CA Labs

Dedicated to Quality

Materials Characterization - Bulk Asbestos Analysis

Laboratory Analysis Report - Polarized Light

Your Company Name
123 Main St
Dallas, TX 12345

Attn: John Doe
Customer Project: Name of Project Provided by Client
Reference #: CAL00000001 Date:

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 preformed. Calibrated liquid refractive oils are used as liquid mouting 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 conjugation 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 of 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 be 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 delectable 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: Name of Project Provided by Client **CA Labs Project #:** CAL00000001

Sample #	Layer #	Analysts Physical Description of Subsample	Asbestos type / calibrated visual estimate percent	List of Affected Building Material Types
2-24-15-01	*01-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	***<1% Chrysotile***	***tan surfaced white finishing compound***
2-24-15-02	*02-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	***2% Chrysotile***	
2-24-15-03	*03-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	***2% Chrysotile***	

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

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

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Polarized Light Asbestiform Materials Characterization

Customer Info: **Attn:** John Doe
Your Company Name
123 Main St
Dallas, TX 12345

Phone # 123-456-7890
Fax # 123-456-7891

Customer Project:
Name of Project Provided by Client
Turnaround Time:
Customer Specified

CA Labs Project #:
CAL00000001
Date:
Samples Received:
Date Of Sampling:
Purchase Order #:

Sample #	Comment	Layer #	Analysts Physical Description of Subsample	Homogeneous (Y/N)	Asbestos type / calibrated visual estimate percent	Non-asbestos fiber type / percent	Non-fibrous type / percent
2-24-15-01		*01-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	*n*	***<1% Chrysotile***		100% qu,bi,ca
		01-2	*gray cement/mortar*	*y*	***None Detected***		100% qu,ca
2-24-15-02		*02-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	*n*	***2% Chrysotile***		98% qu,bi,ca
		02-2	*gray cement/mortar*	*y*	***None Detected***		100% qu,ca
2-24-15-03		*03-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	*n*	***2% Chrysotile***		98% qu,bi,ca
		03-2	*gray cement/mortar*	*y*	***None Detected***		100% qu,ca
2-24-15-07		*07-1*	***Flexible Sealant**/ black and gray sealant*	*n*	***None Detected***		100% qu,gy,bi

Analysis Method: Interim (40CFR Part 763 Appendix E to Subpart E) / Improved (EPA-600 / R-93/116). *All samples received in good condition unless noted.*
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
gy - 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

1. Fire Damage significant fiber damage - reported percentages reflect unaltered fibers
2. Fire Damage no significant fiber damages effecting fibrous percentages
3. Actinolite in association with Vermiculite
4. Layer not analyzed - attached to previous positive layer and contamination is suspected
5. Not enough sample to analyze
6. Anthophyllite in association with Fibrous Talc
7. Contamination suspected from other building materials
8. Favorable scenario for water separation on vermiculite for possible analysis by another method
9. < 1% Result point counted positive
10. TEM analysis suggested

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Polarized Light Asbestiform Materials Point Count

Laboratory Analysis Report - Point Count

Analysis and Method

Point counting was performed on a polarized light microscope with a calibrated reticle according to the revised NESHAP method of November 20, 1990 (Federal Register, V.55, N.224, 11/20/90). Origional asbestos content of bulk materials was determined using procedures outlined in the interim method (40 CFR part 763, Appendix E to subpart E) and AHERA method (EPA-600/R-93/116). Samples were prepared using HCL acid washing for carbonate based samples, chemical reduction for organically bound components, oil immersion for identification of asbestos types by dispersion staining / becke line method.

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CAL00000001

Date:
Samples Received:
Date Of Sampling:
Purchase Order #:

Sample #	Layer #	Analysts Physical Description of Subsample	Homo-geneous (Y/N)	Point Counted % / Asbestos Type
2-24-15-01	*01-1*	***CMU Block Sealant**/ tan surfaced white finishing compound*	*n*	***0.75% Chrysotile***

Approved Signatories:

_____ Analyst

_____ QAC

_____ Technical Manager