



**ASBESTOS TEM LABORATORIES, INC.**

**Polarized Light Microscopy  
Analytical Report  
(EPA Gravimetric Point Count Protocol)**

**Laboratory Job # 514-350**

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ASBESTOS TEM LABORATORIES, INC

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U.S. Dept. of Commerce  
**NVLAP**  
CA DOHS ELAP

Feb/20/2003

Mr. Jack Anderson  
ABC Consultants  
5499 West "A" Street  
Burlingame, CA 94111

RE: LABORATORY JOB # 514-350  
Polarized light microscopy analytical results for 7 bulk sample(s).  
Job Site: 1800 Main Street, Sacramento, CA  
Job No.: AFJ-365

Enclosed please find the bulk material analytical results for one or more samples submitted for asbestos analysis. The analyses were performed in accordance with EPA Method 600/R-93/116 or 600/M4-82-020 for the determination of asbestos in bulk building materials by polarized light microscopy (PLM) using the point counting technique to determine asbestos concentration. Please note that while PLM analysis is commonly performed on non-friable and fine grained materials such as floor tiles and dust, the EPA method recognizes that PLM is subject to limitations. In these situations, accurate results may only be obtainable through the use of more sophisticated and accurate techniques such as transmission electron microscopy (TEM) or X-ray diffraction (XRD).

Prior to analysis, samples are logged-in and all data pertinent to the sample recorded. The samples are checked for damage or disruption of any chain-of-custody seals. A unique laboratory ID number is assigned to each sample. A hard copy log-in sheet containing all pertinent information concerning the sample is generated. This and all other relevant paper work are kept with the sample throughout the analytical procedures to assure proper analysis.

Each sample is opened in a class 100 HEPA negative air hood. An aliquot of the material is separated from the sample, weighed, placed into a ceramic crucible of known weight, and ashed in a muffle furnace at ~480 Deg. C for a minimum of 4 hours. The ashed material is reweighed to determine the amount of material lost on ignition. Acidified water is added to the sample to dissolve any calcareous materials, and the sample is placed into a pyrex beaker with additional distilled water and ultrasonicated to break up the solid material as much as possible. The remaining particulate in the beaker is emplaced onto a 0.22um pore size filter of known weight using a vacuum filtration process. The filter is dried and then weighed to determine the remaining undissolved mass of particulate. The filter residue is then analyzed by PLM as described below.

A representative sampling of the material is selected and placed onto a glass microscope slide containing a drop of refractive index oil. The glass slide is placed under a polarizing light microscope where standard mineralogical techniques are used to analyze the various materials present, including asbestos. Quantitation of asbestos is made via counting of a minimum of 400 semi-random particles using a Chalkey reticle. The data is then compiled into standard report format and subjected to a thorough quality assurance check before the information is released to the client.

Sincerely Yours,

Lab Manager  
ASBESTOS TEM LABORATORIES, INC.

--- These results relate only to the samples tested and must not be reproduced, except in full, without the approval of the laboratory. This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government. ---

# POLARIZED LIGHT MICROSCOPY

## ANALYTICAL REPORT

Contact: Mr. Jack Anderson	Samples Submitted: 7	Report No. <b>33444</b>
Address: ABC Consultants 5499 West "A" Street Burlingame, CA 94111	Samples Analyzed: 7	Date Submitted: Aug-22-02
	Job Site / No. 1800 Main Street, Sacramento, CA	Date Reported: Aug-27-02
	AFJ-365	

SAMPLE ID	POINTS COUNTED	ASBESTOS %	TYPE	LOCATION / DESCRIPTION
2111-8/8-15. Lab ID # 514-350-001	6	0.19	Chrysotile	Kitchen E wall of cubby center; Gypsum wallboard system 1.5% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/8-16. Lab ID # 514-350-002	8	0.33	Chrysotile	Room 122 SW corner; Gypsum wallboard system 2% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/8-17. Lab ID # 514-350-003	6	0.24	Chrysotile	3rd Floor mechanical room by door to HVAC roof; Gypsum wallboard system 1.5% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/8-18. Lab ID # 514-350-004	6	0.15	Chrysotile	Room 202; Gypsum 1.5% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/9-19. Lab ID # 514-350-005	5	0.09	Chrysotile	Room 129; Gypsum 1.25% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/9-20. Lab ID # 514-350-006	3	0.05	Chrvsotile	Room 108; Gypsum 0.75% asbestos in acid/ashed residue.
	400 - Total Points			
2111-8/9-21. Lab ID # 514-350-007	8	0.17	Chrvsotile	Room 204; Gypsum 2% asbestos in acid/ashed residue.
	400 - Total Points			
Lab ID #	- Total Points			
Lab ID #	- Total Points			
Lab ID #	- Total Points			

Lab Manager \_\_\_\_\_

Analyst \_\_\_\_\_