Scientific Air Solutions

Laboratory Analysis



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Volumetric Air Sampler, Biological Efficiency Validation - ISO-14698-1 annex B Unit Examined: MB-1 S/N Calibrated 06/24/2019

Results

Samples 1-4, completed in triplicate with the following efficiency results 98.8, 98.0, 98.4 and 98.6% respectively, exceeds the ISO 145698-1 annex B minimum of 80%.

Given

- Chamber dimensions 4 ft x 4 ft x 4 ft = 64 cubic feet or 1.22 m x 1.22 m x 1.22 m = 1.82 cubic meters.
- Temperature and relative humidity controlled and monitored.
- Non-unidirectional HEPA filtered air with an exchange rate of 35-40/h supply and extract sufficient air to ensure a slightly negative pressure with internal air is recirculated by means of a paddle fan within the test chamber.

Microorganism

- American Type Culture Collection (ATCC) 14990 Staphylococcus epidermis.
- Nutrient broth for inoculum growth and nutrient agar for air plates, incubated at 37°C aerobically with enumeration after 24h.

Trials, N= 4, R=3

- Controlled droplet size produced by a three (3) jet CH Technologies collision nebulizer.
- Inoculum is introduced to the nebulizer and dispersed as a mixed microbial aerosol
- The MB-1 unit sampled the respective liters of air in the chamber environment.
- Efficiency (%) = air sampler recovery/nebulizer concentration x 100

Trial No.	Lab #	Pressure (PSI)	Q liq, (ml/min)	Log Droplet # Output	Vol Air Sampled (L)	Nebulizer Concentration (log cfu/ml)	Air Sampler Recovery (log cfu/ml)	Efficiency (%)	RH (%)	Chamber Temp (°F)
1.1	432730						3.34	98.2		
1.2	432731	20	0.0253	10.62	20	3.40	3.38	99.4	51	72
1.3	432732						3.36	98.8		
2.1	432733						3.41	98.0		
2.2	432734	20	0.0253	10.61	60	3.48	3.39	97.4	50	73
2.3	432735						3.43	98.6		
3.1	432810						3.50	98.9		
3.2	432811	20	0.0253	10.61	100	3.54	3.48	98.3	51	72
3.3	432812			P			3.47	98.0		
4.1	432813						2.90	98.9		
4.2	432814	20	0.0253	10.61	500	2.93	2.88	98.3	51	73
4.3	432815						2.89	98.6		

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End of Report

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