

Analytical Report Nr.

AR-21-YL-001303-01-EN

Sample code Nr.

560-2021-00000776

Date

11/02/2021

## ANALYTICAL REPORT

### Client Information

MANUFACTURAS ARPE, SL  
C / CAN VICTORIANO, 12 POL. INDIANA. TORRENT D'EN PUIG  
ARENYS DE MUNT SPAIN  
+34 937 937 677  
jpera@arpe.es

For the attention of Mr Joan Pera

### Sample Information

**Order Code:** EUAA70-00010276  
**Reception Date:** 25-Jan-2021  
**Analysis Starting Date:** 25-Jan-2021  
**Analysis Ending Date:** 11-Feb-2021  
**Sample code Nr.** 560-2021-00000776  
**Sample described as:** Mascarillas  
Masks

### Requirements and decision rule

**Customer requirements:** UNE 0065 Mascarillas higiénicas reutilizables  
**Decision Rule:** Shared risk - Simple acceptance. Probability of False Acceptance <50%

### Information provided by the customer\*

**Client Reference:** Mascarilla Verde  
**Sample Description:**  
**Purchase Order Number:**

**Batch** 210125G

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### SAMPLE PICTURE



Analytical Report Nr.

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Date

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**CONCLUSION:**

| TEST PROPERTY   | PASS | FAIL | REMARKS      |
|---|------|------|--------------|
| <b>• Bacterial Filtration Efficiency (BFE)</b><br>EN 14683:2019+AC:2019 Annex B |      |      |              |
| A - Original / As received  | X    |      |              |
| C - Tras 5 lavados / After 5 washes   | X    |      |              |
| <b>Washing - Reusable masks</b><br>ISO 6330:2012                                |      |      |              |
| B - Lavados / Washes  |      |      | REFER RESULT |
| <b>Breathability (Differential Pressure)</b><br>EN 14683:2019+AC:2019 Annex C   |      |      |              |
| A - Original / As received  | X    |      |              |
| C - Tras 5 lavados / After 5 washes   | X    |      |              |

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

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## COMPONENT LIST:

| COMPONENT ID | COMPONENT NAME                      | MATERIAL DESCRIPTION | COLOR         | REMARKS |
|--------------|-------------------------------------|----------------------|---------------|---------|
| CUST 01      | A - Original / As received          | Mask / Mascarilla    | Green / Verde | ---     |
| CUST 02      | B - Lavados / Washes                | Mask / Mascarilla    | Green / Verde | ---     |
| CUST 03      | C - Tras 5 lavados / After 5 washes | Mask / Mascarilla    | Green / Verde | ---     |

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

## Analyses on:A - Original / As received

### • Bacterial Filtration Efficiency (BFE)

Analysis Ending Date: 11/02/2021

EN 14683:2019+AC:2019 Annex B

Bacterial Filtration Efficiency (BFE)

98.4 %

-

≥ 90 %

✓ Pass

Complete test data reported at Annex.  
Testing covered by NABL accreditation n°TC-5492.

### Breathability (Differential Pressure)

Analysis Ending Date: 04/02/2021

EN 14683:2019+AC:2019 Annex C

Differential pressure

20.3 Pa/cm<sup>2</sup> (± 1.2) Pa/cm<sup>2</sup>

-

<60 Pa/cm<sup>2</sup>

✓ Pass

Complete test data reported at Annex.

## Analyses on:B - Lavados / Washes

### Washing - Reusable masks

Analysis Ending Date: 04/02/2021

ISO 6330:2012

Number of washing cycles

5

-

Type of washing machine

A

-

Temperature

60 °C

-

Washing procedure

6N

-

Drying method

C - Flat dry

-

Detergent used

Reference 3

-

Specimen and ballast total dry mass

2.0 kg

-

Type of ballast

Type III - 100% Polyester

-

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Date

11/02/2021

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

### Analyses on:C - Tras 5 lavados / After 5 washes

- Bacterial Filtration Efficiency (BFE)**

Analysis Ending Date: 11/02/2021

EN 14683:2019+AC:2019 Annex B

Bacterial Filtration Efficiency  
(BFE)

98.3 %

-

≥ 90 %

✓ Pass

Complete test data reported at Annex.  
Testing covered by NABL accreditation n°TC-5492.

- Breathability (Differential Pressure)**

Analysis Ending Date: 04/02/2021

EN 14683:2019+AC:2019 Annex C

Differential pressure

19.3 Pa/cm<sup>2</sup> (± 1.0) Pa/cm<sup>2</sup>

-

<60 Pa/cm<sup>2</sup>

✓ Pass

Complete test data reported at Annex.

**Analytical Report Nr.**

AR-21-YL-001303-01-EN

**Sample code Nr.**

560-2021-00000776

**Date**

11/02/2021

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

Report electronically validated by

**Axel Ferrando**

Physical-Mechanical Lab Manager

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**EXPLANATORY NOTE**

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- ◆ 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

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\*Eurofins Textile Testing Spain S.L.U is not responsible of the information supplied by the customer and reported as section "Information provided by the customer".

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%.

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If you happen to have any comments, please do it by sending email to [textile\\_spain@eurofins.com](mailto:textile_spain@eurofins.com) and referring to this report number.

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**End Of Report**

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**Eurofins Textile Testing Spain, S.L.U.**

Calle Germán Bernácer, 4

03203 Elche

ESPAÑA

Phone+34 966 299 638

[www.eurofins.com/tex](http://www.eurofins.com/tex)

ENAC is signatory of EA and ILAC Multilateral Agreement for testing  
Activities not covered by ENAC accreditation are marked with ◆○●□■

Código de Informe de Ensayo: AR-21-YL-001303-01-ES  
Código de muestra 560-2021-00000776  
Fecha de emisión 11/02/2021

## INFORME DE ENSAYO

### Información del cliente

MANUFACTURAS ARPE, SL  
C / CAN VICTORIANO, 12 POL. INDIANA. TORRENT D'EN PUIG  
ARENYS DE MUNT ESPAÑA  
+34 937 937 677  
jpera@arpe.es

A la atención de Mr Joan Pera

### Información de la muestra

Código de la orden: EUAA70-00010276  
Fecha de recepción de la muestra: 25-Jan-2021  
Fecha de inicio de análisis: 25-Jan-2021  
Fecha fin de análisis: 11-Feb-2021  
Código de muestra 560-2021-00000776  
Descripción de la muestra: Mascarillas  
Masks

### Requisitos y regla de decisión

Requerimientos del cliente: UNE 0065 Mascarillas higiénicas reutilizables  
Regla de decisión: Riesgo compartido - Aceptación simple. Probabilidad de Aceptación Falsa <50%

### Información suministrada por el cliente\*

Referencia de cliente: Mascarilla Verde  
Descripción de la muestra:  
Guía de remisión:

Lote 210125G

Código de Informe de Ensayo:

AR-21-YL-001303-01-ES

Código de muestra

560-2021-00000776

Fecha de emisión

11/02/2021

## FOTOGRAFÍA DE LA MUESTRA



**Código de Informe de Ensayo:**

AR-21-YL-001303-01-ES

**Código de muestra**

560-2021-00000776

**Fecha de emisión**

11/02/2021

**CONCLUSIÓN:**

| ENSAYO  | CUMPLE | NO CUMPLE | OBSERVACIONES  |
|---|--------|-----------|----------------|
| <b>• Eficiencia de Filtración Bacteriana (BFE)</b><br>EN 14683:2019+AC:2019 Anexo B |        |           |                |
| A - Original / As received  | X      |           |                |
| C - Tras 5 lavados / After 5 washes   | X      |           |                |
| <b>Lavado - Mascarilla reutilizable</b><br>ISO 6330:2012                            |        |           |                |
| B - Lavados / Washes  |        |           | VER RESULTADOS |
| <b>Respirabilidad (Presión diferencial)</b><br>EN 14683:2019+AC:2019 Anexo C        |        |           |                |
| A - Original / As received  | X      |           |                |
| C - Tras 5 lavados / After 5 washes   | X      |           |                |

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

Código de Informe de Ensayo: AR-21-YL-001303-01-ES  
Código de muestra 560-2021-00000776  
Fecha de emisión 11/02/2021

**LISTA DE COMPONENTES:**

| ID DEL COMPONENTE | NOMBRE DEL COMPONENTE               | DESCRIPCIÓN DEL MATERIAL | COLOR         | OBSERVACIONES |
|-------------------|-------------------------------------|--------------------------|---------------|---------------|
| CUST 01           | A - Original / As received          | Mask / Mascarilla        | Green / Verde | ---           |
| CUST 02           | B - Lavados / Washes                | Mask / Mascarilla        | Green / Verde | ---           |
| CUST 03           | C - Tras 5 lavados / After 5 washes | Mask / Mascarilla        | Green / Verde | ---           |

**Código de Informe de Ensayo:** AR-21-YL-001303-01-ES  
**Código de muestra:** 560-2021-00000776  
**Fecha de emisión:** 11/02/2021

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

## Análisis sobre:A - Original / As received

### • Eficiencia de Filtración Bacteriana (BFE)

Fecha fin de análisis: 11/02/2021

#### EN 14683:2019+AC:2019 Anexo B

|   |        |   |        |          |
|---|--------|---|--------|----------|
| Eficacia de filtración bacteriana (BFE) | 98.4 % | - | ≥ 90 % | ✓ Cumple |
|---|--------|---|--------|----------|

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

### Respirabilidad (Presión diferencial)

Fecha fin de análisis: 04/02/2021

#### EN 14683:2019+AC:2019 Anexo C

|                     |  |   |                        |          |
|---------------------|--|---|------------------------|----------|
| Presión diferencial | 20.3 Pa/cm <sup>2</sup> (± 1.2) Pa/cm <sup>2</sup> | - | <60 Pa/cm <sup>2</sup> | ✓ Cumple |
|---------------------|--|---|------------------------|----------|

Datos completos del ensayo incluidos en el Anexo.

## Análisis sobre:B - Lavados / Washes

### Lavado - Mascarilla reutilizable

Fecha fin de análisis: 04/02/2021

#### ISO 6330:2012

|   |                           |   |  |
|---|---------------------------|---|--|
| Número de ciclos de lavado                      | 5                         | - |  |
| Tipo de lavadora                                | A                         | - |  |
| Temperatura                                     | 60 °C                     | - |  |
| Procedimiento de lavado                         | 6N                        | - |  |
| Tipo de secado                                  | C - Secado en horizontal  | - |  |
| Detergente utilizado                            | Referencia 3              | - |  |
| Masa total seca de las probetas y el contrapeso | 2.0 kg                    | - |  |
| Tipo de contrapeso utilizado                    | Tipo III - 100% Poliéster | - |  |

|                                     |                       |
|-------------------------------------|-----------------------|
| <b>Código de Informe de Ensayo:</b> | AR-21-YL-001303-01-ES |
| <b>Código de muestra</b>            | 560-2021-00000776     |
| <b>Fecha de emisión</b>             | 11/02/2021            |

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

**Análisis sobre:C - Tras 5 lavados / After 5 washes**
**• Eficiencia de Filtración Bacteriana (BFE)**

Fecha fin de análisis: 11/02/2021

**EN 14683:2019+AC:2019 Anexo B**

Eficacia de filtración bacteriana (BFE)

98.3 %

-

≥ 90 %

✓ Cumple

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

**Respirabilidad (Presión diferencial)**

Fecha fin de análisis: 04/02/2021

**EN 14683:2019+AC:2019 Anexo C**

Presión diferencial

 19.3 Pa/cm<sup>2</sup> (± 1.0) Pa/cm<sup>2</sup>

-

 <60 Pa/cm<sup>2</sup>

✓ Cumple

Datos completos del ensayo incluidos en el Anexo.

**Código de Informe de Ensayo:** AR-21-YL-001303-01-ES  
**Código de muestra** 560-2021-00000776  
**Fecha de emisión** 11/02/2021

Firmado en representación de Eurofins Textile Testing Spain:



Informe validado electrónicamente por

**Axel Ferrando**

Responsable Laboratorio Físico/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%

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**FIN DEL INFORME**

**Eurofins Textile Testing Spain, S.L.U.**

Calle Germán Bernácer, 4

03203 Elche

ESPAÑA

Teléfono+34 966 299 638

[www.eurofins.com/tex](http://www.eurofins.com/tex)



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: N210128006/N210128006-11

Date of Issue: 01-Feb-2021



Sample Booking/Receipt Date: 28-Jan-2021

Date of Start of Testing: 28-Jan-2021

Date of Completion of Test: 01-Feb-2021

Customer Relationship Number 60680

**Sample Description :**

MASK SAMPLE DESCRIPTION 560-2021-00000776 ORIGINAL



**Customer Reference No**

EUA70-00010276 ORIGINAL

**Kind Attention :** MELODIE RUIZ

**E-Mail:** resultintercotexspain@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

Report Issued By

ULR-TC549221000001822F

Authenticity of report can be verified by mail at [verification@spectrolab.in](mailto:verification@spectrolab.in)

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

Spectro Analytical Labs Limited, E-41, Okhla Indl. Area, Phase-II, New Delhi-110020(India)

Phone :+91-11-40522000, 41611000 || Web: [www.spectro.in](http://www.spectro.in) || Email: [care@spectro.in](mailto:care@spectro.in)

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory

Please refer to our Website <http://www.spectro.in/spectro-policies.html> for Terms & Condition

## 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

Mask

#### 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 : 28.01.2021

#### 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  $21 \pm 5$  °C and a relative humidity of  $85 \pm 5$  %.

#### 8. Inoculum Size

Staphylococcus aureus ATCC 6538 ( $5 \times 10^5$  cfu/ml)

#### 9. Medium Used

Tryptic soya agar

#### 10. Temperature condition

37°C/20 to 52 hours

*Rity Tiwari*  
Analyst Signature



Testing(TC-5492)



ULR-TC549221000001822F



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 (%)                                     | 98.3        | Level 1= $\geq$ 95<br>Level 2= $\geq$ 98<br>Level 3= $\geq$ 98 | BS EN 14683:2019 |
|         |   | 98.8        |  |                  |
|         |   | 98.1        |  |                  |
|         |   | 98.6        |  |                  |
|         |   | 98.2        |  |                  |
|         | Average of BFE results (%)  | <b>98.4</b> |  |                  |
| 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            | 2.75        | 3 $\pm$ 0.3  | BS EN 14683:2019 |
| 5       | Average Plate count of Positive control of Staphylococcus aureus in count, per test | 1913        | 1700-3000  | BS EN 14683:2019 |
| 6       | Average Plate count of Negative control   | Negative    | Negative   | BS EN 14683:2019 |

**Remarks:** The sample showed average 98.4 % Bacterial filtration efficiency against Staphylococcus aureus ATCC 6538 according to BS EN 14683:2019 test method.

-- End of Test Report --

ULR-TC549221000001822F



*Rity Tiwari*  
Analyst Signature



Testing(TC-5492)

Authorised Signatory

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: N210206003/N210206003-11

Date of Issue: 11-Feb-2021



Sample Booking/Receipt Date: 06-Feb-2021

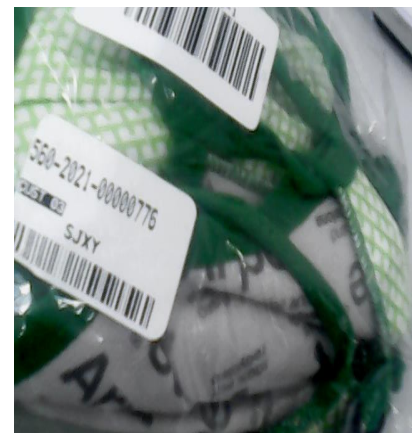
Date of Start of Testing: 06-Feb-2021

Date of Completion of Test: 11-Feb-2021

Customer Relationship Number 60680

**Sample Description :**

MASK SAMPLE DESCRTIPTION 560-2021-00000776 AFTER 5 WASHES



**Customer Reference No**

EUA70-00010276 AFTER 5 WASHES

**Kind Attention :** MELODIE RUIZ

**E-Mail:** resultintercotexspain@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

Report Issued By

ULR-TC549221000002290F

Authenticity of report can be verified by mail at [verification@spectrolab.in](mailto:verification@spectrolab.in)

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

Spectro Analytical Labs Limited, E-41, Okhla Indl. Area, Phase-II, New Delhi-110020(India)

Phone :+91-11-40522000, 41611000 || Web: [www.spectro.in](http://www.spectro.in)|| Email: [care@spectro.in](mailto:care@spectro.in)

ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory

Please refer to our Website <http://www.spectro.in/spectro-policies.html> for Terms & Condition

## 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

Mask

#### 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 : 06.02.2021

#### 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  $21 \pm 5$  °C and a relative humidity of  $85 \pm 5$  %.

#### 8. Inoculum Size

Staphylococcus aureus ATCC 6538 ( $5 \times 10^5$  cfu/ml)

#### 9. Medium Used

Tryptic soya agar

#### 10. Temperature condition

37°C/20 to 52 hours

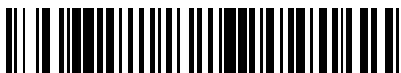
*Mahesh Bano*  
Analyst Signature



Testing(TC-5492)



ULR-TC549221000002290F



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 (%)                                     | 98.2        | Level 1= $\geq$ 95<br>Level 2= $\geq$ 98<br>Level 3= $\geq$ 98 | BS EN 14683:2019 |
|         |   | 98.6        |  |                  |
|         |   | 98.1        |  |                  |
|         |   | 98.4        |  |                  |
|         |   | 98.2        |  |                  |
|         | Average of BFE results (%)  | <b>98.3</b> |  |                  |
| 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            | 2.92        | 3 $\pm$ 0.3  | BS EN 14683:2019 |
| 5       | Average Plate count of Positive control of Staphylococcus aureus in count, per test | 1802        | 1700-3000  | BS EN 14683:2019 |
| 6       | Average Plate count of Negative control   | Negative    | Negative   | BS EN 14683:2019 |

**Remarks:** The sample showed average 98.3 % Bacterial filtration efficiency against Staphylococcus aureus ATCC 6538 according to BS EN 14683:2019 test method.

-- End of Test Report --

ULR-TC549221000002290F



*Mahvish Bano*  
Analyst Signature



Testing(TC-5492)

Authorised Signatory

**METHOD FOR DETERMINATION OF BREATHABILITY (DIFFERENTIAL PRESSURE)  
 DETERMINACIÓN DE LA RESPIRABILIDAD (PRESIÓN DIFERENCIAL)**

Test Method / Método de ensayo: EN 14683: 2019+AC: 2019 Annex C

Number of test specimens / Número de muestras de ensayo: 5

Number of test per specimen / Número de ensayos por muestra: 5

Sample area tested / Dimensión de la muestra de ensayo: Circular, diameter 2,5 cm/Circular, diametro 2,5 cm

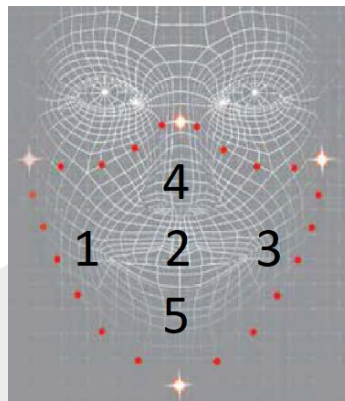
Tested area of the test sample / Tamaño del área sometida a ensayo: 4,9 cm<sup>2</sup>

Flow rate during testing / Caudal de aire: 8±0,6 l/min

General location of measurement areas / Ubicación general de las áreas de medición: Representative of the overall surface / Representativos de toda la superficie

Conditioning / Acondicionamiento: T<sup>a</sup> between 16,7°C and 26 °C. RH between 82,8% and 88 % during at least 4 h. / T<sup>a</sup> entre 16,7°C y 26 °C. HR entre 82,8% y 88% durante al menos 4 h.

Airflow direction during testing / Dirección del flujo de aire durante el ensayo: From the inner layer to the outer layer / Desde la capa interior hasta la capa exterior.



**Results original sample / Resultados muestra original**

| Specimen<br>Probeta | Units / Unidades (Pa)     |                           |                           |                           |                           | Mean value<br>Valor medio<br>(Pa) | ΔP<br>(Pa/cm <sup>2</sup> ) |
|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------------------------------|-----------------------------|
|                     | Position<br>Posición<br>1 | Position<br>Posición<br>2 | Position<br>Posición<br>3 | Position<br>Posición<br>4 | Position<br>Posición<br>5 |                                   |                             |
| 1                   | 101                       | 83                        | 96                        | 103                       | 92                        | 95                                | 19,4                        |
| 2                   | 103                       | 104                       | 97                        | 104                       | 102                       | 102                               | 20,8                        |
| 3                   | 104                       | 98                        | 103                       | 106                       | 100                       | 102                               | 20,9                        |
| 4                   | 102                       | 91                        | 101                       | 97                        | 95                        | 97                                | 19,8                        |
| 5                   | 101                       | 99                        | 112                       | 106                       | 83                        | 100                               | 20,4                        |
|                     |                           |                           |                           |                           |                           | Mean Value<br>Media               | 20,3                        |
|                     |                           |                           |                           |                           |                           | Uncertainty<br>Incertidumbre      | ± 1,2                       |

Results after 5 wash cycles at 60°C / Resultados tras 5 ciclos de lavado a 60°C

| Specimen<br>Probeta | Units / Unidades (Pa)     |                           |                           |                           |                           | Mean value<br>Valor medio<br>(Pa)    | ΔP<br>(Pa/cm <sup>2</sup> ) |
|---------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------------|-----------------------------|
|                     | Position<br>Posición<br>1 | Position<br>Posición<br>2 | Position<br>Posición<br>3 | Position<br>Posición<br>4 | Position<br>Posición<br>5 |                                      |                             |
| 1                   | 97                        | 91                        | 99                        | 97                        | 95                        | 96                                   | 19,6                        |
| 2                   | 92                        | 95                        | 94                        | 96                        | 102                       | 96                                   | 19,6                        |
| 3                   | 94                        | 92                        | 91                        | 92                        | 95                        | 93                                   | 18,9                        |
| 4                   | 95                        | 93                        | 92                        | 91                        | 93                        | 93                                   | 18,9                        |
| 5                   | 97                        | 90                        | 97                        | 96                        | 97                        | 95                                   | 19,5                        |
|                     |                           |                           |                           |                           |                           | <b>Mean Value<br/>Media</b>          | <b>19,3</b>                 |
|                     |                           |                           |                           |                           |                           | <b>Uncertainty<br/>Incertidumbre</b> | <b>± 1,0</b>                |

**Observation / Observación:**

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

**SUMMARY ACCEPTANCE CRITERIA FOR REUSABLE HYGIENIC MASKS ACCORDING TO  
 ESPECIFICACION UNE 0065:2020  
 RESUMEN CRITERIOS DE ACEPTACIÓN PARA MASCARILLAS HIGIÉNICAS REUTILIZABLES SEGÚN  
 UNE 0065:2020**

| Tests<br>Ensayos   | Acceptance criteria<br>Criterio de aceptación |
|--|---|
| Bacterial filtration efficiency (BFE), (%)(Section 5.2.2 of the UNE-EN 14683: 2019+AC: 2019 Standard)<br><i>Eficacia de filtración. (%) (BFE" (apartado 5.2.2 de la Norma UNE-EN 14683:2019+AC:2019)</i>   | ≥ 90  |
| Breathability (Differential pressure), (Pa/cm <sup>2</sup> )<br>(Section 5.2.3 of the UNE-EN 14683: 2019+AC: 2019 Standard)<br><i>Respirabilidad (Presión diferencial), (Pa/cm<sup>2</sup>) (apartado 5.2.3 de la Norma UNE-EN 14683:2019+AC:2019)</i> | < 60  |