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Website: www.bttg.co.uk

Date: 20 August 2025

Our Ref: 23/63091A2-Supp/04/25
Your Ref: ---

Client: **Gabriel A/S**

Hjulmagerve 55
DK-900 Aalborg
Denmark

Job Title: Various Tests on One Sample of Fabric

Date of Receipt: 17 April 2025

Description of Sample: One sample of upholstery fabric, which was referenced by the Client as:

Article Name: UMI, Colour: 64289 Light Red

Work Requested: We were asked to test the sample as received to the following standard:

Modified Martindale Pilling - BS EN ISO 12945-2:2020, Category 1
Colour Fastness to Artificial Light - BS EN ISO 105-B02: 2014
Colour Fastness to Rubbing - BS EN ISO 105- X12: 2016
Colour Fastness to Rubbing Organic Solvents – BS EN ISO 105-D02
Colour Fastness to Rubbing with Foam Detergent***
Colour Fastness to Water Spotting – BS EN ISO 105-E16***
Colour Fastness to Water - BS EN ISO 105-E01: 2013
Colour Fastness to Perspiration - BS EN ISO 105-E04:2013
Colour Fastness to Dry Cleaning – BS EN ISO 105-D01
Determination of Maximum Force using BS EN ISO 13934-1: 2013
Determination of Tear Force (wing-shaped test specimens)
BS EN ISO 13937-3:2000

This is a supplementary report to the one issued on the 04 June 2025 under our report reference 23/63091A/04/25

Notes: This report relates only to the sample submitted and as described in this report.
This report shall not be reproduced except in full without the approval of the laboratory

* subcontracted test, UKAS accredited
** subcontracted test, EN ISO/IEC 17025 accredited
*** not UKAS accredited

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Determination of Fabric Propensity to Surface Pilling, Fuzzing or Matting – Modified Martindale Method

Date of test: 13/05/25

Three specimens from each sample were tested on a modified Martindale Abrasion Machine using wool abradant fabric and a loading weight of 415 ± 2g, as stated in Annex A, Table A.1, following the Category 1 procedure for upholstery fabrics described in BS EN ISO 12945-2:2020.

Pre-treatment: none
Deviations/ unusual features: none

The tested specimens were visually assessed by two observers and rated according to BS EN ISO 12945-4:2020.

	Pilling Results			
No. of pilling rubs	**1**	**2**	**3**	**mean**
125	5	5	5	5
500	5	5	5	5
1000	5	5	5	5
2000	4-5	4-5	4-5	4-5
5000	4	4	4	4
7000	4	4	4	4

The requirements of BS 2543:2004(2015) at 2000 rubs (minimum grade) relating to pilling only are as follows:

LD	GD	HD	GC	SC
3-4	3-4	4	4	4

LD = Light Domestic GD = General Domestic HD = Heavy Domestic GC = General Contract SC = Severe Contract

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Client: **Gabriel A/S**

Colour Fastness to Artificial Light Xenon Arc Fading Lamp Test - BS EN ISO 105-B02:2014

Date of test: 06/05/25

Using Xenotest 220 apparatus, exposure cycle A1, normal and blue wool reference materials 2 to 6. By comparison with the behaviour of the blue wool reference materials, 1 represents very low colour fastness to light, through to 8 which represents very high colour fastness to light. The test was carried out in accordance with Method 2.

Results

Colour Fastness to Light Rating
5

Notes

BS 2543: 2004, Upholstery fabrics for end use applications - classification: minimum rating 5 for all end uses except Severe Contract Use, minimum rating 6 for Severe Contract Use. BS 5867-1: 2004 requirements for curtain fabrics: minimum rating 5-6

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Client: **Gabriel A/S**

Colour Fastness to Rubbing, BS EN ISO 105-X12:2016

Date of test: 06/05/25

Specimens from each direction of the sample were tested for both wet and dry rubbing using a cylindrical rubbing finger exerting a downward force of 9N. The staining of the cotton rubbing fabric was visually assessed using grey scales for assessing staining; 5 represents no staining and 1 represents severe staining. The values obtained are given below.

Conditioning

Unless otherwise specified the sample has been conditioned and tested, where appropriate, in the standard atmosphere for conditioning and testing textiles (BS EN ISO 139:2005 + A1:2011) of 65±4% r.h. and 20±2°C.

Results

Colour Fastness to Wet Rubbing (grade)	
Warp / Length	**Weft / Width**
5	5

Colour Fastness to Dry Rubbing (grade)	
Warp / Length	**Weft / Width**
5	5

BS 2543: 2004, Upholstery fabrics for end use applications – classification: minimum grade wet 3, dry 4
BS 7337 requirements (for tickings): minimum grade wet 3-4, dry 4

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Client: **Gabriel A/S**

Colour Fastness to Rubbing with Organic Solvents, BS EN ISO 105-D02:2016

Date of test: 06/05/25

The sample was tested in accordance with BS EN ISO 105-D02:2016 using perchloroethylene as the solvent.

The change of colour of the specimens and the staining of the cotton rubbing fabric were assessed using standard grey scales; 5 represents no change of colour or staining and 1 a severe change of colour or staining.

Specimen	Direction	Solvent	Change of Colour	Staining of Rubbing Fabric
1	Warp	Perchloroethylene	5	5
	Weft		5	5
2	Warp	Perchloroethylene	5	5
	Weft		5	5

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Client: **Gabriel A/S**

Colour Fastness to Rubbing with Foam Detergent (***)

Date of test: 06/05/25

The sample was tested to Colour Fastness to Rubbing with Foam Detergent.

Specimen	Direction	Solvent	Change of Colour	Staining of Rubbing Fabric
1	Warp	Foam Detergent	5	5
	Weft		5	5
2	Warp	Foam Detergent	5	5
	Weft		5	5

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Colour Fastness to Water Spotting on Upholstery Fabrics, BS EN ISO 105-E16:2007 (***)

The sample was tested in accordance with BS EN ISO 105-E16:2007(2015).

Inner circle grade	Outer periphery grade	Water absorbed after 30 minutes
5	N/A	No

Colour Fastness to Water, BS EN ISO 105-E01:2013

Date of test: 06/05/25

The change of colour of the specimen and the staining of the adjacent fabric was assessed using standard grey scales; 5 represents no change of colour or staining and 1 a severe change of colour of staining.

Results

	Grey Scale Grade
Change of colour of fabric	4-5
Staining of diacetate	5
Staining of cotton	5
Staining of nylon	4-5
Staining of polyester	5
Staining of acrylic	5
Staining of wool	5

BS 2543: 2004, Upholstery fabrics for end use applications - classification: minimum change of colour grade 4, minimum staining of adjacent fabric grade 3-4

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Client: **Gabriel A/S**

Colour Fastness to Perspiration

Date of test: 6/05/25

The sample was tested in accordance with BS EN ISO 105-E04:2013 (ISO 105-E04:2013); the test device was positioned in the oven so that the test specimens were in a horizontal position.

The change of colour of the specimens and the staining of the adjacent fabric, Multifibre DW,, was assessed using standard grey scales; 5 represents no change of colour or staining and 1 a severe change of colour or staining.

pH	Change of colour	Staining of adjacent fabric					
		diacetate	cotton	nylon	polyester	acrylic	wool
5.5 (acid)	4-5	5	5	4-5	5	5	5
8.0 (alkaline)	4-5	5	5	4-5	5	5	5

Colour Fastness to Dry Cleaning Using Perchloroethylene Solvent

Date of test: 6/05/25

The sample was tested in accordance with BS EN ISO 105 – D01:2010.

The change of colour of the specimen and the staining of the adjacent fabric, multifibre DW, was assessed using standard grey scales; 5 represents no change of colour or staining and 1 represents a severe change of colour or staining.

Change of colour	Staining of adjacent fabric					
	diacetate	cotton	nylon	polyester	acrylic	wool
4-5	4-5	5	5	4-5	5	5

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Client: **Gabriel A/S**

Determination of maximum force using the strip method, BS EN ISO 13934-1:2013

Date of test: 22/05/25

Five 50mm. wide specimens from each direction of the sample were tested on a Hounsfield Tensile Testing machine, in accordance with BS EN ISO 13934-1:2013 (ISO 13934-1:2013) and the following test conditions:-

Gauge length:	200mm	State of test specimens:	conditioned
Rate of extension:	100mm/min	Number of tests rejected:	0
Pretension applied:	10N		

Conditioning

Unless otherwise specified the sample has been conditioned and tested, where appropriate, in the standard atmosphere for conditioning and testing textiles (BS EN ISO 139:2005 + A1:2011) of 65±4% r.h. and 20±2°C.

Results

Direction	Maximum Force (N)	Elongation at Maximum Force (%)
Warp	752.7	39.8
(Machine Direction)	770.7	44.0
	758.3	43.6
	759.1	41.6
	768.0	44.7
Mean:	760.0	43.0
Weft	925.0	34.8
(Across Machine Direction)	882.6	32.0
	881.2	32.9
	945.1	37.6
	944.9	38.7
Mean:	920.0	35.0

BS 2543:2004 – Upholstery fabrics for end use applications – Classification – requirements (N)

Grade:	LD	GD	HD	GC	SC
All fabrics except knitted	≥350	≥350	≥400	≥400	≥400

LD = Light domestic GD = General Domestic HD = Heavy Domestic GC = General Contract SC = Severe Contract

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Client: **Gabriel A/S**

Determination of Tear Force (wing-shaped test specimens) – BS EN ISO 13937-3: 2000

Conditioning

Unless otherwise specified the sample has been conditioned and tested, where appropriate, in the standard atmosphere for conditioning and testing textiles (BS EN ISO 139:2005 + A1:2011) of 65±4% r.h. and 20±2°C.

Results

Mean values calculated by electronic device (Clause 10.2).

Direction	Spec No.	Tear Force (N)	Threads slip out (TSO) or tear transfer (TT)	Direction	Spec No.	Tear Force (N)	Threads slip out (TSO) or tear transfer (TT)
Across Warp	1	125	No	**Across Weft**	1	242	No
	2	111	No		2	268	No
	3	125	No		3	295	No
	4	116	No		4	250	No
	5	119	No		5	329	No
	Mean:	**120**			**Mean:**	**280**	

Threads slip out (TSO) or TT (Tear Transfer) means that tear force in this direction could not be determined.

Threads slip out means that instead of tearing, threads are pulled from the edge. Tear transfer means that the tear is not rectangular to the direction of force.

BS 2543:2004 – Upholstery fabrics for end use applications – Classification – requirements (N)

	LD	GD	HD	GC	SC
All fabrics except knitted	≥15	≥20	≥25	≥25	≥25

LD = Light domestic, GD = General Domestic, HD = Heavy Domestic, GC = General Contract, SC = Severe Contract

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Where required to make a judgement to any pass/fail criteria an estimation of uncertainty of measurement has been taken into account. Under our Policy we have used a non-binary decision rule.

See our decision rules Policy (https://www.bttg.co.uk/about-us/decision-rules-policy/) for further information.

Reported by:..... K Marshall, Section Leader

Countersigned by:..... J Brewster, Section Leader

Enquiries concerning this report should be addressed to Customer Services

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Uncertainty Budget

The overall uncertainty budget for BS EN ISO 12945-2 is as follows:-

± 0.5 Grade

The overall uncertainty budget for BS EN ISO 105-B02 is as follows:-

Overall uncertainty ±1 Grade

The overall uncertainty budget for BS EN ISO 105-X12 is as follows: -

Overall uncertainty ±0.5 Grade

The overall uncertainty budget for BS EN ISO 105-D02 is as follows:-

Overall uncertainty ±0.5 Grade

The overall uncertainty budget for BS EN ISO 105-E01 is as follows:-

Overall uncertainty ±0.5 Grade

The overall uncertainty budget for BS EN ISO 105-E04 is as follows:-

Overall uncertainty ±0.5 Grade

The overall uncertainty budget for BS EN ISO 105-D01 is as follows:-

Overall uncertainty ±0.5 Grade

The overall uncertainty budget for BS EN ISO 13934-1 is as follows:-

Breaking Strength ± 6.0 %

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Uncertainty Budget (Continued)

The overall uncertainty budget for BS EN ISO 13937-3 is as follows:-

Overall uncertainty ± 1.0 %