

APPENDIX B

**LABORATORY ANALYSIS
OF HANGAR 1 SIDING**

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EMSL Case No.: 360500515
Sample(s) Received: 05/27/05
Date of Analysis: 06/10/05
Date Printed: 06/13/05
Reported By: J.Newton

- Laboratory Report -

Analysis of Laminate

For

Project: Hangar 1 / Sub-Contract # 056016

Analyzed by:

John Newton
Laboratory Manager

06/10/05

Date

QA/QC :

Eugenia Mirica Ph.D.
Materials Scientist

Bruce Benjamin
QA Officer

06/10/05

Date



Procurement of Samples and Analytical Overview:

The sample for analysis arrived at EMSL Analytical's corporate laboratory in Westmont, NJ. on 05/27/05. The package arrived in satisfactory condition with no evidence of damage to the contents. The sample was submitted for the purpose of identifying its layers, and determining the asbestos and PCB content of each layer. The sample reported herein has been analyzed per the following equipment and methodologies.

Methods & Equipment: Polarized Light Microscopy (PLM)
epi-Reflected Light Microscopy (RLM)
Scanning Electron Microscopy (SEM)
Energy Dispersive X-Ray Spectrometry (EDX)
Fourier Transform Infrared Spectrometry (FTIR)
Gas Chromatography (GC)

Descriptions & Definitions: Sample: Samples or materials that are the focus of the analysis.
Reference: Samples or materials submitted for the purposes of supporting comparative analysis.
ND: None Detected
N/A: Not Applicable



Data and Analysis:

Table 1. Layer composition and asbestos results

Sample	Layer #	Layer ID	Thickness (mm)	Layer Components	Comments
Coated metal Sheeting	1	Silver paint	<0.1	Aluminum-based paint	A
	2	Fibrous mat	0.4	Asbestos (chrysotile) Cellulose (cotton) Hair (horse)	80% 5% 5% C
	3	Tar adhesive	0.3	Tar pitch	A,B
	4	Metal sheeting	0.8	Iron (Fe)	>99%
	5	Tar adhesive	0.3	Tar pitch	A,B
	6	Fibrous mat	0.4	Asbestos (chrysotile) Cellulose (cotton) Hair (horse)	80% 5% 5% C
	7	Silver paint	<0.1	Aluminum-based paint	A

- A) No asbestos was detected in the layer.
- B) The tar pitch layer (L3 and L5) contains the greatest hydrocarbon concentration, equivalent to greater than eighty percent (>80%) of the hydrocarbons in the sample.
- C) The fibrous mat also contains tar pitch (~5% to 8%) that is likely the result of manufacture and migration of layers L3 and L5 during application.



Table 2. PCB Results

<i>Sample</i>	<i>Layer #</i>	<i>Layer ID</i>	<i>Analyte</i>	<i>Concentration (ug/Kg) (ppb)</i>
Coated metal Sheeting	1 & 7	Silver paint	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	<500,000 <500,000 <500,000 <500,000 <500,000 <500,000 <500,000 <500,000 6,600,000
	4	Metal	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	<2,700 <2,700 <2,700 <2,700 <2,700 <2,700 <2,700 <2,700 19,000
	2, 3, 5 & 6	Fibrous mat & Tar adhesive	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	<2,500,000 <2,500,000 <2,500,000 <2,500,000 <2,500,000 <2,500,000 <2,500,000 <2,500,000 36,000,000



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Supporting Documentation

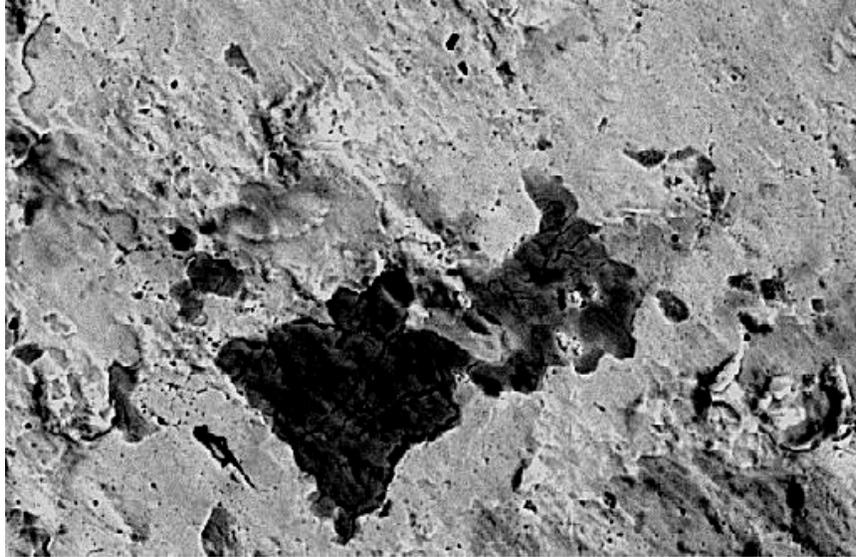


Figure 1: SEM back-scatter electron image (BEI) showing the surface of the metal. The dark area is remaining tar and the light is the iron. No evidence of galvanization is present.

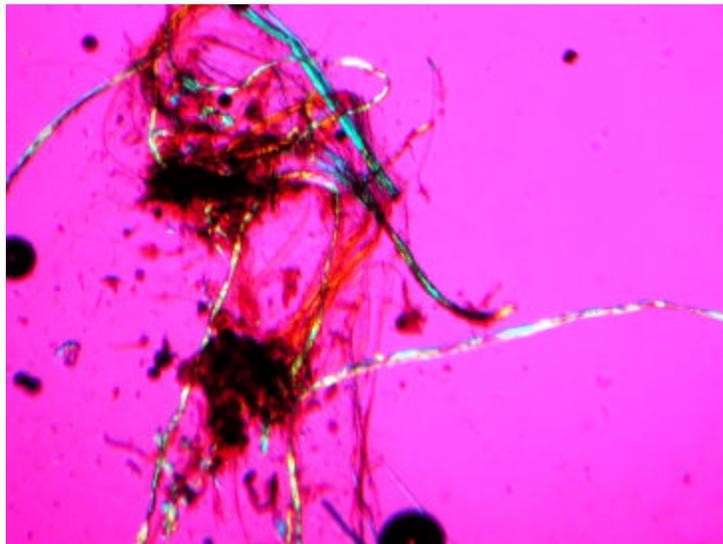


Figure 2: PLM 400X image of the fibrous mat showing the chrysotile asbestos and cellulose components.

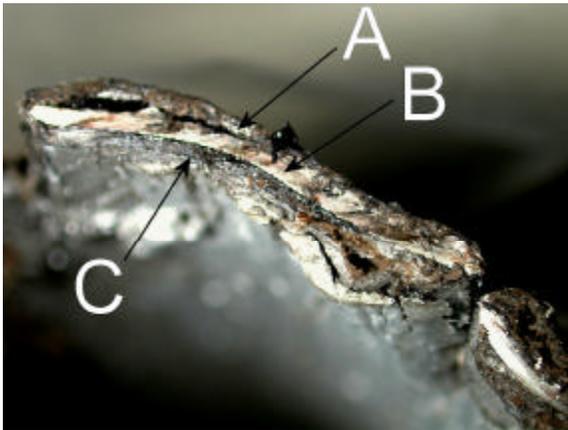


Figure 3: Cut section of the metal sample showing the tar/fibrous mat/paint layers (A&C) and the metal (B)



Figure 4: Aluminum-based paint



Figure 5: Fibrous mat



Figure 6: Tar adhesive

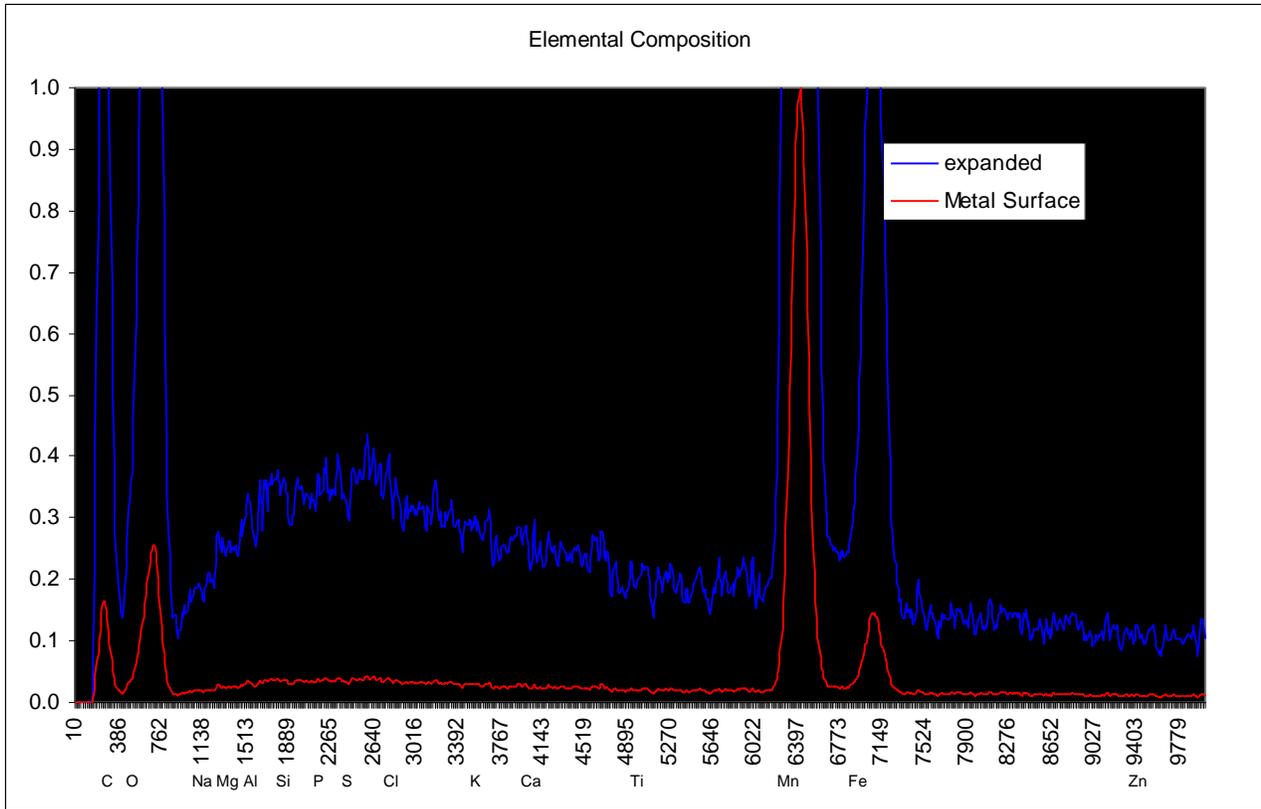


Figure 7: EDX spectra of the surface of the metal showing no evidence of a galvanized coating.

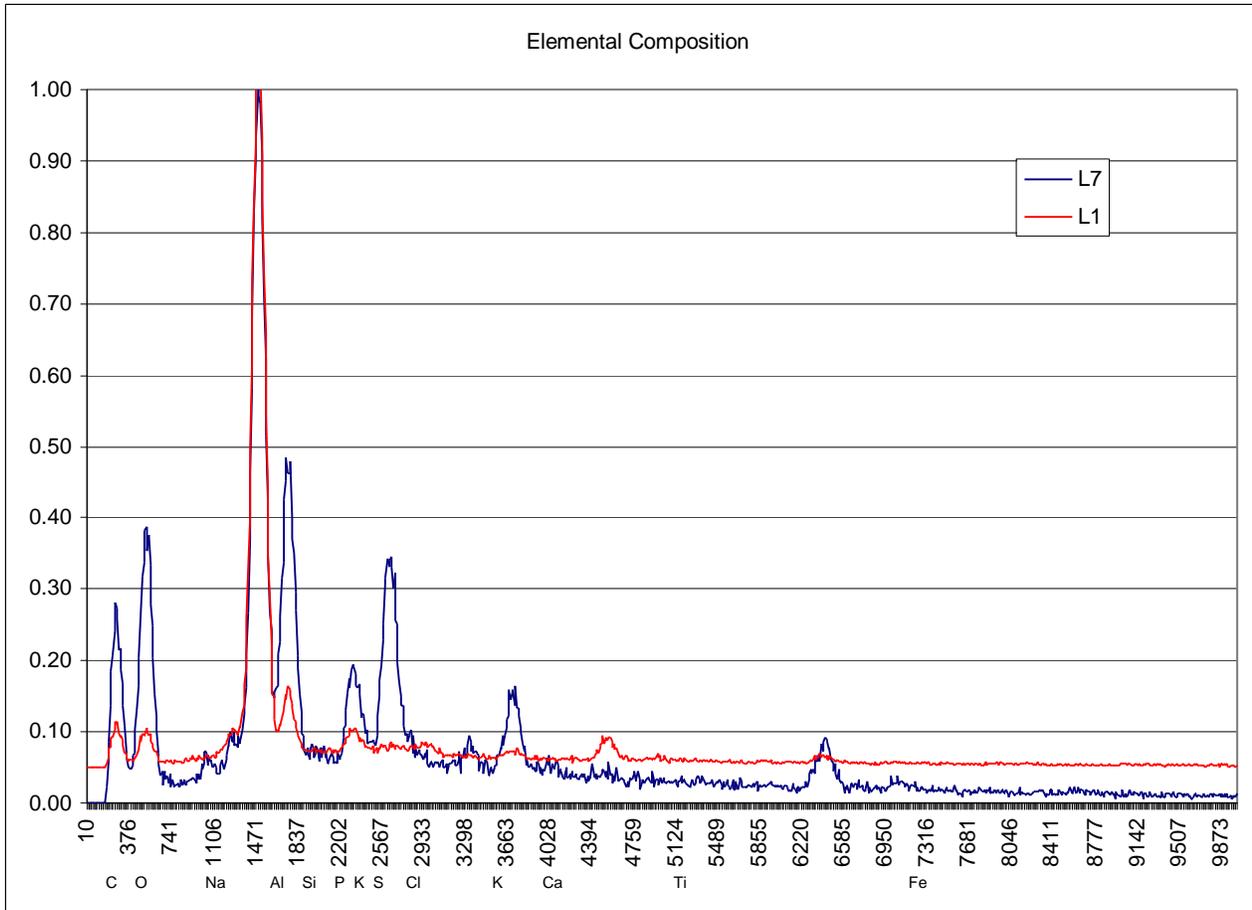


Figure 8: EDX spectra showing the elemental composition of the paint layers. L1 is nearly all paint. L7 is a mixture of aluminum-based paint with the fibrous mat particles.