



ASBESTOS TEM LABORATORIES, INC.

**CARB Method 435
Polarized Light Microscopy
Analytical Report**

Laboratory Job # 1582-00002

630 Bancroft Way
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ASBESTOS TEM LABORATORIES, INC

CA DPH ELAP
Lab No. 1866



NVLAP Lab Code: 101891-0
Berkeley, CA

Jan/28/2020

Mr. Rock Martin
Pennsylvania DEP
286 Industrial Park Road
Ebensburg, PA 15931

RE: LABORATORY JOB # 1582-00002

Polarized light microscopy analytical results for 10 bulk sample(s).

Job Site:

Job No.: SGI-Northern Tract Quarry

Enclosed please find the bulk material analytical results for one or more samples submitted for asbestos analysis. The analyses were performed in accordance with the California Air Resources Board (ARB) Method 435 for the determination of asbestos in serpentine aggregate samples.

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.

Sample preparation follows a standard CARB 435 prep method. The entire sample is dried at 135-150 C and then crushed to ~3/8" gravel size using a Bico Chipmunk crusher. If the submitted sample is >1 pint, the sample was split using a 1/2" riffle splitter following ASTM Method C-702-98 to obtain a 1 pint aliquot. The entire 1 pint aliquot, or entire original sample, is then pulverized in a Bico Braun disc pulverizer calibrated to produce a nominal 200 mesh final product. If necessary, additional homogenization steps are undertaken using a 3/8" riffle splitter. Small aliquots are collected from throughout the pulverized material to create three separate microscope slide mounts containing the appropriate refractive index oil. The prepared slides are placed under a polarizing light microscope where standard mineralogical techniques are used to analyze the various materials present, including asbestos. If asbestos is identified and of less than 10% concentration by visual area estimate then an additional five sample mounts are prepared. Quantification of asbestos concentration is obtained using the standard CAL ARB Method 435 point count protocol. For samples observed to contain visible asbestos of less than 10% concentration, a point counting technique is used with 50 points counted on each of eight sample mounts for a total of 400 points. 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.

While the CARB 435 method has much to commend it, there are a number of situations where it fails to provide sufficient accuracy to make a definitive determination of the presence/absence of asbestos and/or an accurate count of the asbestos concentration present in a given sample. These problems include, but are not limited to, 1) statistical uncertainty with samples containing <1% asbestos when too few particles are counted, 2) definitive identification and discrimination between various fibrous amphibole minerals such as tremolite/actinolite/hornblende and the "Libby amphiboles" such as tremolite/winchite/richterite/arfvedsonite, and C) small asbestiform fibers which are near or below the resolution limit of the PLM microscope such as those found in various California coast range serpentine bodies. In these cases, further analysis by transmission electron microscopy is recommended to obtain a more accurate result.

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. ---

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With Branch Offices Located At: 1350 FREEPORT BLVD. UNIT 104, SPARKS, NV 89431

POLARIZED LIGHT MICROSCOPY CARB 435 ANALYTICAL REPORT

Contact: Mr. Rock Martin	Samples Submitted: 10	Report No. 368094
Address: Pennsylvania DEP 286 Industrial Park Road Ebensburg, PA 15931	Samples Analyzed: 10	Date Submitted: Dec-23-19
	Job Site / No. SGI-Northern Tract Quarry	Date Reported: Jan-23-20

SAMPLE ID	POINTS COUNTED	ASBESTOS		LOCATION / DESCRIPTION
		%	TYPE	
SRM-9281	17	4.25%	Actinolite	Greenstone Metabasalt
Lab ID # 1582-00002-001	400 - Total Points			
SRM-9316	3	0.75%	Actinolite	Greenstone Metabasalt
Lab ID # 1582-00002-002	400 - Total Points			
SRM-9237-A	20	5 %	Actinolite	Greenstone Metabasalt
Lab ID # 1582-00002-003	400 - Total Points			
SRM-9241	15	3.75%	Actinolite	Greenstone Metabasalt
Lab ID # 1582-00002-004	400 - Total Points			
SRM-9218	8	2 %	Actinolite	Greenstone Metabasalt
Lab ID # 1582-00002-005	400 - Total Points			
SRM-9264		<0.25%	Actinolite	Greenstone Metabasalt - drill core
Lab ID # 1582-00002-006	400 - Total Points			
SRM-9240	21	5.25%	Actinolite	Greenstone Metabasalt - drill core
Lab ID # 1582-00002-007	400 - Total Points			
SRM-9216	6	1.5 %	Actinolite	Greenstone Metabasalt - drill core
Lab ID # 1582-00002-008	400 - Total Points			
SRM-9295	7	1.75%	Actinolite	Greenstone Metabasalt - drill core
Lab ID # 1582-00002-009	400 - Total Points			
SRM-9304		<0.25%	Actinolite	Greenstone Metabasalt - drill core
Lab ID # 1582-00002-010	400 - Total Points			

QC Reviewer *R. Mc. Burt*

Analys *Jo Ann Hueston*

367690



ASBESTOS TEM LABORATORIES CHAIN OF CUSTODY

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 You may also email this chain of custody to coc@asbestostemplabs.com * denotes required field

Company: <i>Pennsylvania DEP</i>	Contact: * <i>Rock Martin</i>	Phone: * <i>814-472-1891</i>	Email: * <i>martin@pa.gov</i>
Address: * <i>286 Industrial Park Rd</i>	City: * <i>Ebensburg</i>	State: * <i>PA</i> Zip: <i>15931</i>	Email:
Job Site: * <i>SGI-Northern Tract Quarry</i>	Job #:	PO #:	Email:

Reporting *	<input checked="" type="checkbox"/> Email	<input type="checkbox"/> Phone	<input type="checkbox"/> Fax	<input checked="" type="checkbox"/> Mail	<input type="checkbox"/> FTP	<input type="checkbox"/> Pickup	Billing	<input type="checkbox"/> Fax	<input type="checkbox"/> Email	<input type="checkbox"/> Mail	<input type="checkbox"/> Pre-Paid	<input type="checkbox"/> On Receipt:	<input type="checkbox"/> 3 rd Party		
Results Due: *	<input type="checkbox"/> 2 HR	<input type="checkbox"/> 4 HR	<input type="checkbox"/> 6 HR	<input type="checkbox"/> 8 HR	<input type="checkbox"/> 24 HR	<input type="checkbox"/> 48 HR	<input type="checkbox"/> 3 DAY	<input type="checkbox"/> 4 DAY	<input type="checkbox"/> 5 DAY	<input checked="" type="checkbox"/> 10 DAY	<input type="checkbox"/> Hold Samples	<input type="checkbox"/> After Hours: ** <u> </u> <i>see below</i>			
Asbestos Air	<input type="checkbox"/> PCM (NIOSH 7400A)		<input type="checkbox"/> TEM AHERA		<input type="checkbox"/> TEM CARB Mod. AHERA		<input type="checkbox"/> TEM EPA Yamate Level II		<input type="checkbox"/> TEM NIOSH 7402		<input type="checkbox"/> ISO 10312	<input type="checkbox"/> ISO 13794			
Asbestos Bulk	<input type="checkbox"/> PLM Standard (EPA 600/R-93-1)			<input type="checkbox"/> PLM 400 PC		<input type="checkbox"/> PLM 1000 PC		<input type="checkbox"/> PLM 400 PC Grav. Red.		<input type="checkbox"/> PLM 1000 PC Grav. Red.		<input type="checkbox"/> TEM EPA Qualitative		<input type="checkbox"/> TEM EPA Quantitative	
	<input type="checkbox"/> TEM Chatfield (Semi-Quant)			<input type="checkbox"/> PREP ONLY			<input type="checkbox"/> Custom Analysis: **								
Asbestos Soils	<input checked="" type="checkbox"/> CARB 435 Prep Only			<input type="checkbox"/> CARB 435 PLM 400 PC			<input type="checkbox"/> CARB 435 PLM 1000 PC			<input type="checkbox"/> EPA Soil Screening Qualitative		<input checked="" type="checkbox"/> TEM EPA/CARB Quantitative			
Asbestos Dust	<input type="checkbox"/> ASTM D-5755 Fiber Count			<input type="checkbox"/> ASTM D-5756 Wt. %			<input type="checkbox"/> ASTM D-5756 Mass			<input type="checkbox"/> ASTM D-6480-99 Dust Wipe		<input type="checkbox"/> Total Particulates (Grav.)			
Asbestos Water	<input type="checkbox"/> 100.2 Potable Drinking Water			<input type="checkbox"/> 100.1 Non Potable Water			<input type="checkbox"/> REPORT TO STATE: EDT # _____								
Lead/Silica	<input type="checkbox"/> Lead Paint Chips		<input type="checkbox"/> Lead Dust Wipe		<input type="checkbox"/> Lead Air Cassette		<input type="checkbox"/> Lead Soil		<input type="checkbox"/> Silica Dust Airborne by NIOSH 7500			<input type="checkbox"/> Crystalline Silica (Single Species)		<input type="checkbox"/> Silica Dust Bulk by NIOSH 7500	<input type="checkbox"/> Crystalline Silica in Bulk (Single Species)
Sample Storage	<input type="checkbox"/> No Test, Hold Until: _____			<input type="checkbox"/> Test AND Hold Until: _____ <i>All samples will be held for 3 months from the date of receipt at ATEM. Additional sample storage time may be obtained through ATEM Customer Service.</i>											
Custom Order	<input type="checkbox"/> Sensitivity: _____			<input type="checkbox"/> Composite		<input type="checkbox"/> 8 Hour TWA		<input type="checkbox"/> Special Instructions: * <i>Please retain portion of sample #'s 9264, 9240, 9216, 9295, 9204 for particle feature analysis*</i>							
REANALYSIS	Original Login/Lot # _____ / _____			New Analysis Type: _____			TAT: _____			Special Instructions: _____					

Sample # *	Sample Type	Date Collected	Time On	Time Off	Total Time (min)	Flow Rate (lpm)			Volume or Area Sampled	Hold Sample	Description *
						On	Off	Average			
<i>SRM-9281</i>	<i>rock</i>	<i>1/16/14</i>							<i>100g</i>	<input type="checkbox"/>	<i>Greenstone/Metabasalt - prepped for CARB 435 TEM as per 11/4/15 Quote</i>
<i>SRM-9316</i>	<i> </i>	<i>1/16/14</i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9237-A</i>	<i> </i>	<i>10/4/19</i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9241</i>	<i> </i>	<i>1/16/14</i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9218</i>	<i> </i>	<i>1/16/14</i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9264</i>	<i> </i>	<i>12/19/19</i>							<i>~1 pint</i>	<input type="checkbox"/>	<i>Greenstone/Metabasalt - prep needed - CARB 435 TEM as per 11/4/15 Quote</i>
<i>SRM-9240</i>	<i> </i>	<i> </i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9216</i>	<i> </i>	<i> </i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9295</i>	<i> </i>	<i> </i>							<i> </i>	<input type="checkbox"/>	<i> </i>
<i>SRM-9304</i>	<i> </i>	<i> </i>							<i> </i>	<input type="checkbox"/>	<i> </i>

Submitted By * <i>Rock Martin / MTT</i>	Received By <i>MTT</i>	
Date/Time Submitted *	Date/Time Received	
Submitted By	Received By	
Date/Time Submitted	Date/Time Received	<i>DEC23 '19 4:54PM</i>

** Any special instructions, RUSH results or Custom Analysis, you must clarify these specifications AND, of more importance, contact us here at ATEM ahead of time to manage scheduling to meet your requests. Drop off and processing of samples after hours cannot be accommodated without proper notification from you, and confirmation by ATEM staff.