

Table 10: Analytical Results for Simulations and Activities Conducted Using One Vermiculite Product in Bethel, Vermont (Phase 2) (Attic, Living Space, and Background)

Simulation Day	Air Sample Locations		Sample Type	Sample ID	PCM ¹ (NIOSH 7400)		TEM ² (EPA Level II)						
					Results (fibers/cc)	Detection Limits (fibers/cc)	Results				Fiber Type Observed	Analytical Sensitivity	
							Asbestos Fibers						
							<5mm	5-10mm	>10mm	>5mm total			
Day 1 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-300-V-A	0.018	0.001					<0.0026	ND	0.0026
			Stationary	AI-301-V-A	0.009	0.001					<0.0026	ND	0.0026
		Attic	Stationary	AI-302-V-A	0.012	0.001					<0.0027	ND	0.0027
			Stationary	AI-303-V-A	0.009	0.001					<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-304-V-A	0.001	0.001					<0.0026	ND	0.0026
Day 1 - Dry Disturbance Simulation	Inside House	Attic	Stationary	AI-308-V-A	0.203	0.006	<0.0141	0.0563	0.0422	0.0985	0.0985	Actinolite	0.0141
			Stationary	AI-309-V-A	0.155	0.006	0.0142	0.0284	<0.0142	0.0284	0.0426	Actinolite	0.0142
			Personal	AI-306-V-A	1.841	0.043	0.1009	0.2017	<0.1009	0.2017	0.3026	Actinolite	0.1009
			Personal	AI-307-V-A	1.814	0.043	0.1013	0.4053	<0.1013	0.4053	0.5066	Actinolite	0.1013
		Second floor Living Space	Stationary	AI-310-V-A	0.039	0.006	0.0272	0.0408	<0.0136	0.0408	0.0680	Actinolite	0.0136
	Stationary		AI-311-V-A	0.106	0.006	0.0136	0.0271	<0.0136	0.0271	0.0407	Actinolite	0.0136	
Outside	Front Porch	Background	AI-305-V-A	<0.005	0.005					<0.0106	ND	0.0106	
Day 1 After Simulation	Inside House	Attic	Stationary	AI-312-V-A	0.003	0.001					<0.0027	ND	0.0027
			Stationary	AI-313-V-A	0.002	0.001					<0.0026	ND	0.0026
		Second floor Living Space	Stationary	AI-314-V-A	0.019	0.001					<0.0026	ND	0.0026
			Stationary	AI-315-V-A	0.018	0.001					<0.0027	ND	0.0027
	Outside	Front Porch	Background	AI-316-V-A	0.002	0.001					<0.0026	ND	0.0026
Day 2 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-324-V-A	0.012	0.001					<0.0025	ND	0.0025
			Stationary	AI-325-V-A	0.019	0.001					<0.0025	ND	0.0025
		Attic	Stationary	AI-322-V-A	0.023	0.001					<0.0025	ND	0.0025
			Stationary	AI-323-V-A	0.020	0.001					<0.0025	ND	0.0025
	Outside	Front Porch	Background	AI-326-V-A	0.002	0.001					<0.0025	ND	0.0025
Day 2 - Wet Disturbance Simulation	Inside House	Attic	Stationary	AI-330-V-A	0.165	0.006	<0.0142	0.0283	0.0283	0.0566	0.0567	Actinolite	0.0142
			Stationary	AI-331-V-A	0.135	0.006	<0.0142	0.0142	<0.0142	0.0142	0.0142	Actinolite	0.0142
			Personal	AI-328-V-A	0.803	0.042					<0.0994	ND	0.0994
			Personal	AI-329-V-A	0.990	0.043					<0.1011	ND	0.1011
		Second floor Living Space	Stationary	AI-332-V-A	0.036	0.006					<0.0135	ND	0.0135
	Stationary		AI-333-V-A	0.025	0.006					<0.0136	ND	0.0136	
Outside	Front Porch	Background	AI-327-V-A	<0.004	0.004					<0.0098	ND	0.0098	
Day 2 After Simulation	Inside House	Attic	Stationary	AI-334-V-A	0.012	0.001					<0.0027	ND	0.0027
			Stationary	AI-335-V-A	0.010	0.001					<0.0027	ND	0.0027
		Second floor Living Space	Stationary	AI-336-V-A	0.011	0.001					<0.0026	ND	0.0026
			Stationary	AI-337-V-A	0.011	0.001					<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-338-V-A	<0.001	0.001					<0.0026	ND	0.0026

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Simulation Day	Air Sample Locations		Sample Type	Sample ID	PCM ¹ (NIOSH 7400)		TEM ² (EPA Level II)					Fiber Type Observed	Analytical Sensitivity
					Results (fibers/cc)	Detection Limits (fibers/cc)	Results						
							Asbestos Fibers						
<5mm	5-10mm	>10mm	>5mm	total									
Day 3 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-345-V-A	<0.001	0.001					<0.0026	ND	0.0026
			Stationary	AI-346-V-A	<0.001	0.001					<0.0026	ND	0.0026
		Attic	Stationary	AI-343-V-A	<0.001	0.001					<0.0026	ND	0.0026
			Stationary	AI-344-V-A	<0.001	0.001					<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-347-V-A	<0.001	0.001					<0.0026	ND	0.0026
Day 3 - Dry Disturbance Simulation Hole Cut From Attic	Inside House	Attic	Stationary	AI-351-V-A	0.067	0.006	0.0133	<0.0133	<0.0133	<0.0133	0.0133	Actinolite	0.0133
			Stationary	AI-352-V-A	0.084	0.006	<0.0133	<0.0133	0.0133	0.0133	0.0133	Actinolite	0.0133
			Personal	AI-349-V-A	1.472	0.043					<0.1004	ND	0.1004
			Personal	AI-350-V-A	0.709	0.043	<0.1013	<0.1013	0.1013	0.1013	0.1013	Actinolite	0.1013
	Second floor Living Space	Stationary	AI-353-V-A	<0.006	0.006					<0.0130	ND	0.0130	
		Stationary	AI-354-V-A	0.007	0.006					<0.0130	ND	0.0130	
Outside	Front Porch	Background	AI-348-V-A	<0.005	0.005					<0.0118	ND	0.0118	
Day 3 After Simulation	Inside House	Attic	Stationary	AI-355-V-A	0.001	0.001					<0.0026	ND	0.0026
			Stationary	AI-356-V-A	0.002	0.001					<0.0026	ND	0.0026
		Second floor Living Space	Stationary	AI-357-V-A	<0.001	0.001					<0.0026	ND	0.0026
			Stationary	AI-358-V-A	<0.001	0.001					<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-359-V-A	<0.001	0.001					<0.0026	ND	0.0026
Day 4 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-366-V-A	0.001	0.001					<0.0027	ND	0.0027
			Stationary	AI-367-V-A	0.002	0.001					<0.0027	ND	0.0027
		Attic	Stationary	AI-364-V-A	0.002	0.001	<0.0026	0.0026	<0.0026	0.0026	0.0026	Actinolite	0.0026
			Stationary	AI-365-V-A	0.002	0.001					<0.0027	ND	0.0027
	Outside	Front Porch	Background	AI-368-V-A	<0.001	0.001					<0.0026	ND	0.0026
Day 4 - Blower Door Test	Inside House	Attic	Stationary	AI-372-V-A	<0.006	0.006					<0.0142	ND	0.0142
			Stationary	AI-373-V-A	<0.006	0.006					<0.0142	ND	0.0142
		Second floor Living Space	Personal	AI-370-V-A	<0.042	0.042					<0.0979	ND	0.0979
			Personal	AI-371-V-A	<0.043	0.043					<0.1007	ND	0.1007
			Stationary	AI-374-V-A	<0.006	0.006					<0.0133	ND	0.0133
	Stationary	AI-375-V-A	<0.006	0.006					<0.0133	ND	0.0133		
Outside	Front Porch	Background	AI-369-V-A	<0.006	0.006					<0.0142	ND	0.0142	
Day 4 After Simulation	Inside House	Attic	Stationary	AI-376-V-A	<0.001	0.001					<0.0027	ND	0.0027
			Stationary	AI-377-V-A	<0.001	0.001					<0.0027	ND	0.0027
		Second floor Living Space	Stationary	AI-378-V-A	<0.001	0.001					<0.0026	ND	0.0026
			Stationary	AI-379-V-A	<0.001	0.001					<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-380-V-A	<0.001	0.001					<0.0026	ND	0.0026

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					Results (fibers/cc)	Detection Limits (fibers/cc)	Results				Fiber Type Observed	Analytical Sensitivity		
							Asbestos Fibers							
							<5mm	5-10mm	>10mm	>5mm	total			
Day 5 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-387-V-A	<0.001	0.001					<0.0026	ND	0.0026	
			Stationary	AI-388-V-A	<0.001	0.001					<0.0026	ND	0.0026	
		Attic	Stationary	AI-385-V-A	<0.001	0.001						<0.0026	ND	0.0026
			Stationary	AI-386-V-A	<0.001	0.001						<0.0026	ND	0.0026
	Outside	Front Porch	Background	AI-389-V-A	<0.001	0.001					<0.0026	ND	0.0026	
Day 5 - Vermiculite Removal by Homeowner	Inside House	Attic	Stationary	AI-393-V-A	0.123	0.006	<0.0142	0.0285	0.0142	0.0427	0.0427	Actinolite	0.0142	
			Stationary	AI-394-V-A	0.087	0.006	0.0142	0.0710	0.0142	0.0852	0.0994	Actinolite	0.0142	
			Personal	AI-391-V-A	0.609	0.043	<0.1004	0.1004	0.2009	0.3013	0.3013	Actinolite	0.1004	
			Personal	AI-392-V-A	0.662	0.043						<0.1003	ND	0.1003
	Second floor Living Space	Stationary	AI-395-V-A	<0.006	0.006	<0.0142	0.0142	<0.0142	0.0142	0.0142	Chrysotile	0.0142		
		Stationary	AI-396-V-A	<0.006	0.006						<0.0142	ND	0.0142	
Outside	Front Porch	Background	AI-390-V-A	0.109	0.006					<0.0131	ND	0.0131		
Day 5 After Simulation	Inside House	Attic	Stationary	AI-397-V-A	0.002	0.001					<0.0027	ND	0.0027	
			Stationary	AI-398-V-A	0.001	0.001					<0.0027	ND	0.0027	
		Second floor Living Space	Stationary	AI-399-V-A	0.009	0.001	<0.0026	0.0026	<0.0026	0.0026	0.0026	Actinolite	0.0026	
			Stationary	AI-400-V-A	0.006	0.001	<0.0026	0.0026	<0.0026	0.0026	0.0026	Actinolite	0.0026	
	Outside	Front Porch	Background	AI-401-V-A	<0.001	0.001					<0.0026	ND	0.0026	
Day 6 Prior to Simulation	Inside House	Second floor Living Space	Stationary	AI-408-V-A	<0.001	0.001					<0.0027	ND	0.0027	
			Stationary	AI-409-V-A	<0.001	0.001					<0.0026	ND	0.0026	
		Attic	Stationary	AI-406-V-A	<0.001	0.001						<0.0026	ND	0.0026
			Stationary	AI-407-V-A	<0.001	0.001						<0.0027	ND	0.0027
	Outside	Front Porch	Background	AI-410-V-A	<0.001	0.001					<0.0026	ND	0.0026	
Day 6 - Vermiculite Removal by Contractor	Inside House	Attic	Stationary	AI-414-V-A	0.009	0.006					<0.0139	ND	0.0139	
			Stationary	AI-415-V-A	0.008	0.006					<0.0138	ND	0.0138	
			Personal	AI-412-V-A	0.293	0.042						<0.0992	ND	0.0992
			Personal	AI-413-V-A	0.093	0.042						<0.0996	ND	0.0996
	Second floor Living Space	Stationary	AI-416-V-A	0.013	0.006						<0.0141	ND	0.0141	
		Stationary	AI-417-V-A	<0.006	0.006						<0.0142	ND	0.0142	
	Outside	Near Dumpster	Stationary	AI-418-V-A	0.024	0.006					<0.0132	ND	0.0132	
Back Porch		Background	AI-411-V-A	<0.006	0.006					<0.0133	ND	0.0133		
Day 6 After Simulation	Inside House	Attic	Stationary	AI-419-V-A	<0.001	0.001					<0.0025	ND	0.0025	
			Stationary	AI-420-V-A	<0.001	0.001					<0.0025	ND	0.0025	
		Second floor Living Space	Stationary	AI-421-V-A	<0.001	0.001						<0.0025	ND	0.0025
			Stationary	AI-422-V-A	0.001	0.001						<0.0025	ND	0.0025
	Outside	Back Porch	Background	AI-423-V-A	0.001	0.001					<0.0025	ND	0.0025	

Results for samples taken during simulation activities are in shaded rows

Description of Vermiculite Product in Bethel, Vermont: Bulk PLM: ND
Bulk TEM: <0.1% Chrysotile

Date of Simulations: 01/23/02 through 01/28/02
Product: Unknown. However, Zonolite bags were found in attic

- 1 Phase Contrast Microscopy; Detection limits depend on volume of air sampled
- 2 Transmission Electron Microscopy, and X-Ray Diffraction; Results and analytical sensitivities are presented as fibers/cc
Sensitivity limits for air samples depend on several variables including the volume of air sampled, the number of grids read, and the type of filter used.

ND=None Detected