

**CA Labs**  
Dedicated to  
Quality

**CA Labs - Texas**  
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Baton Rouge, LA 70809  
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## **Materials Characterization - Bulk Asbestos Analysis**

### **Laboratory Analysis Report - Polarized Light**

**Your Company Name**

1234 Wonderful Place  
Dallas, TX 12345

**Attn:** Your Name Here

**Customer Project:** Example Project

**Reference #:** CAExample

**Date**

4/2/2015

### **Analysis and Method**

Summary of polarizing light microscopy (PLM / Stereomicroscopy bulk asbestos analysis) using the methods described in 40CFR Part 763 Appendix E to Subpart E (Interim and EPA 600 / R-93 / 116 (Improved)). The sample is first viewed with the aid of stereomicroscopy. Numerous liquid slide preparations are created for analysis under the polarized microscope where identifications and quantifications are performed. Calibrated liquid refractive oils are used as liquid mounting medium. These oils are used for identification (dispersion staining). A calibrated visual estimation is reported, should any asbestiform mineral be present. Other techniques such as acid washing are used in conjunction with refractive oils for detection of smaller quantities of asbestos. All asbestos percentages are based on calibrated visual estimation traceable to NIST standards for regulated asbestos. Traceability to measurement and calibration is achieved by using known amounts and types of asbestos from standards where analyst and laboratory accuracy are measured. As little as 0.001% asbestos can be detected in favorable samples, while detection in unfavorable samples may approach the detection limit of 0.50% (well above the laboratory definition of trace).

### **Discussion**

Vermiculite containing samples may have trace amounts of actinolite-tremolite, where not found by PLM should be analyzed using TEM methods and / or water separation techniques. Suspected actinolite/vermiculite presence will be indicated through the sample comment section of this report.

Fibrous talc containing samples may even contain a related asbestos fiber known as anthophyllite. Under certain conditions the same fiber may actually contain both talc and anthophyllite (a phenomenon called intergrowth). Again, TEM detection methods are recommended. CA Labs PLM report comments will denote suspected amounts of asbestiform anthophyllite with talc, where further analysis is recommended.

Some samples (floor tiles, surfacings, etc.) may contain fibers too small to be detectable by PLM analysis and should be analyzed by TEM bulk protocols.

A "trace asbestos" will be reported if the analyst observes far less than 1% asbestos. CA Labs defines "trace asbestos" as a few fibers detected by the analyst in several preparations and will indicate as such under these circumstances.

Quantification of <1% will actually be reported as <=1% (allowable variance close to 1% is high). Such results are ideal for point counting, and the technique is mandatory for friable samples (NESHAP, Nov. 1990 and clarification letter 8 May 1991) under 1% percent asbestos and the "trace asbestos". **In order to make all initial PLM reports issued from CA Labs NESHAP compliant, all <1% asbestos results (except floor tiles) will be point counted at no additional charge.**

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Overview of Project Sample Material Containing Asbestos

Customer Project: Sample #	Example Project Layer #	Analysts Subsample	Physical Description of	Asbestos type / calibrated visual estimate percent	CA Labs Project #: CAExample	List of Affected Building Material Types
3	3-1		black tar	4% Chrysotile		<b>black tar</b> <b>white surfaced white finishing</b> <b>compound</b> <b>black covering</b> <b>brown floor tile</b> <b>black mastic</b>
5	5-1		white surfaced white finishing compound	<1% Chrysotile		
10	10-1		black covering	60% Chrysotile		
11	11-1		black covering	60% Chrysotile		
12	12-1		black covering	60% Chrysotile		
13	13-2		brown floor tile	5% Chrysotile		
	13-3		black mastic	4% Chrysotile		
14	14-2		brown floor tile	4% Chrysotile		

**Glossary of abbreviations (non-asbestos fibers and non-fibrous minerals):**

ca - carbonate	pe - perlite	fg - fiberglass	pa - palygorskite (clay)
gypsum - gypsum	qu - quartz	mw - mineral wool	
bi - binder		wo - wollastinite	
or - organic		ta - talc	
ma - matrix		sy - synthetic	
mi - mica		ce - cellulose	
ve - vermiculite		br - brucite	
ot - other		ka - kaolin (clay)	

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## Overview of Project Sample Material Containing Asbestos

Customer Project:	Example Project		CA Labs Project #:	CAExample
Sample #	Layer #	Analysts Physical Description of Subsample	Asbestos type / calibrated visual estimate percent	List of Affected Building Material Types
	14-3	black mastic	3% <b>Chrysotile</b>	
15	15-2	brown floor tile	4% <b>Chrysotile</b>	
	15-3	black mastic	3% <b>Chrysotile</b>	

**Glossary of abbreviations (non-asbestos fibers and non-fibrous minerals):**

ca - carbonate	pe - perlite	fg - fiberglass	pa - palygorskite (clay)
gypsum - gypsum	qu - quartz	mw - mineral wool	
bi - binder		wo - wollastinite	
or - organic		ta - talc	
ma - matrix		sy - synthetic	
mi - mica		ce - cellulose	
ve - vermiculite		br - brucite	
ot - other		ka - kaolin (clay)	

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**Polarized Light Asbestiform Materials Characterization**

**Customer Info:** Attn: Your Name Here  
**Your Company Name**  
 1234 Wonderful Place  
 Dallas, TX 12345

**Customer Project:**  
 Example Project  
**Turnaround Time:**  
 24 hours

**CA Labs Project #:**  
 CALExample  
**Date:** 4/2/2015  
**Samples Received:** 3/17/11 1:00pm

Phone # 800-555-5555  
 Fax # 800-555-5556

**Purchase Order #:**

Sample #	Com ment	Layer #	Analysts Subsample	Physical Description of	Homo-geneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
1		1-1		gray mortar	y	<b>None detected</b>		100% qu,ca,gy
2		2-1		gray ceramic tile	y	<b>None detected</b>		100% gy,qu
		2-2		gray mortar	y	<b>None detected</b>		100% qu,ca,gy
3		3-1		black tar	y	<b>4% Chrysotile</b>		96% qu,ma
		3-2		gray ceramic tile	y	<b>None detected</b>		100% gy,qu
		3-3		gray mortar	y	<b>None detected</b>		100% qu,ca,gy
4		4-1		white surfaced tan plaster	n	<b>None detected</b>		100% ca,qu,gy

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116)  
 Preparation Method: HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion attaining / becke line method.

- |                 |                  |                   |                          |
|-----------------|------------------|-------------------|--------------------------|
| ca - carbonate  | mi - mica        | fg - fiberglass   | ce - cellulose           |
| gypsum - gypsum | ve - vermiculite | mw - mineral wool | br - brucite             |
| bi - binder     | ot - other       | wo - wollastinite | ka - kaolin (clay)       |
| or - organic    | pe - perlite     | ta - talc         | pa - palygorskite (clay) |
| ma - matrix     | qu - quartz      | sy - synthetic    |                          |

Approved Signatories:

\_\_\_\_\_  
 Analyst

\_\_\_\_\_  
 QAC

\_\_\_\_\_  
 Technical Manager