

**MICRO ANALYTICAL LABORATORIES, INC.**  
**BULK ASBESTOS ANALYSIS - POLARIZED LIGHT MICROSCOPY (PLM)**



1092  
 Paul Spillane  
 Acumen Industrial Hygiene, Inc.  
 1032 Irving Street, #922  
 San Francisco, CA 94122-2216

PROJECT:  
**PROJECT NO. COB 2228**  
**WEST BERKELEY SENIOR CENTER**  
**1900 SIXTH STREET**  
**BERKELEY, CA**

Micro Log In **291388**  
 Total Samples 6  
 Date Sampled 05/10/2022  
 Date Received 05/10/2022  
 Date Analyzed 05/10/2022

SAMPLE IDENTIFICATION	ASBESTOS QUANTITY (AREA %) / TYPES / LAYERS If absent, ND Is Reported (No Asbestos Detected)	DOMINANT OTHER MATERIALS
Client #: <b>COB2228-01A</b> Micro #: 291388-01      Analyst: GDS BK ROOF - EAST SIDE TERRA-COTTA ROOF TILE	ND	NFM: ROCK FRAGMENTS
Client #: <b>COB2228-01B</b> Micro #: 291388-02      Analyst: GDS ROOF - SOUTH SIDE TERRA-COTTA ROOF TILE	ND	NFM: ROCK FRAGMENTS
Client #: <b>COB2228-01C</b> Micro #: 291388-03      Analyst: GDS ROOF - WEST SIDE TERRA-COTTA ROOF TILE	ND	NFM: ROCK FRAGMENTS
Client #: <b>COB2228-02A</b> Micro #: 291388-04      Analyst: GDS ROOF - EAST SIDE FELT PAPER	ND	15 % CELLULOSE  NFM: TAR/ASPHALT, BINDER
Client #: <b>COB2228-02B</b> Micro #: 291388-05      Analyst: GDS ROOF - SOUTH SIDE FELT PAPER	ND	15 % CELLULOSE  NFM: TAR/ASPHALT, BINDER

Technical Supervisor: 

Baojia Ke, Ph.D.

5/10/2022

Date Reported

NVLAP Lab Code 101872-0 (TESTING). Analyses use Polarized Light Microscopy (PLM), Micro Analytical SOP PLM-101. Basic techniques follow EPA – Appendix E to Subpart E of 40 CFR Part 763; Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (originally published 1982), and EPA-600/R93-116 (1993). The 1993 method covers all types of bulk materials and is based on the 1982 Method, with improved analytical techniques for layered samples as required for NESHAP compliance. Asbestos is quantified by calibrated visual estimation. Detection limit is material dependent. Detection of asbestos traces (much less than 1%) may not be reliable or reproducible by PLM. Weight % cannot be determined by PLM. Asbestos with diameter below ~1 µm may not be detected by PLM. Absence of asbestos in dust, debris, and some compact materials, including floor tiles, cannot be conclusively established by PLM, and should be confirmed by Transmission Electron Microscopy (TEM). Interferences may prevent detection of small asbestos fibers, and hinder determination of some optical properties. Tremolite-asbestos or actinolite-asbestos may be indistinguishable by PLM from some similar, non-regulated amphiboles (e.g. the "libby Amphiboles" richterite and winchite), and should be confirmed by TEM. The lower quantitation limit (reporting limit) of PLM estimation is 1%. The Cal-OSHA definition of asbestos-containing construction material is 0.1% asbestos; however, reliable determination of asbestos percent at this level cannot be done by PLM estimation; PLM Point Counting or TEM weight percent analysis are recommended. Only dominant non-asbestos materials (fibrous and non-fibrous) are listed. This analysis shall not be construed as conclusive for the presence of any reported materials other than asbestos, or for the absence of any non-asbestos material. Common interferences include, but are not limited to: cellulose, fibrous glass, other man-made vitreous fibers, synthetic fibers, elongate fragments of calcium sulfate, talc, wollastonite, animal hair, and other miscellaneous elongate particles. Sample heterogeneity is indicated by listing more than one distinct layer or material on the report. If more than one distinct sample is received in the same container, samples shall be marked with letters and analyzed separately. Layers within a sample are analyzed separately when feasible; if asbestos is detected, percentages are reported for individual layers. Interlayer contamination is possible among any layers in a sample. The notation ND (or "NONE DETECTED") indicates a result of "NO ASBESTOS DETECTED" in a homogeneous sample, or in a layer of a heterogeneous sample. Composite asbestos percentages from multiple layers are applicable only to wallboard / joint compound systems; compositing is based on customers' descriptions of material as "joint compound". Customers are solely responsible for identification and description of bulk materials listed on field forms. Laboratory descriptions may differ from those given by customers. Quality Control (QC): all results have been determined to be within acceptance limits prior to reporting. Reanalyzed samples are denoted by two sets of analyst initials. Unless otherwise stated herein, all samples were received in acceptable condition for analysis. This report must not be used to claim product endorsement by NIST or any U.S. Government agency. This report shall not be reproduced except in full, without the approval of Micro Analytical Laboratories, Inc., and pertains only to the samples analyzed as received. NFM = Non-fibrous materials.

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**SAMPLE IDENTIFICATION****ASBESTOS QUANTITY (AREA %) / TYPES / LAYERS****DOMINANT  
OTHER MATERIALS**

If absent, ND Is Reported (No Asbestos Detected)

Client #:	<b>COB2228-02C</b>		
Micro #: 291388-06	Analyst: GDS	<b>ND</b>	15 % CELLULOSE
<b>ROOF - WEST SIDE FELT PAPER</b>			NFM: TAR/ASPHALT, BINDER

Technical Supervisor:

Baojia Ke, Ph.D.

5/10/2022

Date Reported

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ACUMEN

BULK CHAIN OF CUSTODY FORM

2913EE

INDUSTRIAL HYGIENE INC

1032 IRVING STREET #922 SAN FRANCISCO CA 94122-2218

TEL 415 242 6060 FAX 415 242 6006

WWW.ACUMEN-IH.COM

Project No. COB 2228

Location: West Berkeley Senior Center

Laboratory: Micro Analytical Laboratories, Inc.

Address: 1900 Sixth Street, Berkeley, CA

Turnaround:  Normal  24 Hour  Rush

Sampling Date: 5/10/2022

Collection By: Tam Pham

Sample No.	Floor	Location	Description	Method
1 COB2228-01A	Roof	East side	Terra-cotta Roof tile	PLM Ashes
2 01B		South side		
3 01C		West side		
4 02A		East side	Felt paper	
5 02B		South side	Felt paper	
6 02C		West side	Felt paper	

Other Instructions: Email results to [lab@acumen-ih.com](mailto:lab@acumen-ih.com).

Please sign this form below acknowledging sample receipt and return executed form with laboratory reports.

Sent By:	Received By: P.T
Date Submitted:	Date Received: 5/10/22 @ 12:04

Sample(s) Submitted Via:  Hand Delivered  Federal Express (Air Bill # \_\_\_\_\_)  Other: \_\_\_\_\_