RJ Lee Group, Inc.
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Laboratory Report

K & L Gates
17 North Second Street
18th Floor
Harrisburg, PA 17101
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%								

RJ LeeGroup, Inc.

Laboratory Report (Cont)

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

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 laboratorys 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.

RJ Lee Group
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

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

Sample Description: Gray Crushed Rock.

1000 Point Count. Detection Limit = 0.1 %

RJ Lee Group Sample Number: 3158836
RJ Lee Group Project Number: LCH901997-10
Analysis Method:

Comments / # of Layers:

Stereo-scope

# of Preps: 10 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
<0.1%	Actinolite Cleavage	R.I.				

NFM% 100%

(Quartz)	Carbonates	Vermiculite
Tar	Binder	(Opaques)
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 = $\frac{1}{1000} \times 100\% = 0.1\%$

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

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

RJ Lee Group Sample Number: 3158836 RJ Lee Group Project Number: LLH90(997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

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

Sample Description: Beige Crushed Rock

1000 Point Count. Detection Limit = 0.1%

RJ Lee Group Sample Number: 3158837

RJ Lee Group Project Number: LLH901997-10

Analysis Method:

Comments / # of Layers:

Stereo-scope

# of Preps: 10 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

(Quartz) Carbonates Vermiculite
Tar Binder (Opaques)
Perlite (Amphibole) Gypsum
Talc Feldspar Mica
Clay Organic Part. Diatoms
(Misc. Particles) Foam Foil

%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
<0.1%	Actinolite Cleavage	R.F.				

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/25/19 Analyst: WT Microscope: 023-017

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

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

Date: 06/25/19 Analyst: WT Scope: 023-OPT Sample Description: Gray Crushed Rock.

1000 Point Count. Detection Limit = 0.1%

RJ Lee Group Sample Number: 3158838
RJ Lee Group Project Number: LLH901997-10
Analysis Method:
Comments / # of Layers:

Stereoscope

# of Preps: | Homogenous Y N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	NI)	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

Quartz Carbonates Vermiculite
Tar Binder Opaques
Perlite Amphibole Gypsum
Talc Feldspar Mica
Clay Organic Part. Diatoms
Misc Particles Foam Foil

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

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Form F OPT.001

PLM Point Count Additional Slides Worksheet

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

RJ Lee Group Sample Number: 315883 RJ Lee Group Project Number: LLH901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

Date: 06/25/19 Analyst: WT Scope: 023-OPT Sample Description: Gray Crushed Rock.

1000 Point Count. Detection Limit = 0.1%

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

Comments / # of Layers:

Stereoscope

# of Preps: 1 0 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

%	Non-Asbestos Fibers	Optical Properties
<0.1%	Actinolite Cleavage	R.I.

Layered Results

Asbestos	Non-Asb.	Matrix

(Quartz) Carbonates Vermiculite
Tar Binder (Opaques)
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 = $\frac{1}{1000} \times 100\% = 0.1\%$

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

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

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

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
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Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples

Date: 06/25/19 Analyst: WT Scope: 0233-OPT

Sample Description: Beige Crushed Rock

1000 Point Count. Detection Limit = 0.1%

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

Comments / # of Layers:

Stereoscope

# of Preps: 10 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	<0.1%	Actinolite	W C (S)	GR	N	1.638	1.628	L (M)	(P) N	PL
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

(Quartz)	Carbonates	Vermiculite
Tar	Binder	(Opaques)
Perlite	Amphibole	Gypsum
Talc	Feldspar	Mica
Clay	Organic Part.	Diatoms
Misc Particles	Foam	Foil

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

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

RJ Lee Group Sample Number: 3158840 RJ Lee Group Project Number: LLHF901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
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Polarized Light Microscopy Point Count Worksheet for Asbestos Analysis of Bulk Samples

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

Sample Description: Tan Crushed Rock

RJ Lee Group Sample Number: 3158841

RJ Lee Group Project Number: LLH901997-10

Analysis Method: 1000 Point Count. Detection Limit = 0.1%

Comments / # of Layers:

Stereo-scope

# of Preps: 10 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism II	Color/Pleochroism ⊥	Indices of Refraction II	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

Quartz, Carbonates, Vermiculite
Tar, Binder, Opaques
Perlite, Amphibole, Gypsum
Talc, Feldspar, Mica
Clay, Organic Part., Diatoms
Misc Particles, Foam, Foil

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

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: 3158841 RJ Lee Group Project Number: LLH901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

Date: 06/26/19 Analyst: WT Scope: 023-OPT Sample Description: Tan Crushed Rock.

RJ Lee Group Sample Number: 3158842
RJ Lee Group Project Number: LLH90(997-10
Analysis Method:

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

Stereoscope

# of Preps: 1 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 100%

(Quartz) Carbonates Vermiculite
Tar Binder (Opaques)
Perlite Amphibole Gypsum
Talc Feldspar Mica
Clay Organic Part. Diatoms
(Misc Particles) Foam Foil

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

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

RJ Lee Group Sample Number: 3158842 RJ Lee Group Project Number: LL19o1497-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CUE	0	0							0	0
NAS	100	100							200	1000
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

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

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	# of Preps: 0	Homogenous (Y) N	QC Y N	QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism II	Color/Pleochroism ⊥	Indices of Refraction II	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	<0.1%	Actinolite	W C (S)	GR	N	1.638	1.628	L (M)	(P) N	PL
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 99.8%

Quartz (Q) Carbonates Vermiculite
Tar Binder Opaques (O)
Perlite Amphibole (A) Gypsum
Talc Feldspar Mica
Clay Organic Part. Diatoms
Misc Particles (Q) Foam Foil

%	%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
	0.2%	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	
CLE	1	0	0	0	1	0	0	0	02	WT 6/26/19
NAS	99	100	100	100	99	100	100	100	~~800~~ 798	WT 06/26/19
Total	100	100	100	100	100	100	100	100	800	

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

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 9	Slide 10	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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

Date: 06/27/19 Analyst: WT Scope: 023-OPT 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 | # of Preps: 10 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism II	Color/Pleochroism ⊥	Indices of Refraction II	Indices of Refraction ⊥	Birefrin-gence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

%	%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
	0.2%	Actinolite Cleavage	R.I.				

NFM% 99.8%

Quartz | Carbonates | Vermiculite
Tar | Binder | Opaques
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	2	0	0	0	~~0~~ 2 WT 06/27/19
NAS	100	100	100	100	98	100	100	100	~~800~~ 798 WT 06/27/19
Total	100	100	100	100	100	100	100	100	800

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/27/19 Analyst: MT Microscope: 023-OPT

RJ Lee Group Sample Number: 3158864 RJ Lee Group Project Number: LLH901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total
ASB	0	0							0
CLE	0	0							0
NAS	100	100							200
Total	100	100							200

0
0 WT 06/27/19
2 WT 06/27/19
~~1000~~ 998
1000

Type	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total
Total									

Type	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total
Total									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: March 2019
Form C OPT.001.9

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

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

Sample Description: Gray Crushed Rock.

1000 Point Count - Detection Limit = 0.1%

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

Comments / # of Layers:

Stereoscope

# of Preps: 10

Homogenous (Y) N

QC Y N

QC Analyst:

NFM% 99.8%

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	NO	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
0.2%	Actinolite Cleavage	N.E.				

(Quartz) (Carbonates) Vermiculite
Tar Binder (Opaques)
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	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 = $\frac{1}{1000} \times 100\% = 0.1\%$

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/27/17 Analyst: WA Microscope: 023-OPT

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

Type	Slide 9	Slide 10	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									

RJ Lee Group
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: **March 2019**
Form C OPT.001.9

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

Date: 06/28/19 Analyst: LMT Scope: 023-015 Sample Description: Gray Crushed Rock.

1000 Point Count. Detection Limit = 0.1%

RJ Lee Group Sample Number: 3158846
RJ Lee Group Project Number: LLH901997-10
Analysis Method:

Comments / # of Layers:

Stereoscope | # of Preps: 0 | Homogenous (Y) N | QC Y N | QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism II	Color/Pleochroism ⊥	Indices of Refraction II	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C S					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 99.7%

Quartz | Carbonates | Vermiculite
Tar | Binder | (Opaques)
Perlite | Amphibole | Gypsum
Talc | Feldspar | Mica
Clay | Organic Part. | Diatoms
(Misc. Particles) | Foam | Foil

%	Non-Asbestos Fibers	Optical Properties	Layered Results	Asbestos	Non-Asb.	Matrix
0.3%	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
CLE	1	0	0	2	0	0	0	0	3
NAS	99	100	100	98	100	100	100	100	797
Total	100	100	100	100	100	100	100	100	800

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

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/27/19 Analyst: WT Microscope: 023-OPT

RJ Lee Group Sample Number: 3158846 RJ Lee Group Project Number: LCH901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE	0	0							0	3
NAS	100	100							200	997
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									

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION
Effective Date: **March 2019**
Form C OPT.001.9

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

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

Sample Description: Gray Crushed Rock

1000 Point Count. Detection Limit = 0.1%

RJ Lee Group Sample Number: 3158847
RJ Lee Group Project Number: CLH901997-10
Analysis Method:

Comments / # of Layers:

Stereo-scope	# of Preps: 10	Homogenous (Y) N	QC Y N	QC Analyst:

%	%	Asbestos Type	Morphology	Color/Pleochroism ∥	Color/Pleochroism ⊥	Indices of Refraction ∥	Indices of Refraction ⊥	Birefringence	Sign of Elongation	Extinction Angle
	0%	ND	W C (S)					L M	P N	
			W C S					L M	P N	
			W C S					L M	P N	

NFM% 99.2%

Quartz, Carbonates, Vermiculite, Tar, Binder, (Opaques), Perlite, (Amphibole), Gypsum, Talc, Feldspar, Mica, Clay, Organic Part., Diatoms, (Misc Particles), Foam, Foil

%	Non-Asbestos Fibers	Optical Properties
0.2%	Tremolite Cleavage	R.I.
0.6%	Actinolite Cleavage	R.I.

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(Tre)	2 (WT 06/27/19)	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 = $\frac{1}{1000} \times 100\% = 0.1\%$

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

Effective Date: March 2019
Form F OPT.001

PLM Point Count Additional Slides Worksheet

Date: 06/27/19 Analyst: WT Microscope: 023-OPT

RJ Lee Group Sample Number: 3158847 RJ Lee Group Project Number: LCH901997-10

Type	Slide 9	Slide 10	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Slide ___	Total	
ASB	0	0							0	0
CLE(Tre)	0	0							0	2
NAS	100	100							200	992
CLE(Act)	0	0							0	6
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									