

Job No./Report No: 20-013035

Date: 16/12/2020

Client: Fergotex - Fabrica de Malhas Texteis, LDA

Code: CL-1539

Address: Av. Conde de Arnoso,,1831 ARNOSO SANTA MARIA BRAGA PORTUGAL

Attn: Carlos Pereira

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The following sample was (were) submitted and identified by the client as:

| | |
|---------------------|------------------|
| Job no Report No.: | 20-013035 |
| Receiving Date: | 03/12/2020 |
| Test Start Date: | 16/12/2020 |
| Test End Date: | 16/12/2020 |
| Sample description: | HIGIENICAL MASKS |

Serie :

Batch No.:

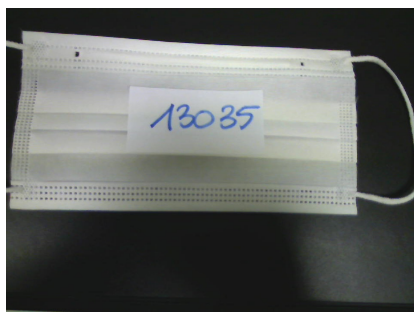
Reference No.: **MASK FRGMSK-05 BRANCO**

Composition indicated: **80%pes, 20%poliamida**

SUMMARY OF TEST CONCLUSIONS

| SOP description | Conclusions |
|---|-------------|
| SOP305 - Change of appearance after washing (Garments and fabrics) | Pass |
| SOP 342- Bacterial Filtration Efficiency (BFE) | Pass |
| SOP 342- Bacterial Filtration Efficiency (BFE) - After Washing | Pass |
| SOP106 - Determination of breathability (Differential Pressure) - Original | Pass |
| SOP106 - Determination of breathability (Differential Pressure) - After Washing | Pass |

Sample Tested



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SOP305 - Change of appearance after washing (Garments and fabrics)

| ID | ID AMSLab | Description | Conclusion |
|----|----------------|--|------------|
| 3 | S-201203-00266 | MASK WHITE (AFTER 10 WASHING CYCLES AT 60°C) | Pass |

| | CAS | S-201203-00266 |
|------------------------------------|-----|----------------|
| Change of appearance after washing | | No change |
| Number of cycles | | 10 |
| Washing Temperature | | 60°C |

Notes:

Note 1: Washing and drying process applied based on UNE-EN ISO 6330:2012

Note 2:

- Detergent: 20 gr of Commercial detergent / - Drying procedure: Air dry without tumble dry.
- n.a.: not applicable
- Requirement: No obvious change/colour/shape/appearance/seams/embroidery/trimmings/applications

Note 3 - Meaning of the grades of change of appearance:

- No change in appearance after washing and drying process
- Slight change in appearance after washing and drying process
- Moderate change in appearance after washing and drying process
- Severe change in appearance after washing and drying process

SOP 342- Bacterial Filtration Efficiency (BFE)

| ID | ID AMSLab | Description | Conclusion |
|----|----------------|-----------------------|------------|
| 2 | S-201203-00265 | MASK WHITE (ORIGINAL) | Pass |

| | CAS | S-201203-00265 |
|---|-----|----------------|
| Test 1: Bacterial Filtration Efficiency | | 90.7 |
| Test 1: Number of Bacteria | | 238 |
| Test 2: Bacterial Filtration Efficiency | | 91.0 |
| Test 2: Number of Bacteria | | 231 |
| Test 3: Bacterial Filtration Efficiency | | 91.1 |
| Test 3: Number of Bacteria | | 229 |
| Test 4: Bacterial Filtration Efficiency | | 91.4 |
| Test 4: Number of Bacteria | | 220 |
| Test 5: Bacterial Filtration Efficiency | | 90.9 |
| Test 5: Number of Bacteria | | 234 |

Notes:

Test Method: EN 14683:2019+AC:2019 (TS EN 14683+AC:2019) Annex-B / Medical Face Masks - Requirements and Test Methods

Requirements by specifications:

Spanish specification UNE 0064:2020: >=95%

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Spanish specification UNE 0065:2020: $\geq 90\%$
 European specification CWA 17553:2020: Level $\geq 90\%$ and
 European specification CWA 17553:2020: Level $\geq 70\%$

Other requirements:

- Surgical Mask type I by UNE-EN 14683: $\geq 95\%$
- Surgical Mask type II by UNE-EN 14683: $\geq 98\%$
- Surgical Mask type IIR by UNE-EN 14683: $\geq 98\%$

Report unit Bacterial Filtration Efficiency = %
 Report unit Number of Bacteria = cfu/mL

A specimen of the mask material is clamped between a impactor and an aerosol chamber. An aerosol of Staphylococcus aureus is introduced into the aerosol chamber and drawn through the mask material and the impactor under vacuum. The bacterial filtration efficiency of the mask is given by the number of colony forming units passing through the medical face mask material expressed as a percentage of the number of colony forming units present in the challenge aerosol.

Test Flow Rate: 28,3 L/min
 Test Flow Time: 2 minute
 Sample Sizes: 10x10 cm²
 Microorganism: Staphylococcus aureus ATCC 6538
 Bacterial concentration (cfu/ml): 5×10^5 cfu/ml
 Incubation conditions: 24 hour, 35C \pm 2C
 Positive control sample average of number of Bacteria (C): 2.57×10^3 cfu/ml

(*) Test subcontracted and accredited for medical mask tests (EN 14683). Results in subcontracted report number: 20046213

SOP 342- Bacterial Filtration Efficiency (BFE) - After Washing

| ID | ID AMSLab | Description | Conclusion |
|----|----------------|--|------------|
| 5 | S-201203-00268 | MASK WHITE (AFTER 10 WASHING CYCLES AT 60°C) | Pass |

| | CAS | S-201203-00268 |
|---|-----|----------------|
| Test 1: Bacterial Filtration Efficiency | | 90.1 |
| Test 1: Number of Bacteria | | 254 |
| Test 2: Bacterial Filtration Efficiency | | 90.3 |
| Test 2: Number of Bacteria | | 249 |
| Test 3: Bacterial Filtration Efficiency | | 90.5 |
| Test 3: Number of Bacteria | | 243 |
| Test 4: Bacterial Filtration Efficiency | | 90.7 |
| Test 4: Number of Bacteria | | 240 |
| Test 5: Bacterial Filtration Efficiency | | 90.3 |
| Test 5: Number of Bacteria | | 250 |

Notes:

Test Method: EN 14683:2019+AC:2019 (TS EN 14683+AC:2019) Annex-B / Medical Face Masks - Requirements and Test Methods

Requirements by specifications:

Spanish specification UNE 0064:2020: $\geq 95\%$
 Spanish specification UNE 0065:2020: $\geq 90\%$
 European specification CWA 17553:2020: Level $\geq 90\%$ and
 European specification CWA 17553:2020: Level $\geq 70\%$

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Other requirements:

- Surgical Mask type I by UNE-EN 14683: $\geq 95\%$
- Surgical Mask type II by UNE-EN 14683: $\geq 98\%$
- Surgical Mask type IIR by UNE-EN 14683: $\geq 98\%$

Report unit Bacterial Filtration Efficiency = %

Report unit Number of Bacteria = cfu/mL

A specimen of the mask material is clamped between an impactor and an aerosol chamber. An aerosol of Staphylococcus aureus is introduced into the aerosol chamber and drawn through the mask material and the impactor under vacuum. The bacterial filtration efficiency of the mask is given by the number of colony forming units passing through the medical face mask material expressed as a percentage of the number of colony forming units present in the challenge aerosol.

Test Flow Rate: 28,3 L/min

Test Flow Time: 2 minute

Sample Sizes: 10x10 cm²

Microorganism: Staphylococcus aureus ATCC 6538

Bacterial concentration (cfu/ml): 5x10E5 cfu/ml

Incubation conditions: 24 hour, 35C \pm 2C

Positive control sample average of number of Bacteria (C): 2.57x10E3 cfu/ml

(*) Test subcontracted and accredited for medical mask tests (EN 14683). Results in subcontracted report number: 20046214

SOP106 - Determination of breathability (Differential Pressure) - Original

| ID | ID AMSLab | Description | Conclusion |
|----|----------------|-----------------------|------------|
| 1 | S-201203-00264 | MASK WHITE (ORIGINAL) | Pass |

| | CAS | S-201203-00264 |
|---|-----|----------------|
| Average Differential pressure (Pa/cm ²) | | 11 |
| Value 1 Differential pressure (Pa/cm ²) | | 11 |
| Value 2 Differential pressure (Pa/cm ²) | | 12 |
| Value 3 Differential pressure (Pa/cm ²) | | 12 |
| Value 4 Differential pressure (Pa/cm ²) | | 11 |
| Value 5 Differential pressure (Pa/cm ²) | | 10 |

Notes:

Note 1: Applied standard UNE-EN 14683:2019 and Spanish Specification UNE 0064-1, 0064-2, 0065 and European Specification CWA 17553

Note 2: Size of test specimen: 4.9 cm²

Note 3: Tested area of the test specimen: 2.5 cm

Note 4: Flow of air: (8 \pm 0.2) l/min

Note 5: Velocity of 272 l/m²/s or 272 mm/s

Note 6: Report Unit: Pa and P (Pa/cm²)

Note 7: Number of samples tested: 5 / Number of measurements: 5

Note 8: Conditioned samples: 4 hours at 21 \pm 5 °C and 85 \pm 5 HR

Note 9: n.a. = not applicable

Requirements by specifications:

- Non-reusable Hygienic Mask by UNE 0064-1-2: < 60 Pa/cm²
- Reusable Hygienic Mask by UNE 0065: < 60 Pa/cm²
- European specification CWA 17553:2020: ≤ 70 Pa/cm²

Other requirements:

- Surgical Mask type I by UNE-EN 14683: < 40 Pa/cm²
- Surgical Mask type II by UNE-EN 14683: < 40 Pa/cm²

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- Surgical Mask type IIR by UNE-EN 14683: < 60 Pa/cm²

Specific Notes:

(**) The result is out of specifications

SOP106 - Determination of breathability (Differential Pressure) - After Washing

| ID | ID AMSLab | Description | Conclusion |
|----|----------------|--|------------|
| 4 | S-201203-00267 | MASK WHITE (AFTER 10 WASHING CYCLES AT 60°C) | Pass |

| | CAS | S-201203-00267 |
|---|-----|----------------|
| Average Differential pressure (Pa/cm ²) | | 11 |
| Value 1 Differential pressure (Pa/cm ²) | | 11 |
| Value 2 Differential pressure (Pa/cm ²) | | 11 |
| Value 3 Differential pressure (Pa/cm ²) | | 10 |
| Value 4 Differential pressure (Pa/cm ²) | | 9 |
| Value 5 Differential pressure (Pa/cm ²) | | 11 |

Notes:

Note 1: Applied standard UNE-EN 14683:2019 and Spanish Specification UNE 0064-1, 0064-2, 0065 and European Specification CWA 17553

Note 2: Size of test specimen: 4.9 cm²

Note 3: Tested area of the test specimen: 2.5 cm

Note 4: Flow of air: (8 ± 0.2) l/min

Note 5: Velocity of 272 l/m²/s or 272 mm/s

Note 6: Report Unit: Pa and P (Pa/cm²)

Note 7: Number of samples tested: 5 / Number of measurements: 5

Note 8: Conditioned samples: 4 hours at 21 ± 5 °C and 85 ± 5 HR

Note 9: n.a. = not applicable

Requirements by specifications:

- Non-reusable Hygienic Mask by UNE 0064-1-2: < 60 Pa/cm²

- Reusable Hygienic Mask by UNE 0065: < 60 Pa/cm²

- European specification CWA 17553:2020: <= 70 Pa/cm²

Other requirements:

- Surgical Mask type I by UNE-EN 14683: < 40 Pa/cm²

- Surgical Mask type II by UNE-EN 14683: < 40 Pa/cm²

- Surgical Mask type IIR by UNE-EN 14683: < 60 Pa/cm²

Specific Notes:

(**) The result is out of specifications

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Issue Date: 16/12/2020

Signed: Manuel Lolo


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General Manager

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Chemical Lab Manager

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Physical Lab Manager

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