	
	31	B	5.09	0.60	CD	
	32	B	10.19	0.93	CD	
	33	B	15.28	0.46	CD	
	34	B	7.41	0.42	CD	
	35	B	3.70	0.93	CD	
	36	B	6.94	1.20	CD	
	37	B	6.94	0.93	CD	
	38	B	3.24	0.46	CD	
	39	B	2.31	0.46	CD	
	40	B	6.94	0.56	CD	
	41	B	9.72	0.93	CD	
	42	B	13.89	9.26	CD	
	43	B	3.24	0.69	CD	
	44	B	6.02	0.56	CD	
D7	45	B	13.43	1.39	CD	
	46	B	5.56	0.46	CD	
	47	B	18.52	0.46	CD	
	48	B	10.19	0.46	CD	
	49	B	3.70	0.42	CD	
B4	50	B	23.61	0.93	CD	
	51	B	6.48	0.93	CD	
	52	B	9.26	0.56	CD	
	53	B	19.44	1.39	CD	
	54	B	14.81	0.46	CD	
	55	B	5.09	0.56	CD	
	56	B	4.17	0.46	CD	
	57	B	5.56	0.69	CD	
C9	58	B	5.56	1.16	CD	
	59	B	8.80	1.39	CD	
	60	B	4.17	0.42	CD	
	61	B	5.56	0.69	CD	
	62	B	6.94	0.56	CD	
	63	B	8.33	0.79	CD	
	64	B	20.83	0.46	CD	
	65	B	5.56	0.46	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1850
CLIENT SAMPLE NO: 0220

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 C9	66	B	6.94	0.65	CD	
2 H3	67	B	11.11	0.83	CD	
	68	B	6.94	0.83	CD	
	69	B	5.56	0.56	CD	
	70	B	11.57	0.93	CD	
	71	B	4.17	0.69	CD	
	72	B	4.63	0.93	CD	
	73	B	4.17	0.46	CD	
	74	B	3.24	0.42	CD	
	75	B	3.70	0.93	CD	
	76	B	4.17	0.93	CD	
	77	B	16.67	0.56	CD	
	78	B	3.24	0.88	CD	
F7	79	B	5.56	0.46	CD	
	80	B	2.78	0.37	CD	
	81	B	3.70	0.97	CD	
	82	B	2.31	0.60	CD	
	83	B	12.04	0.69	CD	
	84	B	4.63	0.69	CD	
	85	B	37.04	1.39	CD	
	86	B	13.89	0.93	CD	
	87	B	9.72	0.56	CD	
	88	B	3.70	0.65	CD	
	89	B	9.26	0.93	CD	
	90	B	5.56	0.83	CD	
	91	B	5.56	0.56	CD	
	92	B	5.09	0.65	CD	
	93	B	2.78	0.56	CD	

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1851
CLIENT SAMPLE NO: 0221

DATE: 07/06/93

Amount collected:	285 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	10
Number of asbestos structures counted:	70
Number of fibers longer than 5 µm:	63 PCM Equivalent
Initials of Analyst:	ATC

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 F8	1	B	4.63	1.06	CD	
	2	B	7.41	1.02	CD	
	3	B	9.26	0.46	CD	
	4	B	3.24	0.69	CD	
	5	B	4.86	0.32	CD	
	6	B	10.19	0.69	CD	
	7	B	24.54	1.94	CD	
	8	B	24.07	2.08	CD	
	9	B	4.17	0.93	CD	
	10	B	6.48	0.37	CD	
C6	11	B	2.78	0.46	CD	
	12	B	26.39	0.93	CD	
	13	B	16.67	0.69	CD	
	14	B	11.11	3.70	CD	
	15	B	9.26	1.16	CD	
	16	B	5.56	0.93	CD	
	17	B	6.48	0.32	CD	
	18	B	8.33	0.56	CD	
	19	B	5.56	1.39	CD	
	20	B	7.41	0.93	CD	
	21	B	3.70	0.42	CD	
	22	B	5.09	0.56	CD	
	23	B	3.70	0.46	CD	
	24	B	14.81	0.46	CD	
	25	B	16.67	0.60	CD	

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1851
CLIENT SAMPLE NO: 0221

Grid/ Opening	Structure Number	Structure Type	Length μm	Width μm	Identi- fication	Comments
1	C6	26	B	11.11	0.56	CD
		27	B	30.09	1.85	CD
		28	B	5.56	0.42	CD
		29	B	4.17	0.69	CD
		30	B	16.20	0.93	CD
		31	B	6.48	0.93	CD
		32	B	5.56	0.93	CD
		33	B	5.56	0.42	CD
		34	B	6.48	0.93	CD
	H7	35	B	6.94	0.37	CD
		36	B	3.24	0.69	CD
		37	B	3.70	0.46	CD
		38	B	6.48	0.56	CD
		39	B	6.48	0.46	CD
		40	B	5.56	0.93	CD
		41	B	10.19	0.93	CD
	E8	42	B	3.24	0.37	CD
		43	B	10.19	1.39	CD
		44	B	11.11	1.25	CD
		45	B	3.70	0.46	CD
		46	B	8.33	1.85	CD
		47	B	12.96	0.69	CD
		48	B	23.61	0.69	CD
		49	B	5.09	0.56	CD
		50	B	6.48	0.93	CD
		51	B	3.24	0.37	CD
		52	B	6.94	1.39	CD
2	F3	53	B	5.56	0.69	CD
		54	B	4.63	0.69	CD
		55	B	10.19	0.56	CD
		56	B	6.48	0.60	CD
		57	B	8.33	0.93	ADX
	H5	58	B	19.44	0.56	CD
		59	B	15.74	0.46	CD
		60	B	7.41	0.56	CD
		61	B	14.81	0.46	CD
		62	B	4.17	0.42	CD
	B7	63	B	3.70	0.93	CD
		64	B	5.09	0.93	CD
		65	B	6.02	0.69	CD

*No Asbestos Structures Detected

MVA PROJECT NO: 0607 DATE: 07/06/93
MVA SAMPLE NO: D1851
CLIENT SAMPLE NO: 0221

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
2 G3	66	B	8.33	1.06	CD	
	67	B	8.33	0.46	CD	
	13 68	B	6.62	0.83	CD	
	69	B	4.17	0.46	CD	
	70	B	3.94	0.56	CD	

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1859
CLIENT SAMPLE NO: 0229

DATE: 07/06/93

Amount collected:	31.5 liters
Amount prepped:	Direct liters
Area of collection filter:	385 mm ²
Magnification used for fiber counting:	21600
Aspect ratio for fiber definition:	3:1
Mean dimension of grid openings:	0.008 mm ²
Number of grid openings examined:	10
Number of asbestos structures counted:	6
Number of fibers longer than 5 µm:	6 PCM Equivalent
Initials of Analyst:	ATC

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1	C6	NSD*				
	E7	1	B	47.69	0.56	CD
	G1	2	B	5.32	0.79	CD
	B9	NSD				
	D3	3	B	44.91	0.69	CD
2	C8	4	B	10.65	1.85	CD
	F6	NSD				
	H3	5	B	7.87	0.69	CD
	I8	NSD				
	H5	6	B	10.19	0.46	CD

*No Asbestos Structures Detected

MVA, Inc.
SAMPLE ANALYSIS INFORMATION

MVA PROJECT NO: 0607
MVA SAMPLE NO: D1860
CLIENT SAMPLE NO: 0230

DATE: 07/05/93

Amount collected: 31.5 liters
Amount prepped: Direct liters
Area of collection filter: 385 mm²
Magnification used for fiber counting: 21600
Aspect ratio for fiber definition: 3:1
Mean dimension of grid openings: 0.008 mm²
Number of grid openings examined: 10
Number of asbestos structures counted: 12
Number of fibers longer than 5 µm: 12 PCM Equivalent
Initials of Analyst: ATC

Grid/ Opening	Structure Number	Structure Type	Length µm	Width µm	Identi- fication	Comments
1 F8	1	B	8.33	0.46	CD	
D6	2	B	14.81	0.46	CD	
E5	3	B	8.80	0.32	CD	
	4	B	14.81	0.93	CD	
	5	B	5.56	0.93	CD	
2 H7	NSD*					
B8	6	B	6.48	1.06	CD	
E4	7	B	10.19	0.69	CD	
H5	8	B	11.11	0.93	CD	
	9	B	6.02	0.69	CD	
J7	10	B	16.67	0.56	CD	
I3	NSD					
B2	11	B	6.48	0.56	CD	
	12	B	6.94	1.39	CD	

*No Asbestos Structures Detected

APPENDIX C

TEM

Electromicrographs of Typical Asbestos Fibers



13 July 1993

Mr. Richard Scruggs
Richard F. Scruggs, P.A.
734 Delmas Avenue
Pascagoula, MS 39568

Re: Micarta Experiment (GHP Project No. 93026.02)
MVA Project No. 0607

Dear Mr. Scruggs:

Attached please find a report of the results of the PCM and TEM analyses performed for the above referenced project. Please note that the PCM samples were analyzed in accordance with the 7400 Method, "A" counting rules. TEM samples were prepared by the direct method. The samples were counted using a PCM equivalent method wherein only asbestos fibers $>5 \mu\text{m}$ long, $>0.25 \mu\text{m}$ wide and having aspect ratio $>3:1$ were counted. Also attached are results of the PLM analysis of the bulk Micarta sample. A trace amount of amosite was found on the outside of the Micarta board and one amosite fiber was found in one of the air samples. Typical chrysotile bundles are shown in Appendix C.

I hope you find this informative and helpful. If you have any questions, please do not hesitate to call.

Sincerely,

Randy Boltin
Research Scientist

James R. Millette, Ph.D.
Executive Director

RB/JRM/aw

Attachment

D:PROJECTS:0607:RPT0608



14 Dr. Millette
8-31-95