**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

# ANALYTICAL REPORT

## Client Information

Tejidos Rebes, S.L.
C7 Luxemburgo 47-53
Badalona SPAIN
+34619218574
andres@tejidosrebes.com
For the attention of Mr. Andrés Castelltort

## Sample Information

| | |
|---|---|
| **Order Code:** | EUAA70-00009039 |
| **Reception Date:** | 4-Nov-2020 |
| **Analysis Starting Date:** | 4-Nov-2020 |
| **Analysis Ending Date:** | 24-Nov-2020 |
| **Sample code Nr.** | 560-2020-00008104 |
| **Sample described as:** | Mask material/Material mascarilla |

## Requirements and decision rule

| | |
|---|---|
| **Customer requirements:** | UNE 0065 Mascarillas higiénicas reutilizables |
| **Decision Rule:** | Shared risk - Simple acceptance. |

## Information provided by the customer*

| | |
|---|---|
| **Client Reference:** | MICROFIBRA 86 TECNOSANI BLANCO+ POPELIN VIENA TEC |
| **Sample Description:** | |
| **Purchase Order Number:** | |
| **Batch** | No suministrado / Not provided |

(*this report cancels and replaces the previous one, numbered AR-20-YL-008064-01/560-2020-00008104 dated 24/11/2020 which must be destroyed)

**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

## SAMPLE PICTURE

**Eurofins Textile Testing Spain, S.L.U.**
Calle Germán Bernácer, 4
03203 Elche
ESPAÑA
**Phone**+34 966 299 638
**www.eurofins.com/tex**

**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

**CONCLUSION:**

| TEST PROPERTY | PASS | FAIL | REMARKS |
|---|---|---|---|
| ● **BACTERIAL FILTRATION EFFICIENCY (BFE)** EN 14683:2019+AC:2019 Annex B | | | |
| A - Original / As received | X | | |
| B - Tras 50 lavados / After 50 washes | X | | |
| ◆ **Washing - Reusable masks** ISO 6330:2012 | | | |
| B - Tras 50 lavados / After 50 washes | | | REFER RESULT |
| **Breathability (Differential Pressure)** EN 14683:2019+AC:2019 Annex C | | | |
| A - Original / As received | X | | |
| B - Tras 50 lavados / After 50 washes | X | | |

**Remark:** Test has been performed as per application request

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**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

**COMPONENT LIST:**

| COMPONENT ID | COMPONENT NAME | MATERIAL DESCRIPTION | COLOR | REMARKS |
|---|---|---|---|---|
| CUST 01 | A - Original / As received | Textil / Fabric | Blanco / White | --- |
| CUST 02 | B - Tras 50 lavados / After 50 washes | Textil / Fabric | Blanco / White | --- |

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**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

| MASKS TESTING | CAS No. | RESULTS | UNC. | LOQ | GUIDELINES |
|---|---|---|---|---|---|

## Analyses on:A - Original / As received

**Breathability (Differential Pressure)** Analysis Ending Date: 24/11/2020

EN 14683:2019+AC:2019 Annex C

| | | | | | |
|---|---|---|---|---|---|
| Differential pressure | | 36.2 Pa/cm² | (± 2.0) Pa/cm² | - | <60 Pa/cm2 ✓ Pass |

Complete test data reported at Annex.

- **BACTERIAL FILTRATION EFFICIENCY (BFE)** Analysis Ending Date: 24/11/2020

EN 14683:2019+AC:2019 Annex B

| | | | | | |
|---|---|---|---|---|---|
| Bacterial Filtration Efficiency (BFE) | | 96.4 | | - | ≥90 % ✓ Pass |

Complete test data reported at Annex.
Testing covered by NABL accreditation nºTC-5492.

## Analyses on:B - Tras 50 lavados / After 50 washes

**Breathability (Differential Pressure)** Analysis Ending Date: 24/11/2020

EN 14683:2019+AC:2019 Annex C

| | | | | | |
|---|---|---|---|---|---|
| Differential pressure | | 49.9 Pa/cm² | (± 1.5) Pa/cm² | - | <60 Pa/cm2 ✓ Pass |

Complete test data reported at Annex.

- **Washing - Reusable masks** Analysis Ending Date: 24/11/2020

ISO 6330:2012

| | | | | | |
|---|---|---|---|---|---|
| Number of washing cycles | | 50 | | - | |
| Type of washing machine | | A1 | | - | |
| Temperature | | 60 °C | | - | |
| Washing procedure | | 6N | | - | |
| Drying method | | C - Flat dry | | - | |
| Detergent used | | Non Phosphate ECE 98 + TAED + Sodium Perborate | | - | |
| Specimen and ballast total dry mass | | 2 kg | | - | |
| Type of ballast | | Type III - 100% Polyester | | - | |

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**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

| MASKS TESTING | CAS No. | RESULTS | UNC. | LOQ | GUIDELINES |
|---|---|---|---|---|---|
| • **BACTERIAL FILTRATION EFFICIENCY (BFE)** | | | | | Analysis Ending Date: 24/11/2020 |
| **EN 14683:2019+AC:2019 Annex B** | | | | | |
| Bacterial Filtration Efficiency (BFE) | | 95.8 | | - | ≥90 % ✔ Pass |

Complete test data reported at Annex.
Testing covered by NABL accreditation nºTC-5492.

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| | |
|---|---|
| **Analytical Report Nr.** | AR-20-YL-008064-02-EN |
| **Sample code Nr.** | 560-2020-00008104 |
| **Date** | 25/11/2020 |

Reason for new version: The cust of the test after washes  is modified due to error at registration.

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**Analytical Report Nr.** AR-20-YL-008064-02-EN
**Sample code Nr.** 560-2020-00008104
**Date** 25/11/2020

**Signed for and on behalf of Eurofins Textile Testing Spain:**

Report electronically validated by

**Axel Ferrando**
Physical-Mechanical Lab Manager

## EXPLANATORY NOTE

- ◆ Test not covered by ENAC accreditation scope
- ● Test is subcontracted within Eurofins group and is accredited
- ○ Test is subcontracted within Eurofins group and is not accredited
- ■ Test is subcontracted outside Eurofins group and is accredited
- □ Test is subcontracted outside Eurofins group and is not accredited

N/A = Not Applicable

*Eurofins Textile Testing Spain S.L.U is not responsible of the information supplied by the costumer and reported as section “Information provided by the costumer*”.
Eurofins General Sales Terms and Conditions Applied.
Results obtained refer only to samples, products or material received in Laboratory, as described in section “Sample information” and tested in conditions shown in present report.
Test uncertainties not reported are at customer disposal, for those tests in which it is possible to evaluate the test uncertainty.
The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, which for a normal distribution provides a level of confidence of approximately 95%.
Reproduction of this document is only valid if it is done completely and under the written permission. Any printed version of this document will be considered as a copy.
If you happen to have any comments, please do it by sending email to **textile_spain@eurofins.com** and referring to this report number.

**End Of Report**

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

# INFORME DE ENSAYO

## Información del cliente

Tejidos Rebes, S.L.
C7 Luxemburgo 47-53
Badalona ESPAÑA
+34619218574
andres@tejidosrebes.com
A la atención de Mr. Andrés Castelltort

## Información de la muestra

| | |
|---|---|
| **Código de la orden:** | EUAA70-00009039 |
| **Fecha de recepción de la muestra:** | 4-Nov-2020 |
| **Fecha de inicio de análisis:** | 4-Nov-2020 |
| **Fecha fin de análisis:** | 24-Nov-2020 |
| **Código de muestra** | 560-2020-00008104 |
| **Descripción de la muestra:** | Mask material/Material mascarilla |

## Requisitos y regla de decisión

| | |
|---|---|
| **Requerimientos del cliente:** | UNE 0065 Mascarillas higiénicas reutilizables |
| **Regla de decisión:** | Riesgo compartido - Aceptación simple. |

## Información suministrada por el cliente*

| | |
|---|---|
| **Referencia de cliente:** | MICROFIBRA 86 TECNOSANI BLANCO+ POPELIN VIENA TEC |
| **Descripción de la muestra:** | |
| **Guía de remisión:** | |

| | |
|---|---|
| **Lote** | No suministrado / Not provided |

(* Este informe cancela y reemplaza el informe anterior, con número AR-20-YL-008064-01/560-2020-00008104 y fecha de 24/11/2020 que debe ser destruido)

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

## FOTOGRAFÍA DE LA MUESTRA

**Eurofins Textile Testing Spain, S.L.U.**
Calle Germán Bernácer, 4
03203 Elche
ESPAÑA
**Teléfono**+34 966 299 638
**www.eurofins.com/tex**

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

**CONCLUSIÓN:**

| ENSAYO | CUMPLE | NO CUMPLE | OBSERVACIONES |
|---|---|---|---|
| ● **Eficiencia de filtración Bacteriana (BFE)** EN 14683:2019+AC:2019 Anexo B | | | |
| A - Original / As received | X | | |
| B - Tras 50 lavados / After 50 washes | X | | |
| ◆ **Lavado - Mascarilla reutilizable** ISO 6330:2012 | | | |
| B - Tras 50 lavados / After 50 washes | | | VER RESULTADOS |
| **Respirabilidad (Presión diferencial)** EN 14683:2019+AC:2019 Anexo C | | | |
| A - Original / As received | X | | |
| B - Tras 50 lavados / After 50 washes | X | | |

**Observación:** Los ensayos se realizaron según la solicitud del cliente

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

## LISTA DE COMPONENTES:

| ID DEL COMPONENTE | NOMBRE DEL COMPONENTE | DESCRIPCIÓN DEL MATERIAL | COLOR | OBSERVACIONES |
|---|---|---|---|---|
| CUST 01 | A - Original / As received | Textil / Fabric | Blanco / White | --- |
| CUST 02 | B - Tras 50 lavados / After 50 washes | Textil / Fabric | Blanco / White | --- |

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

| ENSAYOS A MASCARILLAS | CAS No. | RESULTADOS | INC. | LOQ | LÍMITES | |
|---|---|---|---|---|---|---|

## Análisis sobre:A - Original / As received

**Respirabilidad (Presión diferencial)** Fecha fin de análisis: 24/11/2020

EN 14683:2019+AC:2019 Anexo C

| | | | | | | |
|---|---|---|---|---|---|---|
| Presión diferencial | | 36.2 Pa/cm² | (± 2.0) Pa/cm² | - | <60 Pa/cm2 | ✓ Cumple |

Datos completos del ensayo incluidos en el Anexo.

- **Eficiencia de filtración Bacteriana (BFE)** Fecha fin de análisis: 24/11/2020

EN 14683:2019+AC:2019 Anexo B

| | | | | | | |
|---|---|---|---|---|---|---|
| Eficacia de filtración bacteriana (BFE) | | 96.4 | | - | ≥90 % | ✓ Cumple |

Datos completos del ensayo incluidos en el Anexo.
Ensayo cubierto por acreditación NABL nº TC-5492.

## Análisis sobre:B - Tras 50 lavados / After 50 washes

**Respirabilidad (Presión diferencial)** Fecha fin de análisis: 24/11/2020

EN 14683:2019+AC:2019 Anexo C

| | | | | | | |
|---|---|---|---|---|---|---|
| Presión diferencial | | 49.9 Pa/cm² | (± 1.5) Pa/cm² | - | <60 Pa/cm2 | ✓ Cumple |

Datos completos del ensayo incluidos en el Anexo.

◆ **Lavado - Mascarilla reutilizable** Fecha fin de análisis: 24/11/2020

ISO 6330:2012

| | | |
|---|---|---|
| Número de ciclos de lavado | 50 | - |
| Tipo de lavadora | A1 | - |
| Temperatura | 60 °C | - |
| Procedimiento de lavado | 6N | - |
| Tipo de secado | C - Secado en horizontal | - |
| Detergente utilizado | ECE sin fosfatos 98 + TAED + Perborato Sódico | - |
| Masa total seca de las probetas y el contrapeso | 2 kg | - |
| Tipo de contrapeso utilizado | Tipo III - 100% Poliéster | - |

**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

| ENSAYOS A MASCARILLAS | CAS No. | RESULTADOS | INC. | LOQ | LÍMITES |
|---|---|---|---|---|---|
| • **Eficiencia de filtración Bacteriana (BFE)** | | | | | Fecha fin de análisis: 24/11/2020 |
| **EN 14683:2019+AC:2019 Anexo B** | | | | | |
| Eficacia de filtración bacteriana (BFE) | | 95.8 | | - ≥90 % | ✔ Cumple |

Datos completos del ensayo incluidos en el Anexo.
Ensayo cubierto por acreditación NABL nº TC-5492.

**Eurofins Textile Testing Spain, S.L.U.**
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**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

Motivo de la nueva versión: Se modifica la fracción del ensayo tras lavados por error en registro.

**Eurofins Textile Testing Spain, S.L.U.**
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**Código de Informe de Ensayo:** AR-20-YL-008064-02-ES
**Código de muestra** 560-2020-00008104
**Fecha de emisión** 25/11/2020

**Firmado en representación de Eurofins Textile Testing Spain:**

Eurofins Textile Testing Spain, SLU
C/ Germán Bernacer 4, Elche (Alicante)
B66978099

Informe validado electronicamente por

**Axel Ferrando**
Responsable Laboratorio Fisico/Mecánico

## Nota aclaratoria

- ◆ Ensayo no amparado por la acreditación ENAC
- ● Test subcontratado dentro del grupo Eurofins y está acreditado
- ○ Test subcontratado dentro del grupo Eurofins y no está acreditado
- ■ Test subcontratado fuera del grupo Eurofins y está acreditado
- □ Test subcontratado fuera del grupo Eurofins y no está acreditado

N/A = No Aplica

*Eurofins Textile Testing Spain S.L.U no es responsable de la información suministrada por el cliente indicada en el apartado “Información suministrada por el cliente*”.
Los resultados obtenidos refieren solamente a las muestras, productos o materiales recibidos en el laboratorio, descritos en el apartado “Descripción de las muestras” y fueron ensayados en las condiciones descritas en el presente informe.
Las incertidumbres de ensayo no indicadas están a disposición del cliente, para aquellos ensayos en los que puedan ser estimadas.
La incertidumbres expandidas incluidas en el informe están basadas en la incertidumbre típica multiplicada por el factor de cobertura k=2, que para una distribución normal proporciona un nivel de confianza de aproximadamente el 95%

Si desea hacer cualquier comentario contacte con nosotros a través de la siguiente dirección de correo electrónico **textile_spain@eurofins.com** indicando este número de informe.

## FIN DEL INFORME

Analytical Labs Limited

CIN:U74220DL1998PLC092698

# TEST REPORT

Test Report Issued To:

**EUROFINS TEXTILE TESTING SPAIN SL**

C/ GERMAN BERNACER, 9, 03203, ELCHE (ALICANTE),
ELCHE ALICANTE, SPAIN,

**Test Report No:** N201108002/N201108002-10

**Date of Issue:** 13-Nov-2020

Sample Booking/Receipt Date: 08-Nov-2020
Date of Start of Testing: 08-Nov-2020
Date of Completion of Test: 13-Nov-2020

Customer Relationship Number 60680

**Sample Description :**
SAMPLE DESCRIPTION-560-2020-00008104 ORIGINAL

**Customer Reference No**
-
EUAA70-00009039 ORIGINAL

**Kind Attention :** MELODIE RUIZ
**E-Mail:** MelodieRuiz@eurofins.com **Contact No:** +34 966 299 638

**Sample Condition :** *GOOD*
Sample Quantity (Approx) : -
Sample Size (Approx) : -

SAMPLE NOT DRAWN BY OUR LABORATORY. THE RESULTS RELATE ONLY TO THE ITEMS TESTED

SPECTRO ANALYTICAL LABS LTD
YOGESH MALIK
Digitally signed by YOGESH MALIK
Date: 2020.11.13 13:00:28 +05:30

**Report Issued By**

Authencity of report can be verified by mail at verification@spectrolab.in

This is a Digitally Signed Report and hence doesn't require Physical Signature.

## TEST REPORT FOR DETERMINATION OF:

## Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face Mask Materials, Using a Biological Aerosol of Staphylococcus aureus

### 1. Name of Product

**Fabric**

### 2. Test Method

**BS EN 14683:2019/Annex B:** Medical face masks - Requirements and test methods

### 3. Scope

To perform bacterial filtration efficiency test on surgical mask as per procedure given BS EN 14683:2019, by using biological aerosol of Staphylococcus aureus.

### 4. Testing Laboratory

Name: **Spectro Analytical Labs Limited**
Address: E-41, Okhla Phase-2
New Delhi
Pin Code: 110020
Ph: 011-40522000

### 5. Date of Test

Test Date : 08.11.2020

### 6. Specimen Verification

#### 6.1. Specimen Definition

The testing laboratory was not involved in the selection of the test specimen.

### 7. Conditioning

Each test specimens were placed for 5 h at a temperature of 21±5 °C and a relative humidity of 85±5 %.

### 8. Inoculum Size

Staphylococcus aureus ATCC 6538 ($5x10^5$ cfu/ml)

### 9. Medium Used

Tryptic soya agar

### 10. Temperature condition

37℃/20 to 52 hours

Analyst Signature

Digitally signed by YOGESH MALIK
Date: 2020.11.13 13:00:28 +05:30

Authorised Signatory

## 11. Observations, Requirements & Result

| Sr. no. | Test Parameters | Result | Limits as per BS EN 14683:2019/ANNEX B | Test Method |
|---|---|---|---|---|
| 1 | Bacterial Filtration Efficiency of Specimen (%) | 96.3 | Level 1=≥95<br>Level 2=≥98<br>Level 3=≥98 | BS EN 14683:2019 |
| | | 96.8 | | |
| | | 96.1 | | |
| | | 96.6 | | |
| | | 96.2 | | |
| | Average of BFE results (%) | **96.4** | | |
| 2 | Area of test Specimen | Face side | Face side | BS EN 14683:2019 |
| 3 | Flow rate of aerosol | 28.3 | 28.3 L/Minute | BS EN 14683:2019 |
| 4 | Mean particle size of Challenge aerosol of Staphylococcus aureus, micron | 2.9 | 3±0.3 | BS EN 14683:2019 |
| 5 | Average Plate count of Positive control of Staphylococcus aureus in count, per test | 2322 | 1700-3000 | BS EN 14683:2019 |
| 6 | Average Plate count of Negative control | Negative | Negative | BS EN 14683:2019 |

**Remarks**: The sample showed average 96.4 % Bacterial filtration efficiency against Staphylococcus aureus ATCC 6538 according to BS EN 14683:2019 test method.

-- End of Test Report --

Analyst Signature

Digitally signed by YOGESH MALIK
Date: 2020.11.13 13:00:28 +05:30

Authorised Signatory

SPECTRO® Analytical Labs Limited

CIN:U74220DL1998PLC092698

# TEST REPORT

Test Report Issued To:

**EUROFINS TEXTILE TESTING SPAIN SL**

C/ GERMAN BERNACER, 9, 03203, ELCHE (ALICANTE),
ELCHE ALICANTE, SPAIN,

**Test Report No:** N201119005/N201119005-11

**Date of Issue:** 24-Nov-2020

Sample Booking/Receipt Date: 19-Nov-2020
Date of Start of Testing: 19-Nov-2020
Date of Completion of Test: 24-Nov-2020

Customer Relationship Number 60680

**Sample Description :**
SAMPLE DESCRIPTION 560-2020-00008104


**Customer Reference No**
-
EUAA70-00009039 AFTER 25 WASHES

**Kind Attention :** MELODIE RUIZ
**E-Mail:** MelodieRuiz@eurofins.com **Contact No:** +34 966 299 638

**Sample Condition :** *GOOD*
Sample Quantity (Approx) : - Sample Size (Approx) : -

SAMPLE NOT DRAWN BY OUR LABORATORY. THE RESULTS RELATE ONLY TO THE ITEMS TESTED

SPECTRO ANALYTICAL LABS LTD
YOGESH MALIK
Digitally signed by YOGESH MALIK
Date: 2020.11.24 14:51:34 +05:30

**Report Issued By**

**ULR-TC549220000020887F**

Authencity of report can be verified by mail at verification@spectrolab.in

This is a Digitally Signed Report and hence doesn't require Physical Signature.

## TEST REPORT FOR DETERMINATION OF:

## Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face Mask Materials, Using a Biological Aerosol of Staphylococcus aureus

### 1. Name of Product

**Fabric**

### 2. Test Method

**BS EN 14683:2019/Annex B:** Medical face masks - Requirements and test methods

### 3. Scope

To perform bacterial filtration efficiency test on surgical mask as per procedure given BS EN 14683:2019, by using biological aerosol of Staphylococcus aureus.

### 4. Testing Laboratory

Name: **Spectro Analytical Labs Limited**
Address: E-41, Okhla Phase-2
New Delhi
Pin Code: 110020
Ph: 011-40522000

### 5. Date of Test

Test Date : 19.11.2020

### 6. Specimen Verification

#### 6.1. Specimen Definition

The testing laboratory was not involved in the selection of the test specimen.

### 7. Conditioning

Each test specimens were placed for 5 h at a temperature of 21±5 °C and a relative humidity of 85±5 %.

### 8. Inoculum Size

Staphylococcus aureus ATCC 6538 ($5x10^5$ cfu/ml)

### 9. Medium Used

Tryptic soya agar

### 10. Temperature condition

37℃/20 to 52 hours

Analyst Signature

Testing(TC-5492)

ULR-TC549220000020887F

Digitally signed by YOGESH MALIK
Date: 2020.11.24 14:51:34 +05:30

Authorised Signatory

## 11. Observations, Requirements & Result

| Sr. no. | Test Parameters | Result | Limits as per BS EN 14683:2019/ANNEX B | Test Method |
|---|---|---|---|---|
| 1 | Bacterial Filtration Efficiency of Specimen (%) | 96.4 | Level 1=≥95<br>Level 2=≥98<br>Level 3=≥98 | BS EN 14683:2019 |
| | | 95.5 | | |
| | | 95.7 | | |
| | | 95.3 | | |
| | | 96.1 | | |
| | Average of BFE results (%) | **95.8** | | |
| 2 | Area of test Specimen | Face side | Face side | BS EN 14683:2019 |
| 3 | Flow rate of aerosol | 28.3 | 28.3 L/Minute | BS EN 14683:2019 |
| 4 | Mean particle size of Challenge aerosol of Staphylococcus aureus, micron | 2.89 | 3±0.3 | BS EN 14683:2019 |
| 5 | Average Plate count of Positive control of Staphylococcus aureus in count, per test | 2724 | 1700-3000 | BS EN 14683:2019 |
| 6 | Average Plate count of Negative control | Negative | Negative | BS EN 14683:2019 |

**Remarks**: The sample showed average 95.8 % Bacterial filtration efficiency against Staphylococcus aureus ATCC 6538 according to BS EN 14683:2019 test method.

-- End of Test Report --

ULR-TC549220000020887F

Digitally signed by YOGESH MALIK
Date: 2020.11.24 14:51:34 +05:30

Analyst Signature

Testing(TC-5492)

Authorised Signatory

## METHOD FOR DETERMINATION OF BREATHABILITY (DIFFERENTIAL PRESSURE)

Test Method: EN 14683: 2019+AC: 2019 Annex C

Number of test specimens: 5

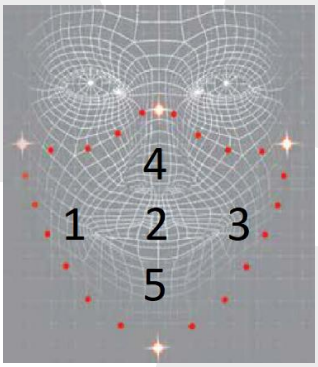
Number of test per specimen: 5

Sample area tested: Circular, diameter 2,5 cm

Tested area of the test sample: 4,9 $cm^2$

Flow rate during testing: 8±0,25 l/min

General location of measurement areas: Representative of the overall surface.




**Results original sample:**

| Specimen | Units (Pa) | | | | | | ΔP (Pa/$cm^2$) |
|---|---|---|---|---|---|---|---|
| | Position 1 | Position 2 | Position 3 | Position 4 | Position 5 | Mean value (Pa) | |
| 1 | 167 | 155 | 162 | 157 | 167 | 162 | 33,0 |
| 2 | 172 | 174 | 168 | 160 | 164 | 168 | 34,2 |
| 3 | 186 | 189 | 175 | 185 | 188 | 185 | 37,7 |
| 4 | 174 | 188 | 192 | 187 | 185 | 185 | 37,8 |
| 5 | 191 | 190 | 187 | 193 | 183 | 189 | 38,5 |
| | | | | | | **Mean Value** | **36,2** |
| | | | | | | **Uncertainty** | **± 2,0** |

**Results after 50 wash cycles at 60ºC:**

| Specimen | Units (Pa) | | | | | | ΔP (Pa/$cm^2$) |
|---|---|---|---|---|---|---|---|
| | Position 1 | Position 2 | Position 3 | Position 4 | Position 5 | Mean value (Pa) | |
| 1 | 253 | 248 | 236 | 241 | 236 | 243 | 49,6 |
| 2 | 259 | 237 | 228 | 256 | 249 | 246 | 50,2 |
| 3 | 242 | 236 | 257 | 230 | 225 | 238 | 48,6 |
| 4 | 239 | 243 | 247 | 244 | 248 | 244 | 49,8 |
| 5 | 232 | 246 | 258 | 257 | 267 | 252 | 51,4 |
| | | | | | | **Mean Value** | **49,9** |
| | | | | | | **Uncertainty** | **± 1,5** |

**Observation:**

For thick and rigid masks the test method may not be suitable as a proper seal cannot be maintained in the sample holder.

**SUMMARY ACCEPTANCE CRITERIA FOR REUSABLE HYGIENIC MASKS ACCORDING TO ESPECIFICATION UNE 0065:2020**

| Tests | Acceptance criteria |
|---|---|
| Bacterial filtration efficiency (BFE), (%) (Section 5.2.2 of the UNE-EN 14683: 2019 + AC: 2019 Standard) | ≥ 90 |
| Breathability (Differential pressure), (Pa/cm$^2$) (Section 5.2.3 of the UNE-EN 14683: 2019 + AC: 2019 Standard | < 60 |

## DETERMINACIÓN DE LA RESPIRABILIDAD (PRESIÓN DIFERENCIAL)

Método de ensayo: EN 14683: 2019+AC: 2019 Anexo C

Número de muestras de ensayo: 5

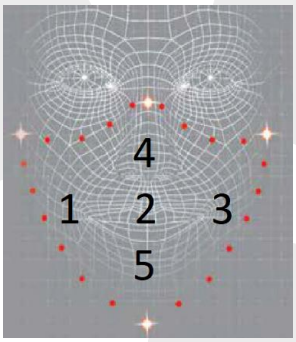
Número de ensayos por muestra: 5

Dimensión de la muestra de ensayo: Circular, diámetro 2,5 cm

Tamaño del área sometida a ensayo: 4,9 $cm^2$

Caudal de aire: 8±0.25 l/min

Ubicación general de las áreas de medición: Representativos de toda la superficie




**Resultados muestra original:**

| Muestra de ensayo | Unidades (Pa) | | | | | | ΔP (Pa/$cm^2$) |
|---|---|---|---|---|---|---|---|
| | Posición 1 | Posición 2 | Posición 3 | Posición 4 | Posición 5 | Valor medio | |
| 1 | 167 | 155 | 162 | 157 | 167 | 162 | 33,0 |
| 2 | 172 | 174 | 168 | 160 | 164 | 168 | 34,2 |
| 3 | 186 | 189 | 175 | 185 | 188 | 185 | 37,7 |
| 4 | 174 | 188 | 192 | 187 | 185 | 185 | 37,8 |
| 5 | 191 | 190 | 187 | 193 | 183 | 189 | 38,5 |
| | | | | | | **Media** | **36,2** |
| | | | | | | **Incertidumbre** | **± 2,0** |

**Resultados después de 50 ciclos de lavado a 60ºC:**

| Muestra de ensayo | Unidades (Pa) | | | | | | ΔP (Pa/$cm^2$) |
|---|---|---|---|---|---|---|---|
| | Posición 1 | Posición 2 | Posición 3 | Posición 4 | Posición 5 | Valor medio | |
| 1 | 253 | 248 | 236 | 241 | 236 | 243 | 49,6 |
| 2 | 259 | 237 | 228 | 256 | 249 | 246 | 50,2 |
| 3 | 242 | 236 | 257 | 230 | 225 | 238 | 48,6 |
| 4 | 239 | 243 | 247 | 244 | 248 | 244 | 49,8 |
| 5 | 232 | 246 | 258 | 257 | 267 | 252 | 51,4 |
| | | | | | | **Media** | **49,9** |
| | | | | | | **Incertidumbre** | **± 1,5** |

**Observación:**

Para mascarillas gruesas y rígidas, el método de ensayo puede no ser adecuado dado que no se pueden mantener un sello apropiado en el soporte de la muestra.

**RESUMEN CRITERIOS DE ACEPTACIÓN PARA MASCARILLAS HIGIÉNICAS REUTILIZABLES SEGÚN UNE 0065:2020**

| Ensayos | Criterio de aceptación |
|---|---|
| Eficacia de filtración. (%) *("ensayo BFE")* Ensayada a través de ensayo de eficacia de filtración bacteriana (BFE), (%) (apartado 5.2.2 de la Norma UNE-EN 14683:2019+AC:2019) | ≥ 90 |
| Respirabilidad (Presión diferencial), ($Pa/cm^2$) (apartado 5.2.3 de la Norma UNE-EN 14683:2019+AC:2019) | < 60 |