TEST REPORT

2019AN1229

DATE OF RECEPTION
18/04/2019

DATE TESTS
Starting: 23/04/2019
Ending: 21/05/2019

APPLICANT

GABRIEL A/S
HULMAGERVEJ 55
DK-9000 Ålborg

Att. BENTE ELLINGSOE

IDENTIFICATION AND DESCRIPTION OF SAMPLES

REFERENCES
Fabric Ref: Step Melange/ Light grey 244160004

TESTS CARRIED OUT

- COLOUR FASTNESS TO ARTIFICIAL LIGHT
- COLOUR FASTNESS TO RUBBING
- DETERMINATION OF THE SLIPPAGE RESISTANCE OF YARNS AT A SEAM IN WOVEN FABRICS: FIXED SEAM OPENING METHOD.
- DETERMINATION OF BREAKING STRENGTH AND ELONGATION.
- RESISTANCE TO PILLING.
- DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS.
- DETERMINATION OF THE ELASTICITY OF FABRICS. MULTIAXIAL TEST.
- DETERMINATION OF TEAR RESISTANCE.

Tests marked with * are not included within the scope of the ENAC accreditation

Rev.1 This revision cancels and replaces the previous

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RESULTS

COLOUR FASTNESS TO ARTIFICIAL LIGHT

Standard

EN ISO 105-B02:2014. Method 2

Apparatus

Xenotest 440 02423E06

Exposure conditions

Normal

Evaluation conditions

Light camera Gretagmacbeth (02021N06)

Reference	Light fastness
Fabric Ref: Step Melange/ Light grey 244160004	8

REMARK

The fastness grade indicated comes up to:
- Depth change: More clear
- Hue change: No notes
- Brightness change: No notes

MEANING OF COLOUR VALUES FASTNESS TO ARTIFICIAL LIGHT

VALUE	MEANING
8	EXCELLENT
7	VERY GOOD
6	GOOD
5	MODERATE
4	FAIR
3	POOR BEHAVIOUR
2	POOR BEHAVIOUR
1	VERY POOR

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RESULTS

COLOUR FASTNESS TO RUBBING

Standard
ISO 105-X12:2016

Apparatus
Crockmeter

Starting test date
23/04/2019

Ending test date
08/05/2019

Conditioning time
> 4 H

Atmosphere for conditioning and testing

Temperature	(20±2) ºC
Relative Humidity	(65±2) %Hr

Pin
Cylindrical

Applied force
(9 ± 0,2) N

% of water absorption for rubbing in humid
95-100 %

REFERENCE	DIRECTION	DRY STAINING	WET STAINING
Fabric Ref: Step Melange/ Light grey 244160004	Warp	4-5	4-5
	Weft	4-5	4-5

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RESULTS

DETERMINATION OF THE SLIPPAGE RESISTANCE OF YARNS AT A SEAM IN WOVEN FABRICS: FIXED SEAM OPENING METHOD

Standard

EN ISO 13936-1:2004

Apparatus

INSTRON Dynamometer

Atmosphere for conditioning and testing

Temperature	(20±2) ºC
Relative Humidity	(65±4) %

Reference	Stitching direction	Force necessary to produce an opening of - mm (average values N)				
		2 mm	**3 mm**	**4 mm**	**5 mm**	**6 mm**
FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004	Warp	110.07	235.03	424.24	435.77	435.77
	Weft	180.23	321.08	424.27	446.75	446.75

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RESULTS

DETERMINATION OF BREAKING STRENGTH AND ELONGATION

Standard

EN ISO 13934-1:2013

Apparatus

INSTRON Dynamometer

Conditioning date

23/04/2019 – 25/04/2019

Test date

25/04/2019

Gauge length

200 mm

Rate of extension

100 mm/min

Pretension

Warp 5 N **Weft** 5 N

Atmosphere for conditioning and testing

Temperature (20±2) ºC **Relative humidity** (65±4) %

Nº of specimens

Tested 5 for each direction **Rejected** 0

Reference	**FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004**			
Direction	**Average load (N)**	**C.V. (%)**	**Elongation to the maximum load (%)**	**C.V. (%)**
Warp	2100	2.0	60.0	2.0
Weft	2000	3.0	52.0	3.2

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RESULTS

RESISTANCE TO PILLING

Standard
EN ISO 12945-2:2000

Apparatus
MARTINDALE Abrasion Tester

Atmosphere for conditioning and testing according accordance EN ISO 139:2005/A1:2011

Temperature	(20±2) ºC	**Relative humidity**	(65±4) %
Nº of specimens tested	3	**Number of observers**	2
Testing conditions	Fabric to fabric rubbing	**Testing pressure**	(415±2) g
Previous treatment	Null		

Reference	**Pilling degree**				
FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004	**Cycles**	**125**	**500**	**1000**	**2000**
		5	5	5	5

TABLE 1 - VISUAL EXAMINATION	
CLASS	**DESCRIPTION**
5	No visual change
4	Fuzz light formation in the surface
3	Fuzz formation moderated in the surface and / or formation of little bolls. little bolls of several sizes and densities that cover partially the surface of the specimen
2	Fuzz formation accentuated in the surface and / or marked formation of little bolls. little bolls of several sizes and densities that cover a great part of the surface of the specimen
1	Formation of dense fuzz in the surface and / or severe formation of little bolls. little bolls of several sizes and densities that cover the totality of the surface of the specimen

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RESULTS

DETERMINATION OF THE ABRASION RESISTANCE OF FABRICS

Standard
EN ISO 12947-2:2016

Apparatus
Abrasímetro Martindale

Conditioning date
24/04/2019

Test date
15/05/2019

Atmosphere for conditioning and testing according accordance EN ISO 139:2005/A1:2011
Temperature (20±2) ºC **Relative humidity** (65±4) %

Testing conditions
Rubbing against SM-25 abradant fabric

Testing pressure
9 kPa

End point
Two broken thread

Formation of little ballsat end of test
Yes

Pilling grade rating at the end of test
4-5

Reference	**FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004**
Specimens	**No. of cycles in the inspection interval before the end of the test is reached**
1	>100000
2	>100000
3	>100000
4	>100000
Lowest individual result	**>100000**

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RESULTS

DETERMINATION OF THE ELASTICITY OF FABRICS. MULTIAXIAL TEST

Standard

EN 14704-2:2007, Method A

Apparatus

Instron Dynamometer

Rate of extension

100 mm/min

Atmosphere for conditioning and testing

Temperature	(20±2) ºC
Relative Humidity	(65±5) %

Nº of cycles

5

Force applied earlier and after the cycles

0.2 N

Maximum force of the cycle

50 N

Number of test pieces

5

Reference	**FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004**			
Maximum deformation (mm)		**C.V. (%)**	**No recovery deformation (mm)**	**C.V. (%)**
1 3.16 **2** 2.91 **3** 2.91 **4** 2.78 **5** 3.10	**2.97**	5.22	**1** 2.33 **2** 2.07 **3** 2.23 **4** 2.19 **5** 2.39	**2.24**	5.55

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RESULTS

DETERMINATION OF TEAR RESISTANCE

Standard

EN ISO 13937-3:2000

Apparatus

INSTRON Dynamometer

Atmosphere for conditioning and testing

Temperature (20±2) ºC **Relative humidity** (65±4) %

Nº of specimens

Tested 5 for each direction **Rejected** 0

The calculation of averages has been made

For electronic device

Reference	Tear	Average load (N)	C.V. (%)
FABRIC REF: STEP MELANGE/ LIGHT GREY 244160004	Warp	150	2.1
	Weft	130	1.5

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Isabel Soriano
Chief of Innovation Area

Digitally signed by MARIA ISABEL SORIANO SARRIO - NIF:52716426N
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