Report: 21-PPE-00302 Sample Name: WHITE MATERIAL
Company: IPC Technologies Inc.

PARTICULATE FILTRATION EFFICIENCY (PFE)

Test Summary Filtered and dried air was passed through an atomizer to produce an aerosol containing suspended polystyrene latex (PSL) spheres. The aerosol was then mixed and diluted with additional preconditioned air to produce a stable, non-neutralized, and dried aerosol of latex spheres. The aerosol was passed through the mask material. An optical particle counter was used to sample upstream and downstream aerosol concentrations to determine the particulate filtration efficiency of the mask. The test was conducted in accordance with Test Method ASTM F2299 with the exception that a non-neutralized particle challenge was used in place of a neutralized challenge as per FDA guidance document on surgical facemasks (FDA-2003-D-0305)

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Date Tested	25-Mar-2021
Test Side and Area	Inside, Centre (28.3 cm^2)
Conditioning Parameters	30-50% ± 5% relative humidity and 21 ± 3°C
Face Velocity	6 to 7 cm/s
Laboratory Conditions	37.6 % Relative Humidity; 22.4 °C
Particle Size	0.1 µm
Acceptance Criteria	ASTM Level 1: ≥ 95% PFE ASTM Level 2,3: ≥ 98% PFE

Article No.	PFE %
1	99.97
2	99.91
3	99.95
4	99.93
5	99.96

Article No.	PFE %
6	n/a
7	n/a
8	n/a
9	n/a
10	n/a

Average Filtration Efficiency 99.94
Standard Deviation 0.024

Reviewed by: Rob Taylor 2021.03.29 14:53:42 -04'00'

Authorized by: Ruwan Wijesundera 2021.03.29 14:55:22 -04'00'

Test results only apply to the samples submitted for analysis. Samples are randomly selected for each test from the submitted batch. It is the responsibility of the distributor to ensure the tested batch is compliant to the required sampling methodology as per ANSI/ASQ Z1.4. Additional test information is available upon request. Kinectrics is accredited to ISO 17025 by the Standards Council of Canada for ASTM F2100

BACTERIAL FILTRATION EFFICIENCY (BFE)

Test Summary The mask was clamped between a six-stage cascade impactor and an aerosol chamber. A bacterial suspension of *Staphylococcus aureus* was introduced into the aerosol chamber using a four-Jet atomizer. The aerosol was drawn through the sample material using a vacuum pump attached to the cascade impactor. The cascade impactor collects aerosol droplets that penetrate the mask material onto agar plates and sorts them by particle size. Positive control samples were also collected with no test specimen clamped in the test apparatus to verify the bacterial challenge rate (upstream counts). Following the incubating period, the colony forming units (CFU) on the agar plates were counted (downstream counts). The ratio of the upstream counts from the positive control, to the downstream counts collected for the test specimen, was calculated and reported as the bacterial filtration efficiency (BFE). This test was conducted in accordance with Test Method ASTM F2101.

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Date Tested 24-Mar-2021
Test Side and Area Inside, Centre (40 cm^2)
Conditioning Parameters 85 ± 5% relative humidity and 21 ± 5°C for a minimum of 4h
Flow Rate 28.3 L/min
Mean Particle Size (MPS) 3 µm
Negative Control Count 0 CFU
Positive Control Average 2437 CFU
Acceptance Criteria Control average must be 1.7 to 3.0 x 10^3 CFU
MPS of aerosol must be 3.0 ± 0.3 µm
ASTM Level 1: ≥95% BFE
ASTM Level 2 and 3: ≥98% BFE

Article No.	BFE %
1	100
2	100
3	100
4	100
5	100

Article No.	BFE %
6	n/a
7	n/a
8	n/a
9	n/a
10	n/a

Average Filtration Efficiency 100
Standard Deviation 0.000

Reviewed by: Rob Taylor 2021.03.29 14:54:02 -04'00'

Authorized by:

Test results only apply to the samples submitted for analysis. Samples are randomly selected for each test from the submitted batch. It is the responsibility of the distributor to ensure the tested batch is compliant to the required sampling methodology as per ANSI/ASQ Z1.4. Additional test information is available upon request. Kinectrics is accredited to ISO 17025 by the Standards Council of Canada for ASTM F2100