



Test Report

No. HKHC2004003105HC

Date : May 22, 2020

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SPN MAIN CHOICE GMBH
ROOM 2107, 21/F NAN YANG PLAZA, 57 HUNG TO ROAD, KWUN TONG, KOWLOON, Hong Kong

Job No. : HKHC200400001512

The following sample was submitted and identified by the client as Medical Face Mask

Product Description : Medical Face Mask
Quantity Received : 1 box and 10 packs x 1 pc/pack
Sample Appearance : Blue mask
SGS Sample No. : HKHC200400001512-101
Sample Receiving Condition : In unopened paper box original package and sealed plastic pack
non-original package under ambient condition
Sample Receiving Date : Apr 28, 2020
Testing Period : Apr 28, 2020 – May 22, 2020

Test Requested

1. To perform Bacterial Filtration Efficiency Test and Differential Pressure Test on the submitted sample.
2. To perform Bioburden test on the submitted sample.

Test Methods and Test Results

Please refer to the following page(s).

Signed for and on behalf of
SGS Hong Kong Ltd.

WONG KIN MAN, GILMAN
TECHNICAL DEVELOPMENT MANAGER
- COSMETICS, PERSONAL CARE & HOUSEHOLD SERVICES

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Test Methods and Test Results

1. Bacterial Filtration Efficiency Test

Summary

The BFE test is performed to determine the filtration efficiency of test articles by comparing the bacterial control counts upstream of the test article to the bacterial counts downstream. A suspension of *Staphylococcus aureus* was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at $1.7 - 3.0 \times 10^3$ colony forming units (CFU) with a mean particle size (MPS) of $3.0 \pm 0.3 \mu\text{m}$. The aerosols were drawn through a six-stage, viable particle, Andersen sampler for collection. This test method complies with ASTM F2101-19 and EN 14683:2019, Annex B.

The Delta P test is performed to determine the breathability of test articles by measuring the differential air pressure on either side of the test article using a manometer, at a constant flow rate. The Delta P test complies with EN 14683:2019, Annex C and ASTM F2100-19.

Test Side	:	White side
BFE Test Area	:	~40 cm ²
BFE Flow Rate	:	28.3 Litres per minute (L/min)
Delta P Flow Rate	:	8 Liters per minute (L/min)
Conditioning Parameters	:	85 ± 5% relative humidity (RH) and 21 ± 5°C for a minimum of 4 hours
Test Article Dimensions	:	~173 mm x ~153 mm
Positive Control Average	:	2.3 x 10 ³ CFU
Negative Monitor Count	:	<1 CFU
MPS	:	3.0 μm

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Results:

Test Article Number	Percent BFE (%)
1	97.8
2	98.2
3	94.8
4	96.0
5	95.5

Test Article Number	Delta P (mm H ₂ O/cm ²)	Delta P (Pa/cm ²)
1	4.2	41.4
2	8.2	80.3
3	7.9	77.9
4	8.9	87.5
5	4.5	43.9

The filtration efficiency percentages were calculated using the following equation:

$$\% \text{ BFE} = \frac{C - T}{C} \times 100$$

C = Positive control average

T= Plate count total recovered downstream of the test article

Note:

1. Results reported on the submitted sample on an as received basis.
2. The analysis was performed by a SGS assessed competent subcontractor laboratory.

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2. Bioburden Test

Test Methods

Bioburden

The analyses were performed according to EN 14683:2019 and ISO 11737-1:2018

Test Results

Medical Face Mask			
SGS Sample No.:HKHC200400001512-101			
Article Number	Mask Weight	Total Bioburden, cfu/mask	Total Bioburden, cfu/g
1	3.30g	33	10.00
2	3.35g	6	1.79
3	3.39g	18	5.31
4	3.35g	9	2.69
5	3.50g	15	4.29
Mean:		16.2	4.8

Recovery Efficiency	Correction Factor
88.9%	1.1

Microbial Cleanliness (Bioburden): 5.4 cfu/g

Standard requirement#: ≤30 cfu/g

Note:

1. Results reported on the submitted sample on an as received basis.
2. cfu = Colony Forming Units
3. Extraction method: by stomacher at 250rpm for 5 minutes
4. # EN 14683:2019 - Medical face masks - Requirements and test methods – Performance requirements for medical face masks – Microbial cleanliness

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Sample Receiving Date : Apr 28, 2020

PHOTO APPENDIX



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SGS authenticate the photo on original report only

*** End of Report ***

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