

MICROBIOLOGY REPORT



LMS TECHNOLOGIES, INC.

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Date: June 11, 2021
Test Requested By: Agentis Air
Test Type: Multi-Pass Efficiency

Scope

Customer provided a unit for multi-pass efficiency testing with Staph aureus (ATCC 6537) as the challenge aerosol. Testing was performed in a large (1007 ft³) stainless-steel chamber.

Method

The Staph was harvested and titrated to 2E6 CFU/ml. Suspensions of the organisms were then aerosolized into the chamber using a nebulizer prior to powering the test device. The test chamber air was sampled at 5-minute intervals using a SKC Bio-Stage cascade impactor for 1-minute sampling periods. The cascade impactors were calibrated to an airflow rate of 28.3 liters/min and the sampling inlet was situated at the midpoint of the test chambers. The recovered organisms were enumerated after 24-hours of incubation.

Microbiologists
John Cherne, James Cherne, Autumn Stivers-Biscuso

Testing Approval
Al Vatine, CEO

Air Cleaner

Figure 1. Air Cleaner tested



Test Conditions

Environmental Conditions: 72 °F and 50% RH

Equipment

1007 ft³ Stainless-Steel Test Chamber

SKC Bio-Stage Single-Stage Impactors

TSI Scanning Mobility Particle Sizer (SMPS) 3938

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Figure 2. Test chamber

MS-2 Bacteriophage Results

The corrected removal efficiencies for the Brio air cleaner uses the empty chamber data from time=0 as follows:

$$\text{Corrected Removal Efficiency} = 1 - \left(\frac{\text{DevicePFU}_{t=x}}{\text{DevicePFU}_{t=0}} * \frac{\text{EmptyPFU}_{t=0}}{\text{EmptyPFU}_{t=x}} \right)$$

Data:

	Hole Correction Staph cfu						
Mean of 3 Samples	0 time	5 min	10 min	15 min	20 min	25 min	30 min
Natural Decay	221.4	183.2	178.5	167.8	166.2	148.4	141.2
Brio	231.9	77	20.5	4	1	1	0

	Removal Efficiencies %						
	0 time	5 min	10 min	15 min	20 min	25 min	30 min
Brio	N/A	59.9	89.0	97.7	>99.9	>99.9	100

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Staph Cfu at 0 time and 60 minutes



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