TEST REPORT

SOP and results with (#) are not included in the ENAC acreditation scope

Job No./Report No: 21-002421
Date: **22/03/2021**

Client: Textil Artigas, S.L. **Code:** CL-1577
Address: Passatge Indústria,3 LLIÇÀ D'AMUNT BARCELONA ESPAÑA
Attn: Carles Cabré Alarcón **e-MAIL:** carlescabre2009@gmail.com
Tel: 0034 649843066 **Fax:**

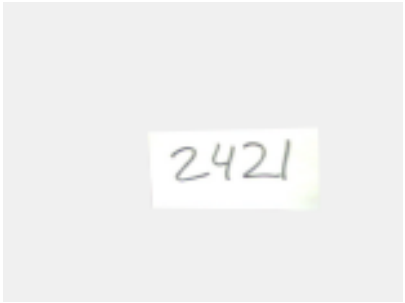
The following sample was (were) submitted and identified by the client as:

Serie :		Job no Report No.:	**21-002421**
Batch No.:		Receiving Date:	**26/02/2021**
Reference No.:	**VISIBLEMASK/TRANS 60 50 2021 ES001 (según cliente Acabado Virobloc)**	Test Start Date:	**04/03/2021**
		Test End Date:	**22/03/2021**
Composition indicated:	**100% polyamide**	Sample description:	**RAW MATERIAL (MASK)**

#SUMMARY OF TEST CONCLUSIONS

SOP description	#Conclusions
#SOP305 - Change of appearance after washing (Garments and fabrics)	Pass
#SOP 342- Bacterial Filtration Efficiency (BFE) - (Test subcontracted to an accredited laboratory)	Pass
#SOP 342- Bacterial Filtration Efficiency (BFE)-After Washing (Test subcontracted to an accredited lab)	See Results
#SOP347 - Determination of breathability (Differential Pressure) by UNE-EN 14683 annex C - Original	Pass
#SOP347 - Determination of breathability (Differential Pressure) by UNE-EN 14683 annex C - After Washing	Pass
SOP106 - Determination of Air Permeability by ISO 9237 (for CWA 17553) - Original	Pass
SOP106 - Determination of Air Permeability by ISO 9237 (for CWA 17553) - After washing	Pass

Sample Tested



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-Reported results do not include uncertainties (but are available for the customer).
-Opinions and interpretations expressed herein are outside the scope of accreditation.
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SOP305 - Change of appearance after washing (Garments and fabrics)

ID	ID AMSLab	Description	# Conclusion
3	S-210226-00249	FABRIC MASK MULTICOLOR (AFTER 5 WASHING CYCLES AT 60ºC)	Pass
ID	**ID AMSLab**	**Description**	**# Conclusion**
10	S-210226-00256	FABRIC MASK MULTICOLOR (AFTER 10 WASHING CYCLES AT 60ºC)	Pass
ID	**ID AMSLab**	**Description**	**# Conclusion**
11	S-210226-00257	FABRIC MASK MULTICOLOR (AFTER 15 WASHING CYCLES AT 60ºC)	Pass

	CAS	S-210226-00249	S-210226-00256	S-210226-00257
Change of appearance after washing		No change	No change	No change
Number of cycles		5	10	15
Washing Temperature		60ºC	60ºC	60ºC

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) - (Test subcontracted to an accredited laboratory)

ID	ID AMSLab	Description	# Conclusion
12	S-210308-00038	FABRIC FOR MASK MULTICOLOR (ORIGINAL)	Pass

	CAS	S-210308-00038
Test 1: Bacterial Filtration Efficiency		90.1
Test 1: Number of Bacteria		298
Test 2: Bacterial Filtration Efficiency		90.2
Test 2: Number of Bacteria		300
Test 3: Bacterial Filtration Efficiency		90.2
Test 3: Number of Bacteria		295

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	CAS	S-210308-00038
Test 4: Bacterial Filtration Efficiency		90.2
Test 4: Number of Bacteria		294
Test 5: Bacterial Filtration Efficiency		90.3
Test 5: Number of Bacteria		292

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%
Spanish specification UNE 0065:2020: >= 90%
European specification CWA 17553:2020: Level >= 90% and
European specification CWA 17553:2020: Level >= 70%

Other requirements:
- Surgical Mask type I by UNE-EN 14683: >= 95%
- Surgical Mask type II by UNE-EN 14683: >= 98%
- Surgical Mask type IIR by UNE-EN 14683: >= 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): 5x10E5 cfu/ml
Incubation conditions: 24 hour, 35C ± 2C
Positive control sample average of number of Bacteria (C): 3.0x10E3 cfu/ml

(*) Test subcontracted and accredited laboratory (EKOTEKS LABORATUVAR VE GÖZETM HZMETLER A. .) for medical mask for tests (EN 14683). Results in subcontracted report number: 21009195
The Turkish Accreditation Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of test reports.
EKOTEKS LABORATUVAR VE GÖZETM HZMETLER A. . Deney Laboratuvar, is accredited by TURKAK under registration number (AB-0583-T) for ISO 17025:2017 as test laboratory.

SOP 342- Bacterial Filtration Efficiency (BFE)-After Washing (Test subcontracted to an accredited lab)

ID	ID AMSLab	Description	# Conclusion
13	S-210308-00039	FABRIC FOR MASK MULTICOLOR (AFTER 5 WASHING CYCLES AT 60ºC)	See Results
ID	**ID AMSLab**	**Description**	**# Conclusion**
14	S-210308-00040	FABRIC FOR MASK MULTICOLOR (AFTER 10 WASHING CYCLES AT 60ºC)	See Results
ID	**ID AMSLab**	**Description**	**# Conclusion**
15	S-210308-00041	FABRIC FOR MASK MULTICOLOR (AFTER 15 WASHING	See Results

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15	S-210308-00041	CYCLES AT 60ºC)	See Results

	CAS	S-210308-00039	S-210308-00040	S-210308-00041
Test 1: Bacterial Filtration Efficiency		88.9	86.6	84.8
Test 1: Number of Bacteria		332	401	455
Test 2: Bacterial Filtration Efficiency		88.6	86.4	84.5
Test 2: Number of Bacteria		341	409	464
Test 3: Bacterial Filtration Efficiency		88.5	86.0	84.1
Test 3: Number of Bacteria		346	419	476
Test 4: Bacterial Filtration Efficiency		88.7	86.5	84.5
Test 4: Number of Bacteria		340	406	465
Test 5: Bacterial Filtration Efficiency		88.6	86.1	84.8
Test 5: Number of Bacteria		342	417	455

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%
Spanish specification UNE 0065:2020: >= 90%
European specification CWA 17553:2020: Level >= 90% and
European specification CWA 17553:2020: Level >= 70%

Other requirements:
- Surgical Mask type I by UNE-EN 14683: >= 95%
- Surgical Mask type II by UNE-EN 14683: >= 98%
- Surgical Mask type IIR by UNE-EN 14683: >= 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): 5x10E5 cfu/ml
Incubation conditions: 24 hour, 35C ± 2C
Positive control sample average of number of Bacteria (C): 3.0x10E3 cfu/ml

(*) Test subcontracted and accredited laboratory (EKOTEKS LABORATUVAR VE GÖZETM HZMETLER A. .) for medical mask for tests (EN 14683). Results in subcontracted report number: 21009196 for samples for 5 washing cycles, 21009199 for samples for 10 washing cycles and 21009197 for samples for 15 washing cycles.
The Turkish Accreditation Agency (TURKAK) is signatory to the multilateral agreements of the European co-operation for the Accreditation (EA) and of the International Laboratory Accreditation (ILAC) for the Mutual recognition of test reports.
EKOTEKS LABORATUVAR VE GÖZETM HZMETLER A. . Deney Laboratuvar, is accredited by TURKAK under registration number (AB-

0583-T) for ISO 17025:2017 as test laboratory.

SOP347 - Determination of breathability (Differential Pressure) by UNE-EN 14683 annex C - Original

ID	ID AMSLab	Description	# Conclusion
1	S-210226-00247	FABRIC MASK MULTICOLOR	Pass

	CAS	S-210226-00247
Average Differential pressure (Pa/cm2)		42
Value 1 Differential pressure (Pa/cm2)		43
Value 2 Differential pressure (Pa/cm2)		41
Value 3 Differential pressure (Pa/cm2)		42
Value 4 Differential pressure (Pa/cm2)		42
Value 5 Differential pressure (Pa/cm2)		43

Notes:
Note 1: Applied standard UNE-EN 14683:2019+AC:2019 Annex C for breathability (Differential Pressure)
Note 2: For requirements: Spanish Specification UNE 0064-1, 0064-2, 0065 and European Specification CWA 17553
Note 3: Size of test specimen: 4.9 cm2
Note 4: Tested area of the test specimen: 2.5 cm
Note 5: Flow of air: (8 ± 0.2) l/min
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 ºC 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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SOP347 - Determination of breathability (Differential Pressure) by UNE-EN 14683 annex C - After Washing

ID	ID AMSLab	Description	# Conclusion
2	S-210226-00248	FABRIC MASK MULTICOLOR (AFTER 5 WASHING CYCLES AT 60ºC)	Pass

ID	ID AMSLab	Description	# Conclusion
6	S-210226-00252	FABRIC MASK MULTICOLOR (AFTER 10 WASHING CYCLES AT 60ºC)	Pass

ID	ID AMSLab	Description	# Conclusion
7	S-210226-00253	FABRIC MASK MULTICOLOR (AFTER 15 WASHING CYCLES AT 60ºC)	Pass

	CAS	S-210226-00248	S-210226-00252	S-210226-00253
Average Differential pressure (Pa/cm2)		43	48	52
Value 1 Differential pressure (Pa/cm2)		43	49	54
Value 2 Differential pressure (Pa/cm2)		44	47	53
Value 3 Differential pressure (Pa/cm2)		44	47	51
Value 4 Differential pressure (Pa/cm2)		42	48	51
Value 5 Differential pressure (Pa/cm2)		43	48	53

Notes:
Note 1: Applied standard UNE-EN 14683:2019+AC:2019 Annex C for breathability (Differential Pressure)
Note 2: For requirements: Spanish Specification UNE 0064-1, 0064-2, 0065 and European Specification CWA 17553
Note 3: Size of test specimen: 4.9 cm2
Note 4: Tested area of the test specimen: 2.5 cm
Note 5: Flow of air: (8 ± 0.2) l/min
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 ºC 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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SOP106 - Determination of Air Permeability by ISO 9237 (for CWA 17553) - Original

ID	ID AMSLab	Description	# Conclusion
4	S-210226-00250	FABRIC MASK MULTICOLOR	Pass

	CAS	S-210226-00250
(I.C. 95%) - Confidence Interval ±		2.7
Mean Value air permeability (l/m2/seg)		147.0
Standard deviation		3.7
Value 10 (l/m2/seg)		142.0
Value 1 (l/m2/seg)		147.0
Value 2 (l/m2/seg)		148.0
Value 3 (l/m2/seg)		151.0
Value 4 (l/m2/seg)		145.0
Value 5 (l/m2/seg)		153.0
Value 6 (l/m2/seg)		146.0
Value 7 (l/m2/seg)		151.0
Value 8 (l/m2/seg)		144.0
Value 9 (l/m2/seg)		143.0

Notes:
Note 1: Applied standard UNE-EN 14683:2019 and European Specification CWA 17553:2020
Note 2: Applied pressure: 100 Pa
Note 3: Applied area: 5 cm2
Note 4: Report Unit: l/m2/seg (= mm/seg)
Note 5: Number of measurements: 10
Note 6: Conditioned samples: 24 hours at 20 ± 2 ºC and 65 ± 4 HR
Note 7: n.a. = not applicable
Note 8: Standard deviation units and I.C. 95% units: l/m2/seg

Requirements by specifications:
- European specification CWA 17553:2020: >= 96 l/m2/s

Specific Notes:
(**) The result is out of specifications

SOP106 - Determination of Air Permeability by ISO 9237 (for CWA 17553) - After washing

ID	ID AMSLab	Description	# Conclusion
5	S-210226-00251	FABRIC MASK MULTICOLOR (AFTER 5 WASHING CYCLES AT 60ºC)	Pass

ID	ID AMSLab	Description	# Conclusion
8	S-210226-00254	FABRIC MASK MULTICOLOR (AFTER 10 WASHING CYCLES AT 60ºC)	Pass

ID	ID AMSLab	Description	# Conclusion
9	S-210226-00255	FABRIC MASK MULTICOLOR (AFTER 15 WASHING	Pass

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9	S-210226-00255	CYCLES AT 60ºC)	Pass

	CAS	S-210226-00251	S-210226-00254	S-210226-00255
(I.C. 95%) - Confidence Interval ±		3.9	2.9	2.5
Mean Value air permeability (l/m2/seg)		127.6	122.1	111.5
Standard deviation		5.5	4.1	3.5
Value 10 (l/m2/seg)		120.0	121.0	110.0
Value 1 (l/m2/seg)		132.0	126.0	117.0
Value 2 (l/m2/seg)		128.0	121.0	116.0
Value 3 (l/m2/seg)		129.0	119.0	109.0
Value 4 (l/m2/seg)		124.0	125.0	111.0
Value 5 (l/m2/seg)		124.0	130.0	112.0
Value 6 (l/m2/seg)		136.0	118.0	108.0
Value 7 (l/m2/seg)		127.0	116.0	106.0
Value 8 (l/m2/seg)		135.0	122.0	114.0
Value 9 (l/m2/seg)		121.0	123.0	112.0

Notes:
Note 1: Applied standard UNE-EN 14683:2019 and European Specification CWA 17553:2020
Note 2: Applied pressure: 100 Pa
Note 3: Applied area: 5 cm2
Note 4: Report Unit: l/m2/seg (= mm/seg)
Note 5: Number of measurements: 10
Note 6: Conditioned samples: 24 hours at 20 ± 2 ºC and 65 ± 4 HR
Note 7: n.a. = not applicable
Note 8: Standard deviation units and I.C. 95% units: l/m2/seg

Requirements by specifications:
- European specification CWA 17553:2020: >= 96 l/m2/s

Specific Notes:
(**) The result is out of specifications

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Issue Date: 22/03/2021

Signed: Manuel Lolo	Signed: Pablo Perez	Signed: Esteban Ramirez
General Manager	Chemical Lab Manager	Physical Lab Manager

Test report reviewed by Esteban Ramírez (Physical Tests) and Pablo Pérez (Chemical Tests)

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