

EN 14683:2005 Bacterial Filtration Efficiency (BFE) and Differential Pressure (Delta P) Final Report

Test Article: Surgical Mask with Earloop 3 ply, type 2
 Laboratory Number: 684357
 Study Received Date: 01 Apr 2018
 Test Procedure(s): Standard Test Protocol (STP) Number: STP0004 Rev 08

Summary: The BFE test is performed to determine the filtration efficiency by comparing the bacterial control counts to test article effluent counts. A suspension of *Staphylococcus aureus* was aerosolized using a nebulizer and delivered to the test article at a constant flow rate. The aerosol droplets were drawn through a six-stage, viable particle, Andersen sampler for collection. This procedure allows a reproducible bacterial challenge to be delivered to test materials. The Delta P test determines the breathability by measuring the differential air pressure on either side of the test article using a manometer, at a constant flow rate. Testing was conducted as directed in Annex B (BFE testing) and Annex C (Delta P testing) of EN 14683:2005. All test method acceptance criteria were met.

Test Side: Outside Surface
 BFE Area Tested: ~45.6 cm²
 BFE Flow Rate: 28.3 Liters per minute (L/min)
 Delta P Flow Rate: 8 L/min
 Conditioning Parameters: 65 ± 2% relative humidity (RH) and 20 ± 2°C

Results: Test articles with a filtration efficiency greater than or equal to 95% meet the performance requirements of EN 14683:2005 as Type I and/or Type IR. Test articles with a filtration efficiency greater than or equal to 98% meet the performance requirements of EN 14683:2005 as Type II and/or Type IIR.

Test articles with a differential pressure less than 29.4 pascals (Pa)/cm² meet the performance requirements of EN 14683:2005 as Type I and/or Type II. Test articles with a differential pressure less than 49.0 Pa/cm² meet the performance requirements of EN 14683:2005 as Type IR and/or Type IIR.

Test Article Number	Percent BFE (%)	Delta P (Pa/cm ²)
1	99.7	40.7
2	99.7	39.0
3	99.5	40.3
4	99.7	39.7
5	99.7	43.2

Mean Positive Control Count: 2,577 colony forming units (CFU)
 Negative Control Count: <1 CFU
 Mean Particle Size (MPS): 3.1 µm
 Test Article Dimensions: ~178 mm x 150 mm



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Study Completion Date