

TFT**(Ilkley) Ltd.****The Sidings Business Park, SKIPTON, North Yorkshire, BD23 1TB
Phone or Fax 01756 792525**

Office: 30 Alexandra Crescent, ILKLEY, West Yorkshire, LS29 9ER, Phone or Fax 01943 603459

Reg. No. 3168606, VAT No. 659 9604 77



TEST CERTIFICATE

No. G20072/1A

SAMPLE INFORMATION

Client **Gabriel A/S
Hjulmagervej 55, DK-9000 Aalborg**

Details supplied by the client **Contour - col.62041 Green Yellow**

Dimensions **600cm by 147cm**

Date Received **02 July 2020**

Date Tested **06 July 2020-14 July 2020**

CONDITIONING

Unless otherwise stated, where it is required conditioning has been carried out at the standard atmosphere defined in BS EN ISO 139:2005+A1:2011, Textiles – standard atmospheres for conditioning and testing.

The samples have been conditioned for the time specified in each test standard at a temperature of 20 ± 2 C and a relative humidity of 65 ± 4 %. These specified ranges are reduced by the uncertainty of measurement of the data loggers. The conditions are maintained within these reduced ranges.

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TESTING**Modified Martindale Pilling ***

The fabric was conditioned and tested according to BS EN ISO 12945-2:2000 – Textiles – Determination of fabric propensity to surface fuzzing and to pilling – Part 2: Modified Martindale method.

The fabric was tested as received, using 3 specimens cut from different areas of the fabric.

Evaluation was carried out tested with wool abrasant and a loading mass of 415 g.

The results are shown in the table below:

Number of revolutions	Grade	Type of wear
500	5	No change
1000	4-5	Fuzzing
2000	4-5	Fuzzing
5000	4-5	Fuzzing

The grade at 2000 revolutions is used to define the performance of the fabric to pilling. The other grades are reported as required by the standard, but are for information only.

The grade was assessed using the following definitions from the standard:

Grade	Description
5	No change.
4	Slight surface fuzzing and/or partially formed pills.
3	Moderate surface fuzzing and/or moderate pilling.
2	Distinct surface fuzzing and/or distinct pilling.
1	Dense surface fuzzing and/or severe pilling.

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Tensile Properties of Fabrics - Strip Method

A minimum of five warp and five weft specimens were conditioned and tested according to BS EN ISO 13934-1 : 2013 Textiles – Tensile properties of fabrics - Part 1 : Determination of maximum force and elongation at maximum force using the strip method.

Testing was carried out on a constant-rate-of extension (CRE) testing machine, with a gauge length of 200 mm and with a rate of extension of 100 mm/min.

A pretension of 5 N was applied prior to testing.

A 'jaw break' is defined as a failure within 5mm of a jaw. Where five normal results are recorded without including any jaw breaks that lie outside of the normal results, the results are summarised in the table below:

	Warp	Weft
Mean Tensile Strength N	1300	1400
Mean Elongation %	67	68
CV of Tensile Strength %	4.3	5.2
CV of Elongation %	1.8	4.6

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Seam Slippage – Fixed Load Method

Five pairs of warp and weft specimens were conditioned and tested according to BS EN ISO 13936-2:2004 Textiles – Determination of the slippage resistance of yarns at a seam in woven fabrics, Part 2: fixed load method.

The seam was formed using a 100% polyester core spun tex 74 ± 5 tex thread.

Testing was carried out on a constant-rate-of extension (CRE) testing machine and the results are generated by the related software.

The maximum force applied was 180 N.

The results are shown in the table below:

	Warp	Weft
Mean value of seam opening (mm)	4	4
Number of fabric breaks	0	0
Number of seam breaks	0	0

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Tear Strength - Wing Rip

Five warp and five weft specimens were conditioned and tested according to BS EN ISO 13937-3:2000 – Textiles – Tear properties of fabrics – Part 3: Determination of tear force of wing-shaped test specimens (Single tear method).

Testing was carried out on a constant-rate-of extension (CRE) testing machine, using a 500N load cell, and the results were calculated electronically.

The results are shown in the table below:

Specimen	Mean peak tear force in Newtons (Rounded to 2 significant figures)	
	Warp	Weft
1	145	116
2	162	119
3	150	116
4	165	115
5	149	120
Mean result	154	117

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Colour Fastness to Rubbing

The fabric was tested according to BS EN ISO 105 - X12 : 2016 Textiles - Tests for colour fastness – Colour fastness to rubbing. The cotton rubbing finger diameter was 16mm. The cotton rubbing fabric was assessed using grey scales.

The results are shown in the table below:

Shade change is not a requirement in the standard but was requested by the customer.

	Warp	Weft
Shade change	5	5
Dry	5	5
Wet	5	5

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**Colour Fastness to Water**

The fabric was tested according to BS EN ISO 105 - E01: 2013 Textiles - Tests for colour fastness - Colour fastness to water, and assessed for change in colour and staining of SDC multifibre strip adjacent to fabric, using grey scales.

The results are shown in the table below:

	Grade
Change of shade	5
Staining - secondary cellulose acetate	5
- bleached unmercerized cotton	5
- nylon 6.6	5
- polyester	5
- acrylic	5
- wool worsted	5

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Colour Fastness to Dry Cleaning

The fabric was conditioned and tested according to BS EN ISO 105-D01:2010. Textiles - Tests for colour fastness. Colour fastness to dry cleaning using perchloroethylene solvent.

The staining is measured on the attached multifibre adjacent fabric of type DW.

The results are shown in the table below:

	Grade
Change of shade	5
Staining - secondary cellulose acetate	5
- bleached unmercerized cotton	5
- nylon 6.6	5
- polyester	5
- acrylic	5
- wool worsted	5

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Colour Fastness to Washing (Domestic and Commercial Laundering)

The specimens were tested according to BS EN ISO 105-C06:2010 Textiles. Tests for colour fastness. Colour fastness to domestic and commercial laundering.

Test number A1S as described in the standard was used to provide the parameters for this test.

ECE phosphate reference detergent (A) without optical brightening agent and 10 steel balls per container were used in this test.

The results are shown in the table below:

	Grade
Change of shade	5
Staining - secondary cellulose acetate	5
- bleached unmercerized cotton	5
- nylon 6.6	5
- polyester	5
- acrylic	5
- wool worsted	5

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COLOUR FASTNESS TO:

BS EN ISO 105-E04:2013 Perspiration

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	S/C	Acetate	Cotton	Nylon	Polyester	Acrylic	Wool
Acid	4-5	4-5	4-5	4-5	4-5	4-5	4-5
Alkali	4-5	4-5	4-5	4-5	4-5	4-5	4-5

Change in shade grade 5

Shade change is not a requirement in the standard but was requested by the customer.

BS EN ISO 105-E16:2007 Water Spotting

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Shade change Centre Grade 5

Shade change Periphery Grade 5

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BS EN ISO 105-D02:2016 - Organic Solvents

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Colour	Test	Staining
	Wet, Face, Length	4-5
	Wet, Face, Width	4-5

Solvent used for test - Perchloroethylene

Shade change Grade 5

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BS 8479:2008 SNAGGING RESISTANCE *

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No. of revolutions: 2000

Grade	Description
Length: 3-4	Snags
Width: 3	Snags

BS EN 14704-1:2005 Extension & Recovery

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	Length	Width
Extension at 27.5 N load	19.8 %	21.7 %
Residual extension after 1 Min	2.1 %	2.5 %
Residual extension after 30 Mins	1.2 %	1.5 %

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Dimensional Change to Dry Cleaning

The material was subjected to one cycle of normal commercial dry cleaning process as described in BS EN ISO 3175-2:2010 Textiles – Professional care, drycleaning and wetcleaning of fabrics and garments.

The specimens were prepared according to BS EN ISO 3759:2011. Textiles. Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change.

The results were calculated according to BS EN ISO 5077:2008. Textiles. Determination of dimensional change in washing and drying.

The results were reported according to BS EN ISO 3175-1:2010 Textiles – Professional care, drycleaning and wetcleaning of fabrics and garments.

The results are shown in the table below:

	Warp	Weft
Average percentage change	-1.8	-1.2

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CONCLUSION*

The results for the tests shown above, (excluding estimates of uncertainty) meet the requirements of BS 2543 : 2004 Upholstery fabrics for end use applications - Classification for Flat Woven fabrics as indicated below:

Light Domestic	LD	
General Domestic	GD	
Heavy Domestic	HD	
General Contract	GC	
Conditional SC (UU)	SC	Seam slippage - fixed load method
Severe Contract	SC	Colour fastness to rubbing Colour fastness to water Colour fastness to dry clean - in-house Colour fastness to washing Pilling - modified Martindale Tear strength - wing rip Tensile - strip method
Ungraded		

#BS EN 14704-1:2005 Extension and recovery, BS 8479:2008 Snagging resistance, BS EN ISO 105-D02:2016 Organic solvents, BS EN ISO 105-E16:2007 water spotting, BS EN ISO 105-E04:2015 perspiration.

If a test is reported followed by **(U)** or **(UU)**, this indicates a test result within our estimate of uncertainty of the grade boundary - see the report appendix for more information.

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AUTHORISATION

A handwritten signature in black ink, appearing to read 'K Lunn'.

K Lunn
Laboratory Manager

END OF REPORT

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