

## Laboratory Report

K & L Gates  
 17 North Second Street  
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 United States  
 Attention: Mr. David Raphael  
 Telephone: 717-231-4504

Report Date 06/27/2019  
 Sample Receipt Date 06/03/2019  
 RJ Lee Group Job No. LLH901997-10  
 Authorization/P.O. No.  
 Client Job No./Name

Analysis: Asbestos in Bulk Samples by Point Count  
 Method: EPA/600/R-93/116

RJLG Sample Number	Client Sample Number	Homogeneous	# of Layers	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst - Analysis Date
3158836.HPL	14 - RH #22	Yes	1	ND	<0.1 OF	100.00	Q, AM, OP, M	WT-06/27/2019
Description: Gray Crushed Rock. 1000 Point Count. Detection Limit=0.1%. <0.1% OF= <0.1% Actinolite Cleavage.								
Weight Loss: 0.0%								
3158837.HPL	15 - RH #23	Yes	1	ND	<0.1 OF	100.00	Q, AM, OP, M	WT-06/27/2019
Description: Beige Crushed Rock. 1000 Point Count. Detection Limit=0.1%. <0.1% OF= <0.1% Actinolite Cleavage.								
Weight Loss: 0.0%								
3158838.HPL	16 - RH #24	Yes	1	ND		100.00	Q, OP, M	WT-06/25/2019
Description: Gray Crushed Rock. 1000 Point Count. Detection Limit=0.1%.								
Weight Loss: 0.0%								

Client Job No./Name: **RJ Lee Group Job No: LLH901997-10**

RJLG Sample Number	Client Sample Number	Homogeneous	# of Layers	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst - Analysis Date
3158839.HPL	17 - RH #25	Yes	1	ND	<0.1 OF	100.00	Q, AM, OP, M	WT-06/25/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. <0.1% OF= <0.1% Actinolite Cleavage..								
Weight Loss: 0.0%								
3158840.HPL	18 - RH #26	Yes	1	<0.1 AC		100.00	Q, OP, M	WT-06/26/2019
Description: Beige Crushed Rock.								
1000 Point Count. Detection Limit=0.1%.								
Weight Loss: 0.0%								
3158841.HPL	19 - RH #27	Yes	1	ND		100.00	Q, CA, OP, M	WT-06/26/2019
Description: Tan Crushed Rock.								
1000 Point Count. Detection Limit=0.1%.								
Weight Loss: 0.0%								
3158842.HPL	20 - RH #28	Yes	1	ND		100.00	Q, CA, OP, M	WT-06/26/2019
Description: Tan Crushed Rock.								
1000 Point Count. Detection Limit=0.1%.								
Weight Loss: 0.0%								
3158843.HPL	21 - RH #29	Yes	1	<0.1 AC	0.20 OF	99.80	Q, OP, M	WT-06/27/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. 0.2% OF= 0.2% Actinolite Cleavage.								
Weight Loss: 0.0%								
3158844.HPL	22 - RH #30	Yes	1	ND	0.20 OF	99.80	Q, AM, OP, M	WT-06/27/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. 0.2% OF= 0.2% Actinolite Cleavage.								
Weight Loss: 0.0%								

Client Job No./Name: RJ Lee Group Job No: LLH901997-10

RJLG Sample Number	Client Sample Number	Homogeneous	# of Layers	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst - Analysis Date
3158845.HPL	23 - RH #31	Yes	1	ND	0.20 OF	99.80	Q, CA, AM, OP, M	WT-06/27/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. 0.2% OF= 0.2% Actinolite Cleavage.								
Weight Loss: 0.0%								
3158846.HPL	24 - RH #32	Yes	1	ND	0.30 OF	99.70	Q, AM, OP, M	WT-06/27/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. 0.3% OF= 0.3% Actinolite Cleavage.								
Weight Loss: 0.0%								
3158847.HPL	25 - RH #33	Yes	1	ND	0.80 OF	99.20	Q, AM, OP, M	WT-06/27/2019
Description: Gray Crushed Rock.								
1000 Point Count. Detection Limit=0.1%. Total of Amphibole Cleavage=0.8%. 0.2% is Tremolite Cleavage, 0.8% is Actinolite Cleavage. 0.2% OF= 0.2% Tremolite Cleavage. 0.6% OF= 0.6% Actinolite Cleavage.								
Weight Loss: 0.0%								

Client Job No./Name:

RJ Lee Group Job No: LLH901997-10

RJLG Sample Number	Client Sample Number	Homogeneous	# of Layers	Asbestos Detected(%)	Non-Asbestos Fibers(%)	Non-Fibrous Materials(%)	Matrix Material	Analyst - Analysis Date
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Authorized Signature:

Wei Tseng, Microscopist

**ASBESTOS**

AM = Amosite  
 AC = Actinolite  
 AN = Anthophyllite  
 CH = Chrysotile  
 CR = Crocidolite  
 TR = Tremolite

**NON-ASBESTOS**

CE = Cellulose  
 MW = Mineral Wool  
 FG = Fibrous Glass  
 SF = Synthetic Fibers  
 H = Hair  
 W = Wollastonite  
 OF = Other Fibers

**NON-FIBROUS MATERIALS**

AM = Amphibole  
 B = Binder  
 CA = Carbonates  
 CL = Clay  
 F = Feldspar  
 G = Gypsum  
 HY = Hydromagnesite  
 M = Miscellaneous  
 MI = Mica  
 OP = Opaque  
 OR = Organic  
 P = Perlite  
 Q = Quartz  
 T = Tar  
 V = Vermiculite

**DISCLAIMER NOTES**

- "ND" indicates no asbestos was detected; the method detection limit is 0.1%.
- "Trace" or "<" indicates asbestos was identified in the sample, but the concentration is less than the method quantitation limit. PLM coefficients of variance range from approximately 1.8 at the quantitation limit of 0.25% to 0.32 at high fiber concentrations.
- Samples are archived for three months following analysis and are then properly discarded.
- These results are submitted pursuant to RJ Lee Group's current terms and conditions of sale, including the company's standard warranty and limitation of liability provisions. No responsibility or liability is assumed for the manner in which these results are used or interpreted.
- This test report relates to the items tested.
- This report is not valid unless it bears the name of a NVLAP Lab Code 101208-0 approved signatory.
- Any reproduction of this document must be in full in order for the report to be valid.
- This report may not be used to claim product endorsement by NVLAP Lab Code 101208-0, any agency of the U.S. Government or any other laboratory accrediting agency.
- Polarized-light microscopy is not consistently reliable in detecting asbestos in floor coverings and similar nonfriable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as "non-asbestos-containing."
- Sample(s) for this project were analyzed at our: Monroeville, PA (AIHA #100364, NY ELAP #10884) facility.
- If RJ Lee Group, Inc. did not collect the samples analyzed, the verifiability of the laboratory results are limited to the reported values.
- ((100-A)/B)\*C = Asbestos Detected (%), where A=weight loss, B=total # of points counted, and C=total # of asbestos fibers counted.

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/25/19 Analyst: WT Scope: 023-DPT

Sample Description: Gray Crushed Rock -

RJ Lee Group  
 Sample Number: 3158836  
 RJ Lee Group  
 Project Number: LC1901997-10  
 Analysis Method:

Comments / # of Layers: 1000 Point Count. Detection Limit = 0.1%

Stereo-scope		Asbestos Type		Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM%
%	%		Morphology		⊥		⊥	L M	P N		(100%)
0%		ND	W C S					L M	P N		Quartz
			W C S					L M	P N		Carbonates
			W C S					L M	P N		Vermiculite
% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos		Non-Asb.		Matrix	
<0.1%		Actinolite Cleavage		R.I.							Tar
											Blinder
											Opacities
											Perlite
											Amphibole
											Gypsum
											Talc
											Feldspar
											Mica
											Clay
											Organic Part.
											Diatoms
											Misc. Particles
											Foam
											Foil

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$



**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/25/19 Analyst: WT Scope: 023-0PT

Sample Description: Beige Crushed Rock

RJ Lee Group  
 Sample Number: 3158837  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments /  
 # of Layers:

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM% <u>100%</u>
					⊥		⊥				
	<u>0%</u>	<u>ND</u>	<u>W C S</u>					<u>L M</u>	<u>P N</u>		Quartz Carbonates Vermiculite Tar Binder Opaques Perlite Amphibole Gypsum Talc Feldspar Mica Clay Organic Part. Diatoms Misc Particles Foam Foil
			<u>W C S</u>					<u>L M</u>	<u>P N</u>		
			<u>W C S</u>					<u>L M</u>	<u>P N</u>		
		% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	
	<u>&lt;0.1%</u>	<u>Actinolite cleavage</u>		<u>R.F.</u>							

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/25/19 Analyst: WT Microscope: 023-DTF

RJ Lee Group Sample Number: 3158837 RJ Lee Group Project Number: LU1901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLC	0	0							0
NAS	100	100							200
Total	100	100							200

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									



**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/25/19 Analyst: WT Scope: 023-0PT

Sample Description: Gray Crushed Rock.

RJ Lee Group  
 Sample Number: 3158838  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments / # of Layers: (1000 Point Count. Detection Limit = 0.1%)

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Homogenous		QC		QC Analyst:	
					⊥		⊥	Y	N	Y	N		
	0%	ND	WCS					L M	P N				
			WCS					L M	P N				
			WCS					L M	P N				
		% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	NFM% (100%)		
											Quartz	Carbonates	Vermiculite
											Tar	Binder	Opagues
											Perlite	Amphibole	Gypsum
											Talc	Feldspar	Mica
											Clay	Organic Part.	Diatoms
											Misc Particles	Foam	Foil

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/25/19 Analyst: WT Microscope: 023-OPF

RJ Lee Group Sample Number: 3150838 RJ Lee Group Project Number: LLM901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CE	0	0							0
NAS	100	100							200
<b>Total</b>	<b>100</b>	<b>100</b>							<b>200</b>

0  
0  
1000  
1000

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples

Date: 06/25/19 Analyst: WT Scope: 023-0PT

Sample Description: Gray Crushed Rock.

RJ Lee Group  
 Sample Number: 3158839  
 RJ Lee Group  
 Project Number: LL1-1901997-10  
 Analysis Method:

Comments / # of Layers: 1000 Point Count. Detection Limit = 0.1%

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM% <u>100%</u>
					⊥		⊥				
	<u>0%</u>	<u>ND</u>	<u>WCS</u>					<u>L M</u>	<u>P N</u>		Quartz Calc Perlite Talc Clay Misc Particles Carbonates Binder Amphibole Feldspar Organic Part. Foam Vermiculite Opacities Gypsum Mica Diatoms Foil
			<u>WCS</u>					<u>L M</u>	<u>P N</u>		
			<u>WCS</u>					<u>L M</u>	<u>P N</u>		
		% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	
	<u>&lt;0.1%</u>	<u>Actinolite cleavage</u>		<u>R.F.</u>							

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
<u>ASB</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>CLE</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>NAS</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>800</u>
Total	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>800</u>

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
 Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/25/19 Analyst: WT Microscope: 023-0PT

RJ Lee Group Sample Number: 3158839 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
Total	100	100							200

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/25/19 Analyst: WT Scope: 023-0PT

Sample Description: Beige Crushed Rock

RJ Lee Group  
 Sample Number: 3158840  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments /  
 # of Layers: 1000 Point Count. Detection Limit = 0.1%

Stereo-scope				# of Preps:	Homogenous		QC		QC Analyst:		
%		Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM%
					⊥		⊥	(Y) N	(Y) N		100%
	<0.1%	Actinolite	WCS	GR	N	1.638	1.628	L M	(P) N	PL	Quartz
			WCS					L M	P N		Carbonates
			WCS					L M	P N		Vermiculite
											Tar
											Binder
											Opales
											Perlite
											Amphibole
											Gypsum
											Talc
											Feldspar
											Mica
											Clay
											Organic Part.
											Diatoms
											Misc Particles
											Foam
											Foil

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	100
Total	100	100	100	100	100	100	100	100	100

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
 Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

 Date: 06/25/19 Analyst: WT Microscope: 023-0PT

 RJ Lee Group Sample Number: 3158840 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
Total	100	100							200

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples

Date: 06/26/19 Analyst: WT Scope: 023-0PT

Sample Description: Tan Crushed Rock

RJ Lee Group  
 Sample Number: 3158841  
 RJ Lee Group  
 Project Number: LLH 901997-10  
 Analysis Method:

Comments /  
 # of Layers: 1000 Point Count. Detection Limit = 0.1%

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	QC Analyst:
					⊥		⊥				
	0%	ND	WCS					L M	P N		NFM% 100%
			WCS					L M	P N		
			WCS					L M	P N		
		Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	
											Quartz Tar Perlite Talc Clay Misc Particles
											Carbonates Binder Amphibole Feldspar Organic Part. Foam
											Vermiculite Opagues Gypsum Mica Diatoms Foil

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
 Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

 Date: 06/26/19 Analyst: WT Microscope: 023-0PT

 RJ Lee Group Sample Number: 3158841 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
Total	100	100							200

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									



**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/26/19 Analyst: WT Scope: 023-0PT

Sample Description: Tan Crushed Rock.

RJ Lee Group  
 Sample Number: 3158842  
 RJ Lee Group  
 Project Number: LUH 901997-10  
 Analysis Method:

Comments /  
 # of Layers: 1000 point count. Detection limit = 0.1%

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Homogenous (Y) N		QC Y N		QC Analyst:
					⊥		⊥	Birefringence	Sign of Elongation	Extinction Angle	NFM%	
	0%	ND	WCS					L M	P N			Quartz Carbonates Vermiculite Tar Binder Opaques Perlite Amphibole Gypsum Talc Feldspar Mica Clay Organic Part. Diatoms Misc Particles Foam Foll
			WCS					L M	P N			
			WCS					L M	P N			
		% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix		

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	0	0	0	0	0	0	0	0	0
NAS	100	100	100	100	100	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/26/19 Analyst: WT Microscope: 023-0PT

RJ Lee Group Sample Number: 3158842 RJ Lee Group Project Number: CLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CVE	0	0							0
NKS	100	100							200
<b>Total</b>	100	100							200

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/26/19 Analyst: WT Scope: 223-APT

Sample Description: Gray Crushed Rock -

1000 Point Count. Detection Limit = 0.1%

RJ Lee Group  
 Sample Number: 3158843  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments /  
 # of Layers:

Stereo-scope		Asbestos Type		Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM%	QC Analyst:		
%	%		Morphology		⊥		⊥					Y	N	
	<u>&lt;0.1%</u>	<u>Actinolite</u>	<u>W C(S)</u> <u>W C S</u> <u>W C S</u>	<u>GR</u>	<u>N</u>	<u>1.638</u>	<u>1.628</u>	<u>L M</u>	<u>(P) N</u>	<u>PL</u>	<u>99.8%</u>	<u>Quartz</u>	<u>Carbonates</u>	<u>Vermiculite</u>
								<u>L M</u>	<u>P N</u>			<u>Tar</u>	<u>Binder</u>	<u>Opacities</u>
								<u>L M</u>	<u>P N</u>			<u>Perlite</u>	<u>Amphibole</u>	<u>Gypsum</u>
												<u>Talc</u>	<u>Feldspar</u>	<u>Mica</u>
												<u>Clay</u>	<u>Organic Part.</u>	<u>Diatoms</u>
												<u>Misc Particles</u>	<u>Foam</u>	<u>Foil</u>
	<u>0.2%</u>	<u>Actinolite clump</u>		<u>R.I.</u>										

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE	1	0	0	0	1	0	0	0	2
NAS	99	100	100	100	99	100	100	100	998
Total	100	100	100	100	100	100	100	100	1000

WT 06/26/19  
 WT 06/26/19

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/26/19 Analyst: WT Microscope: 023-OPT

RJ Lee Group Sample Number: 3158843 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
Total	100	100							200

0  
2  
998  
1000

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/27/19 Analyst: WT Scope: 023-0PT

Sample Description: Gray Crushed Rock,

RJ Lee Group  
 Sample Number: 3158844  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

1000 Point Count. Detection Limit = 0.1%  
 Comments /  
 # of Layers:

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	QC Analyst:
					⊥		⊥				
	0%	ND	W C S					L M	P N		NFM% <u>99.8%</u> Quartz Carbonates Vermiculite Tar Binder Opalues Perlite Amphibole Gypsum Talc Feldspar Mica Clay Organic Part. Diatoms Misc Particles Foam Foil
			W C S					L M	P N		
			W C S					L M	P N		
	0.2%	Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	
		Actinolite Cleavage		R.I.							

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLT	0	0	0	0	2	0	0	0	2
NAS	100	100	100	100	98	100	100	100	800
Total	100	100	100	100	100	100	100	100	800

WT06/27/19  
 WT06/27/19

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/27/19 Analyst: WT Microscope: 023-0PF

RJ Lee Group Sample Number: 3158844 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
<b>Total</b>	<b>100</b>	<b>100</b>							<b>200</b>

0  
0  
100-998  
1000  
WT 06/27/19  
2  
WT 06/27/19

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/27/19 Analyst: WT Scope: 023-0PT

Sample Description: Gray Crushed Rock.

RJ Lee Group  
 Sample Number: 3158845  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments /  
 # of Layers: 1000 Point Count - Detection Limit = 0.1%

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	NFM%
					⊥		⊥				
	0%	ND	WCS					L M	P N		99.8%
			WCS					L M	P N		
			WCS					L M	P N		
		% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix	
	0.2%	Actinolite Cleavage		R.E.							

- Quartz
- Tar
- Perlite
- Talc
- Clay
- Misc Particles
- Carbonates
- Binder
- Amphibole
- Feldspar
- Organic Part.
- Foam
- Vermiculite
- Oxides
- Gypsum
- Mica
- Diatoms
- Foll

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
Asb	0	0	0	0	0	0	0	0	0
GLE	0	0	2	0	0	0	0	0	2
NAS	100	100	98	100	100	100	100	100	798
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/27/17 Analyst: WA Microscope: 023-0PT

RJ Lee Group Sample Number: 3158845 RJ Lee Group Project Number: LLM901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total	
ASB	0	0							0	0
CLE	0	0							0	2
NAS	100	100							200	998
Total	100	100							200	1000

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									



**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/27/19 Analyst: WT Scope: 023-015

Sample Description: Gray Crushed Rock.

RJ Lee Group  
 Sample Number: 3158846  
 RJ Lee Group  
 Project Number: LLH 901997-10  
 Analysis Method:

Comments / # of Layers: 1000 Point Count. Detection Limit = 0.1%

Stereo-scope		Asbestos Type		Morphology		Color/Pleochroism		Indices of Refraction		Birefringence		Sign of Elongation		Extinction Angle		NFM% <u>99.7%</u>		
%	%				⊥		⊥	L	M	P	N	Y	N			Quartz	Carbonates	Vermiculite
	<u>0%</u>	<u>ND</u>	<u>WCS</u>															
			<u>WCS</u>															
			<u>WCS</u>															
% Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos		Non-Asb.		Matrix		Misc Particles						
	<u>0.3%</u>	<u>Actinolite Cleavage</u>	<u>R.I.</u>															

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
<u>ASB</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<u>CCE</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>3</u>
<u>NAS</u>	<u>99</u>	<u>100</u>	<u>100</u>	<u>98</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>797</u>
<b>Total</b>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>800</u>

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
 Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/27/19 Analyst: WT Microscope: 023-0PT

RJ Lee Group Sample Number: 3158846 RJ Lee Group Project Number: 66-1901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
<b>Total</b>	100	100							200

0  
3  
997  
1000

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
<b>Total</b>									

**Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples**

Date: 06/27/19 Analyst: WT Scope: 023-0PT

Sample Description: Gray Crushed Rock

RJ Lee Group  
 Sample Number: 3158847  
 RJ Lee Group  
 Project Number: LLH901997-10  
 Analysis Method:

Comments / # of Layers: 1000 point count. Detection Limit = 0.1%

Stereo-scope	%	Asbestos Type	Morphology	Color/Pleochroism		Indices of Refraction		Birefringence	Sign of Elongation	Extinction Angle	QC Y N	QC Analyst:
					⊥		⊥					
	0%	ND	WCS					L M	P N			
			WCS					L M	P N			
			WCS					L M	P N			
	%	Non-Asbestos Fibers		Optical Properties		Layered Results		Asbestos	Non-Asb.	Matrix		
	0.2%	Tremolite cleavage		R.I.								
	0.6%	Actinolite cleavage		R.I.								

  

NFM% <u>99.2%</u>		
Quartz	Carbonates	Vermiculite
Tar	Binder	Opacities
Perlite	Amphibole	Gypsum
Talc	Feldspar	Mica
Clay	Organic Part.	Diatoms
Misc Particles	Foam	Foil

Type	Slide 1	Slide 2	Slide 3	Slide 4	Slide 5	Slide 6	Slide 7	Slide 8	Total
ASB	0	0	0	0	0	0	0	0	0
CLE(Act)	2 <sup>with quartz</sup>	0	0	0	1	0	0	0	2
NAS	98	99	100	100	97	99	99	100	792
CLE(Act)	1	1	0	0	2	1	1	0	6
Total	100	100	100	100	100	100	100	100	800

Detection Limit =  $\frac{1}{1000} \times 100\% = 0.1\%$

Effective Date: March 2019  
 Form F OPT.001

**PLM Point Count Additional Slides Worksheet**

Date: 06/27/19 Analyst: WT Microscope: 023-0PT

RJ Lee Group Sample Number: 3158847 RJ Lee Group Project Number: LLH901997-10

Type	Slide <u>9</u>	Slide <u>10</u>	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
ASB	0	0							0
CLE (Free)	0	0							0
NAS	200	100							300
CLE (Act)	0	0							0
Total	200	100							300

0  
2  
992  
6  
1000

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									

Type	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Slide ____	Total
Total									