

Bacterial Filtration Efficiency (BFE) at an Increased Challenge Level Final Report

Test Article: Spirometry filter 83-MG and series
 Purchase Order: 26/2012
 Laboratory Number: 630245
 Study Received Date: 16 Apr 2012
 Test Procedure(s): Standard Test Protocol (STP) Number: STP0009 Rev 04

Summary: This procedure was performed to evaluate the bacterial filtration efficiency (BFE) at an increased challenge level of the test article. A suspension of *Staphylococcus aureus*, ATCC #6538, was delivered to the test article to determine filtration efficiency. A challenge level of greater than 10^7 colony forming units (CFU) was pumped through a nebulizer using a peristaltic pump at a controlled flow rate and fixed air pressure. The aerosol droplets were generated in a glass aerosol chamber and drawn through the test article into all glass impingers (AGIs) in parallel. The challenge was delivered for a 1-minute interval and sampling through the AGIs was conducted for 2 minutes to clear the aerosol chamber.


This test procedure was modified from Nelson Laboratories, Inc., standard BFE procedure in order to employ a more severe challenge than would be experienced in normal use. This method was adapted from ASTM F2101. All test method acceptance criteria were met.

Challenge Flow Rate: 30 Liters per minute (L/min)
 Sample Area Tested: Entire test article

Results:

Unit Number	Total CFU Recovered	Filtration Efficiency (%)
1	1.4×10^1	99.99990
2	2.2×10^1	99.99984
3	1.6×10^1	99.99988

Challenge Level: 1.4×10^7 CFU
 Mean Particle Size (MPS): 3.2 μ m



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Study Completion Date