

## Metadata for Publication

### Vehicle Interior Decontamination by Low Concentration Hydrogen Peroxide Vapor following a Wide Area Contamination Incident

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The detailed decontamination efficacy results for 3% H<sub>2</sub>O<sub>2</sub> applied via humidifier against *Bacillus atrophaeus* at ten interior vehicle locations are shown in Table 1.

**Table 1. Inactivation of *Bacillus atrophaeus* Spores Using LC-H<sub>2</sub>O<sub>2</sub><sup>a</sup>**

Test	3% H <sub>2</sub> O <sub>2</sub> Volume	Cabin Filter Removed for Decon	Average Temp (°C)	Average %RH	Average H <sub>2</sub> O <sub>2</sub> ppm	Surface	Recovered <i>B. atrophaeus</i> (CFU/sample surface)			Efficacy Decon Surface	Efficacy Reaerosolization Surface
							Positive Control <sup>b</sup>	Decon Surface <sup>c</sup>	Reaerosolization Surface <sup>d</sup>		
1	1.5 L	No	24.9 ± 2.8	95.2 ± 2.9	1.1 ± 2.1	Glass: Dashboard	1.30 x 10 <sup>4</sup>	0.00	0.00	4.11	4.11
						Glass: Passenger carpet	6.30 x 10 <sup>5</sup>	0.00	0.00	5.80	5.80
						Glass: Rear seat	1.21 x 10 <sup>4</sup>	0.00	1.00	4.08	4.08
						Glass: Rear deck	2.30 x 10 <sup>4</sup>	0.00	0.00	4.36	4.36
						Steering wheel	1.55 x 10 <sup>5</sup>	9.60 x 10 <sup>1</sup>	7.30 x 10 <sup>1</sup>	3.21	3.33
						Radio/HVAC console	8.45 x 10 <sup>4</sup>	3.00	3.00	4.45	4.45
						Dashboard	1.07 x 10 <sup>5</sup>	0.00	1.90 x 10 <sup>1</sup>	5.03	3.75
						Passenger seat	1.79 x 10 <sup>5</sup>	1.00	2.00	5.25	4.95
						Rear carpet	1.25 x 10 <sup>4</sup>	1.70 x 10 <sup>1</sup>	7.30 x 10 <sup>1</sup>	2.87	2.23
						Rear seat back	2.11 x 10 <sup>3</sup>	1.62 x 10 <sup>2</sup>	4.00	1.11	2.72
						Vent outlet	2.24 x 10 <sup>4</sup>	8.40 x 10 <sup>1</sup>	2.40 x 10 <sup>1</sup>	2.43	2.97
						Windshield	5.50 x 10 <sup>1</sup>	0.00	1 x 10 <sup>1</sup>	1.74	0.74
						Rear deck	1.89 x 10 <sup>4</sup>	1.00	1.60 x 10 <sup>1</sup>	4.28	3.07
Headliner	8.31 x 10 <sup>3</sup>	2.40 x 10 <sup>1</sup>	1.90 x 10 <sup>1</sup>	2.54	2.64						
2	3.0 L	No	26.8 ± 3.0	99.99 ± 0.33	5.8 ± 6.5	Glass: Dashboard	8.93 x 10 <sup>3</sup>	0.00	1.90 x 10 <sup>1</sup>	3.95	2.67
						Glass: Passenger carpet	1.55 x 10 <sup>4</sup>	0.00	0.00	4.19	4.19
						Glass: Rear seat	4.57 x 10 <sup>3</sup>	0.00	8.00	3.66	2.76
						Glass: Rear deck	5.40 x 10 <sup>3</sup>	2.00	0.00	3.43	3.73
						Steering wheel	2.58 x 10 <sup>5</sup>	0.00	0.00	5.41	5.41
						Radio/HVAC console	3.18 x 10 <sup>5</sup>	0.00	4.00	5.50	4.90
						Dashboard	1.70 x 10 <sup>5</sup>	0.00	3.00	5.23	4.75
						Passenger seat	2.07 x 10 <sup>5</sup>	0.00	0.00	5.32	5.32
						Rear carpet	2.03 x 10 <sup>4</sup>	0.00	2.00 x 10 <sup>1</sup>	4.31	3.01
						Rear seat back	2.15 x 10 <sup>3</sup>	0.00	0.00	3.33	3.33
						Vent outlet	3.45 x 10 <sup>4</sup>	0.00	1.70 x 10 <sup>1</sup>	4.54	3.31
						Windshield	4.96 x 10 <sup>3</sup>	0.00	0.00	3.70	3.70
						Rear deck	1.64 x 10 <sup>4</sup>	0.00	1.70 x 10 <sup>1</sup>	4.21	2.98
Headliner	3.82 x 10 <sup>3</sup>	0.00	1.00	3.58	3.58						

<sup>a</sup> Efficacy data expressed as log reduction in spores.

<sup>b</sup> Positive Controls = surfaces inoculated, not decontaminated.

<sup>c</sup> Decon surfaces = surfaces inoculated, decontaminated.

<sup>d</sup> Reaerosolization surfaces = surfaces inoculated, decontaminated, and exposed to 20 minutes of air recirculation.

**Table 1 Continued. Inactivation of *Bacillus atrophaeus* Spores Using LC-H<sub>2</sub>O<sub>2</sub><sup>a</sup>**

Test	3% H <sub>2</sub> O <sub>2</sub> Volume	Cabin Filter Removed for Decon	Average Temp (°C)	Average %RH	Average H <sub>2</sub> O <sub>2</sub> ppm	Surface	Recovered <i>B. atrophaeus</i> (CFU/sample surface)			Efficacy Decon Surface	Efficacy Reaerosolization Surface
							Positive Control <sup>b</sup>	Decon Surface <sup>c</sup>	Reaerosolization Surface <sup>d</sup>		
3	3.0 L	No	23.4 ± 4.9	99.4 ± 1.5	16.4 ± 16.8	Glass: Dashboard	4.00 x 10 <sup>3</sup>	0.00	0.00	3.60	3.60
						Glass: Passenger carpet	1.26 x 10 <sup>5</sup>	2.00	0.00	4.80	5.10
						Glass: Rear seat	5.13 x 10 <sup>4</sup>	0.00	0.00	4.71	4.71
						Glass: Rear deck	1.07 x 10 <sup>4</sup>	0.00	0.00	4.03	4.03
						Steering wheel	3.59 x 10 <sup>5</sup>	0.00	1.00	5.55	5.55
						Radio/HVAC console	8.42 x 10 <sup>4</sup>	0.00	0.00	4.93	4.93
						Dashboard	2.86 x 10 <sup>5</sup>	0.00	1.00	5.46	5.46
						Passenger seat	3.69 x 10 <sup>5</sup>	2.80 x 10 <sup>3</sup>	0.00	2.12	5.57
						Rear carpet	8.58 x 10 <sup>4</sup>	2.00	0.00	4.63	4.93
						Rear seat back	2.34 x 10 <sup>4</sup>	0.00	0.00	4.37	4.37
						Vent outlet	7.15 x 10 <sup>4</sup>	0.00	0.00	4.85	4.85
						Windshield	3.75 x 10 <sup>3</sup>	0.00	0.00	3.57	3.57
						Rear deck	9.02 x 10 <sup>4</sup>	2.00	2.00	4.65	4.65
Headliner	3.81 x 10 <sup>4</sup>	2.00	1.20 x 10 <sup>1</sup>	4.28	3.50						
4	3.0 L	Yes	9.6 ± 3.4	99.97 ± 0.58	14.0 ± 7.4	Glass: Dashboard	1.83 x 10 <sup>4</sup>	0.00	1.00	4.26	4.26
						Glass: Passenger carpet	5.97 x 10 <sup>5</sup>	3.00	1.00	5.30	5.78
						Glass: Rear seat	1.82 x 10 <sup>4</sup>	3.00	0.00	3.78	4.26
						Glass: Rear deck	2.63 x 10 <sup>4</sup>	0.00	0.00	4.42	4.42
						Steering wheel	1.83 x 10 <sup>5</sup>	1.00	0.00	5.26	5.26
						Radio/HVAC console	1.30 x 10 <sup>5</sup>	3.20 x 10 <sup>1</sup>	1.00	3.61	5.11
						Dashboard	4.09 x 10 <sup>5</sup>	0.00	1.00	5.61	5.61
						Passenger seat	5.38 x 10 <sup>5</sup>	0.00	1.00	5.73	5.73
						Rear carpet	1.15 x 10 <sup>5</sup>	1.00	7.40 x 10 <sup>1</sup>	5.06	3.19
						Rear seat back	3.17 x 10 <sup>4</sup>	0.00	0.00	4.50	4.50
						Vent outlet	7.29 x 10 <sup>4</sup>	0.00	3.00	4.86	4.39
						Windshield	8.85 x 10 <sup>2</sup>	0.00	2.00	2.95	2.65
						Rear deck	8.13 x 10 <sup>4</sup>	0.00	1.00	4.91	4.91
Headliner	7.23 x 10 <sup>3</sup>	6.60 x 10 <sup>3</sup>	1.60 x 10 <sup>1</sup>	0.04	2.65						
Cabin filter <sup>e</sup>	7.94 x 10 <sup>7</sup>	3.93 x 10 <sup>1</sup>	NA	6.27	NA						

<sup>a</sup> Efficacy expressed as log reduction in spores.

<sup>b</sup> Positive Controls = surfaces inoculated, not decontaminated.

<sup>c</sup> Decon surfaces = surfaces inoculated, decontaminated.

<sup>d</sup> Reaerosolization surfaces = surfaces inoculated, decontaminated, and exposed to 20 minutes of air recirculation.

<sup>e</sup> Data expressed as the average of three cabin filter samples

**Table 1 Continued. Inactivation of *Bacillus atrophaeus* Spores Using LC-H<sub>2</sub>O<sub>2</sub><sup>a</sup>**

Test	3% H <sub>2</sub> O <sub>2</sub> Volume	Cabin Filter Removed for Decon	Average Temp (°C)	Average %RH	Average H <sub>2</sub> O <sub>2</sub> ppm	Surface	Recovered <i>B. atrophaeus</i> (CFU/sample surface)			Efficacy Decon Surface	Efficacy Reaerosolization Surface
							Positive Control <sup>b</sup>	Decon Surface <sup>c</sup>	Reaerosolization Surface <sup>d</sup>		
5	3.0 L	Yes	5.2 ± 1.5	99.96 ± 0.67	11.1 ± 2.2	Glass: Dashboard	2.77 x 10 <sup>4</sup>	1.20 x 10 <sup>1</sup>	1.00	3.36	4.44
						Glass: Passenger carpet	1.68 x 10 <sup>5</sup>	3.00	5.00	4.75	4.53
						Glass: Rear seat	2.93 x 10 <sup>4</sup>	0.00	0.00	4.47	4.47
						Glass: Rear deck	3.07 x 10 <sup>4</sup>	0.00	0.00	4.49	4.49
						Steering wheel	2.28 x 10 <sup>5</sup>	0.00	0.00	5.36	5.36
						Radio/HVAC console	2.42 x 10 <sup>5</sup>	0.00	0.00	5.38	5.38
						Dashboard	2.05 x 10 <sup>5</sup>	0.00	0.00	5.31	5.31
						Passenger seat	1.89 x 10 <sup>5</sup>	0.00	2.20 x 10 <sup>1</sup>	5.28	3.93
						Rear carpet	3.96 x 10 <sup>4</sup>	2.00	5.00	4.30	3.90
						Rear seat back	1.29 x 10 <sup>4</sup>	0.00	0.00	4.11	4.11
						Vent outlet	2.51 x 10 <sup>4</sup>	1.00	3.00	4.40	3.92
						Windshield	3.87 x 10 <sup>4</sup>	0.00	0.00	4.59	4.59
						Rear deck	2.21 x 10 <sup>4</sup>	3.00	0.00	3.87	4.35
						Headliner	5.97 x 10 <sup>3</sup>	0.00	0.00	3.78	3.78
						Cabin filter <sup>e</sup>	2.30 x 10 <sup>7</sup>	1.20 x 10 <sup>1</sup>	NA	6.70	NA

<sup>a</sup> Efficacy data expressed as log reduction in spores.

<sup>b</sup> Positive Controls = surfaces inoculated, not decontaminated.

<sup>c</sup> Decon surfaces = surfaces inoculated, decontaminated.

<sup>d</sup> Reaerosolization surfaces = surfaces inoculated, decontaminated, and exposed to 20 minutes of air recirculation.

<sup>e</sup> Data expressed as the average of three cabin filter samples