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**Your notice of**  
19-01-2021

**Your reference**

**Date**  
05-05-2021

**Analysis Report 21.00319.01**

Required tests :

<b>EN 14683 (2019) + AC (2019)</b>	<b>EN 14683 - annex C (2019) + AC (2019)</b>	<b>Medical face masks - Breathability (differential pressure)</b>
<b>EN 14683 (2019) + AC (2019)</b>	<b>EN 14683 - annex B (2019) + AC (2019)</b>	<b>Bacterial filtration efficiency</b>
<b>EN 14683 (2019) + AC (2019)</b>	<b>EN 14683 - §5.2.5 (2019) AC (2019)</b>	<b>Microbial cleanliness on masks</b>

Sample id	Information given by the client	Date of receipt
T2101057	MEDICAL FACE MASK – TYPE 2	19-01-2021

Christine Remi  
Order responsible

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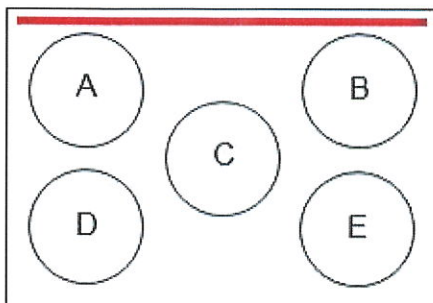
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The results of the analysis cover the received samples. Centexbel is not responsible for the representativeness of the samples.  
In assessing compliance with the specifications, we did not take into account the uncertainty on the test results.

**Reference: T2101057 - MEDICAL FACE MASK – TYPE 2**

**Medical face masks - Breathability (differential pressure)**

Date of ending the test	22-01-2021
Standard used	EN 14683 - annex C (2019) + AC (2019)
Product standard	EN 14683 (2019) + AC (2019)
Number of tested masks :	5
Number of areas per mask	5 (see figure)
Dimension of the areas :	Disc whose diameter is 2.5 cm
Surface areas :	4.9 cm <sup>2</sup>
Flow rate :	8 l/min.
Direction of the air flow :	From the inside of the mask to the outside
Masks conditioning :	21 ± 5°C and 85 ± 5% RH

Figure : Distribution of the areas in the mask



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**Results**

$\Delta P$

	Mask 1	Mask 2	Mask 3	Mask 4	Mask 5
Area A	18.5	49.9	32.6	29.9	17.5
Area B	19.1	33.0	21.8	27.7	16.9
Area C	23.8	38.1	34.8	37.7	19.8
Area D	15.1	38.9	33.0	42.8	14.3
Area E	14.9	35.9	35.4	35.2	15.9
<b>Average <math>\Delta P</math> (Pa/cm<sup>2</sup>)</b>	<b>18.3</b>	<b>39.2</b>	<b>31.5</b>	<b>34.7</b>	<b>16.9</b>

**Note** :

*The performance requirements for medical face masks according to EN 14683 (2019) + AC (2019) is :*

Test	Type I	Type II	Type IIR
<i>Differential pressure (Pa/cm<sup>2</sup>)</i>	< 40	< 40	< 60



**Reference: T2101057 - MEDICAL FACE MASK – TYPE 2**

**Bacterial filtration efficiency**

Date of ending the test	28-04-2021
Standard used	EN 14683 - annex B (2019) + AC (2019)
Product standard	EN 14683 (2019) + AC (2019)
Number of tested masks :	5
BFE Area tested :	± 49 cm <sup>2</sup>
Masks conditioning :	21 ± 5°C and 85 ± 5% RH
Side of the mask in contact with the bacterial challenge :	Inner side
Challenge bacterial strain used :	<i>Staphylococcus aureus</i> ATCC® 6538™
Bacterial challenge per test :	1700 - 3000 CFU
Total test time :	1 min. delivering challenge + 1 min. without challenge (air flow continuing)
Flow rate :	28.3 l/min.
Positive control	Tests performed with no filter material in the air stream
Negative control	Test performed without challenge

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**Results**

*B = Bacterial filtration efficiency (%)*

$$B = \frac{(C - T)}{C} \times 100$$

With C = mean of the total plate counts for the positive control runs  
T = total count for the tested mask

# Mask	B (%)
1	99.6
2	99.9
3	99.9
4	99.7
5	99.7

Mean particle size of the bacterial challenge aerosol : 3.1 µm

**Controls**

Mean positive controls 2475 CFU  
Negative control < 1 CFU

**Note :**

*The performance requirements for medical face masks according to EN 14683 (2019) + AC (2019) is :*

Test	Type I	Type II	Type IIR
<i>(BFE) Bacterial filtration efficiency (%)</i>	≥ 95	≥ 98	≥ 98

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**Reference:** T2101057 - MEDICAL FACE MASK – TYPE 2

**Microbial cleanliness on masks**

Date of ending the test 12-02-2021  
Standard used EN 14683 - §5.2.5 (2019) AC (2019)  
Product standard EN 14683 (2019) + AC (2019)

Number of tested masks 5  
Extraction liquid Peptone 1g/l, NaCl 5g/l & Tween 20 2g/l  
Extraction volume 300 ml  
Extraction time 5 min.  
Counting technique Membrane filtration  
Filtration volume 100 ml  
Culture media TSA (Tryptic Soy Agar)  
SDA (Sabouraud Dextrose Agar with chloramphenicol)  
Incubation conditions 3 days at 30°C (TSA)  
7 days at 20-25°C (SDA)

**Results**

# Mask	Mask weight (g)	CFU*/mask		Microbial cleanliness	
		<i>Aerobic microbial count (bacteria)</i>	<i>Fungi count (SDA)</i>	$\Sigma$ CFU/mask	$\Sigma$ CFU/g
1	3.03	18	6	24	8
2	2.86	12	< 3	< 15	< 6
3	2.99	57	9	66	23
4	2.96	30	< 3	< 33	< 12
5	2.98	153	3	156	53

**Note :**

*The performance requirements for medical face masks according to EN 14683 (2019) + AC (2019) is :*

Test	Type I	Type II	Type IIR
<i>Microbial cleanliness (cfu/g)</i>	$\leq 30$	$\leq 30$	$\leq 30$