

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077
Phone: (800) 220-3675
Fax: (856) 858-1292
Email: CorporateAsbLab@emsl.com

EMSL Order : 042204844**Customer ID :** TERR61**Attention:** Kerry Conner

Terracon
10625 W I-70 Frontage Road North Suite 3
Wheat Ridge, CO 80033

Phone: 303 423 3300**Email:** Kerry.Conner@terracon.com**Customer PO:** N/A**Project:** City Of Louisville, Colorado Limited Soil Sam**Date Collected:** N/A**Date Received:** 03/04/22 12:00 AM**Date Analyzed:** 03/10/2022 - 03/12/2022**Date Reported:** 03/14/2022**Date Amended:** N/A

SUMMARY REPORT : ASTM D7521-16 Standard Test Method for Determination of Asbestos in Soil

Narrative

This test method is used to identify asbestos in soil, provide an estimate of the concentration of the asbestos in the sampled soil (dried), and optionally to provide a concentration of asbestos reported as the number of asbestos structures per gram or by weight percent (Visual Area Estimation) of sample. These results are produced for the evaluation of sites contaminated by construction, mine and manufacturing wastes, deposits of natural occurrences of asbestos and other sources of interest to the investigator.

The sample is dried and sieved through a sieve stack containing sieves that are: 19-mm, 2-mm, and 106-micron. Pieces of collected soil and material embedded therein that pass through a 19-mm sieve will become part of the sample that is analyzed and for which results are reported. Sample material that does not pass through the 19-mm sieve are not considered soil and are instead archived for additional (optional) testing by another method. Weights for each fraction are measured and recorded. The coarse, medium, and fine fraction are all analyzed by stereomicroscopy and PLM visual area estimate (VAE). The initial results of the PLM are expressed as calibrated visual area estimated percent and result for the fine fraction using point count values if below the detection limit. In addition, if PLM results indicate no asbestos has been detected, then the fine fraction of the sample may be analyzed for asbestos using Transmission Electron Microscopy (TEM).

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted.

The proceeding report contains the results of the sample testing conducted at: EMSL Analytical, Inc. 200 Route 130 North, Cinnaminson, NJ 08077.

If necessary, any modifications and deviations from the sample testing procedure are detailed below.

No modifications were necessary.

If you have any questions, please don't hesitate to contact us.

Thank you ,

Rachel Irwin, Ted Young, Seri Smith,
Analyst(s)

Authorized Signatory



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SUMMARY REPORT : ASTM D7521-16

Standard Test Method for Determination of Asbestos in Soil

Report Version 0.2

Report Version 0.2

							Final Results		
Sample ID									
Lab Sample ID	Sample Description	Fraction	Sieved Wt (g)	Asbestos		PLM (Analytical Sensitivity)	PLM Final Concentration	TEM Qualitative (Fine Fraction)	TEM Quantitative (Fine Fraction)
GTGPACMSS01	SOIL	Total	691.43	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	205.78	None Detected	-	0.074%	< 0.07%		
		Medium	456.84	None Detected	-	0.165%	< 0.17%		
		Fine	28.81	None Detected	-	0.010%	< 0.01%		
042204844-0001									
Sample Observations:									
Sample Excluded (>19mm): 20.98 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 3.82%					Laboratory Notes: None				
DMOSPACMSS01	SOIL	Total	674.57	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	19.55	None Detected	-	0.007%	< 0.007%		
		Medium	572.66	None Detected	-	0.212%	< 0.21%		
		Fine	82.36	None Detected	-	0.031%	< 0.03%		
042204844-0002									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.1%					Laboratory Notes: None				
DMOSPACMSS02	SOIL	Total	629.85	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	37.09	None Detected	-	0.015%	< 0.01%		
		Medium	490.28	None Detected	-	0.195%	< 0.19%		
		Fine	102.48	None Detected	-	0.041%	< 0.04%		
042204844-0003									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.5%					Laboratory Notes: None				
DMOSPACMSS03	SOIL	Total	306.33	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	229.98	None Detected	-	0.188%	< 0.19%		
		Medium	67.75	None Detected	-	0.055%	< 0.06%		
		Fine	8.60	None Detected	-	0.007%	< 0.007%		
042204844-0005									
Sample Observations:									
Sample Excluded (>19mm): 369.47 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 54.82%					Laboratory Notes: None				
HOSPACMSS01	SOIL	Total	567.05	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	82.51	None Detected	-	0.036%	< 0.04%		
		Medium	442.59	None Detected	-	0.195%	< 0.2%		
		Fine	41.95	None Detected	-	0.018%	< 0.02%		
042204844-0006									
Sample Observations:									
Sample Excluded (>19mm): 1.23 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 0.9%					Laboratory Notes: None				



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SUMMARY REPORT : ASTM D7521-16

Standard Test Method for Determination of Asbestos in Soil

Report Version 0.2

						Final Results			
Sample ID						PLM	PLM Final	TEM Qualitative	TEM Quantitative
Lab Sample ID	Sample Description	Fraction	Sieved Wt (g)	Asbestos		(Analytical Sensitivity)	Concentration	(Fine Fraction)	(Fine Fraction)
EPPACMSS01	SOIL	Total	713.76	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	145.62	None Detected	-	0.051%	< 0.05%		
		Medium	500.62	None Detected	-	0.175%	< 0.18%		
		Fine	67.52	None Detected	-	0.024%	< 0.02%		
042204844-0008									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 0.83%					Laboratory Notes: None				
CPPACMSS01	SOIL	Total	655.70	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	494.08	None Detected	-	0.188%	< 0.19%		
		Medium	149.96	None Detected	-	0.057%	< 0.06%		
		Fine	11.66	None Detected	-	0.004%	< 0.004%		
042204844-0009									
Sample Observations:									
Sample Excluded (>19mm): 40.36 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 8.44%					Laboratory Notes: None				
CMPACMSS01	SOIL	Total	557.38	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	236.23	None Detected	-	0.106%	< 0.11%		
		Medium	290.23	None Detected	-	0.130%	< 0.13%		
		Fine	30.92	None Detected	-	0.014%	< 0.01%		
042204844-0010									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 0.97%					Laboratory Notes: None				
HP2PACMSS01	SOIL	Total	493.73	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	324.50	None Detected	-	0.164%	< 0.16%		
		Medium	168.42	None Detected	-	0.085%	< 0.09%		
		Fine	0.81	None Detected	-	< 0.001%	< 0%		
042204844-0011									
Sample Observations:									
Sample Excluded (>19mm): 35.51 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 10.76%					Laboratory Notes: None				
MPPACMSS01	SOIL	Total	388.06	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	128.58	None Detected	-	0.083%	< 0.08%		
		Medium	242.54	None Detected	-	0.156%	< 0.16%		
		Fine	16.94	None Detected	-	0.011%	< 0.01%		
042204844-0012									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.17%					Laboratory Notes: None				



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							Final Results		
Sample ID									
Lab Sample ID	Sample Description	Fraction	Sieved Wt (g)	Asbestos		PLM (Analytical Sensitivity)	PLM Final Concentration	TEM Qualitative (Fine Fraction)	TEM Quantitative (Fine Fraction)
JCPPACMSS01	SOIL	Total	577.03	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	119.70	None Detected	-	0.052%	< 0.05%		
		Medium	426.32	None Detected	-	0.185%	< 0.18%		
		Fine	31.01	None Detected	-	0.013%	< 0.01%		
042204844-0013									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.61%					Laboratory Notes: None				
EP2PACMSS01	SOIL	Total	547.50	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	241.07	None Detected	-	0.110%	< 0.11%		
		Medium	293.53	None Detected	-	0.134%	< 0.13%		
		Fine	12.90	None Detected	-	0.006%	< 0.006%		
042204844-0014									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.27%					Laboratory Notes: None				
RCPACMSS01	SOIL	Total	342.88	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	270.06	None Detected	-	0.197%	< 0.2%		
		Medium	61.95	None Detected	-	0.045%	< 0.05%		
		Fine	10.87	None Detected	-	0.008%	< 0.008%		
042204844-0016									
Sample Observations:									
Sample Excluded (>19mm): 199.7 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 38.29%					Laboratory Notes: None				
PPPACMSS01	SOIL	Total	465.89	None Detected	-	0.25%	< 0.25%	None Detected	Not Analyzed
		Course	249.12	None Detected	-	0.134%	< 0.13%		
		Medium	201.69	None Detected	-	0.108%	< 0.11%		
		Fine	15.08	None Detected	-	0.008%	< 0.008%		
042204844-0017									
Sample Observations:									
Sample Excluded (>19mm): 0 g					Asbestos Types Present: None Detected				
Sieve Conditions: Dry					Building Material Identified: None Detected				
Percent Loss Sieve: 1.44%					Laboratory Notes: None				