



TEST REPORT

Client: Gabriel
Hjulgagervej 55
Postbox 59
DK-9100 Aalborg
Denmark

Entry No: 78452-06

Date received: 30/08/2016

Client's Description: Sample of fabric: Art. Rhythm 66151 Light Blue

Test Required: Abrasion, Pilling, Tensile Strength, Tear Resistance and Seam Slippage in accordance with BS EN 14465. Colour Fastness to Light^S, Colour Fastness to Water, Colour Fastness to Perspiration, Colour Fastness to Rubbing, Colour Fastness to Rubbing with Foam Detergent, Colour Fastness to Rubbing with Organic Solvents, Colour Fastness to Washing, Colour Fastness to Water Spotting^S, Dimensional Stability to Washing and Stretch & Recovery^S.

Conditioning: In accordance with BS EN ISO 139: 2005 for a minimum of 24 hours at 65+/-4%, Relative Humidity, 20+/-2°C

Date Tests Completed: 04/11/2016

Abrasion Resistance: BS EN ISO 12947-2: 1998 (tested on face side)

The tests were carried out using a pressure of 12 +/- 0.3 kPa
The criterion for judging end point was hole formation in top layer / breakdown of outer surface

| | |
|-----------------------|--------------------|
| Specimen 1 | 80,000 rubs |
| Specimen 2 | 80,000 rubs |
| Specimen 3 | 70,000 rubs |
| Specimen 4 | 70,000 rubs |
| Overall Result | 70,000 rubs |

Change in colour after 3,000 rubs: **4**

Observation Technique: 10 fold magnification
Type of Fabric: 3D-Knitted

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This is hereby certified to be a correct return of the tests made of the items referred to herein

Vivienne Brockbank
Technician
04 November 2016

- ❖ Unless instructed otherwise by the client sample remnants will be disposed of after 28 days.
 - ❖ Tests marked ^N in this certificate are not included in the UKAS Accreditation Schedule for this Laboratory.
 - ❖ Tests marked ^F in this certificate are performed under the Laboratory's Flexible Scope of Accreditation.
 - ❖ Tests marked ^S in this certificate have been subcontracted to another ISO17025 Accredited Laboratory.
 - ❖ Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.
 - ❖ Uncertainty budgets for test methods contained within this report are available on request.
- This Certificate relates only to the sample received and, unless that sample has been drawn by the staff of this laboratory, or its agent, and endorsed accordingly, any application of the result to a bulk quantity or other material is entirely the responsibility of the client.



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Client: Gabriel
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Abrasion Resistance: BS EN ISO 12947-2: 1998 (tested on reverse side)

The tests were carried out using a pressure of 12 +/- 0.3 kPa
The criterion for judging end point was hole formation in top layer / breakdown of outer surface

| | |
|-----------------------|--------------------|
| Specimen 1 | 50,000 rubs |
| Specimen 2 | 50,000 rubs |
| Specimen 3 | 55,000 rubs |
| Specimen 4 | 60,000 rubs |
| Overall Result | 50,000 rubs |

Change in colour after 3,000 rubs: **4**

Observation Technique: 10 fold magnification
Type of Fabric: 3D- Knitted

Pilling: BS EN ISO 12945-2: 2000 Load 415g

| | |
|------------------|---------------|
| | <u>Rating</u> |
| After 2,000 rubs | 5 |
| After 5,000 rubs | 5 |

Tensile Strength: BS EN ISO 13934-1: 2013

| | |
|------------|--------------|
| Length Way | 770 N |
| Width Way | 610 N |

Tear Resistance: BS EN ISO 13937-3: 2000

| | |
|--------------------|-------------|
| Torn across Length | 96 N |
| Torn across Width | 55 N |

Seam Slippage: BS EN ISO 13936-2: 2004

| | |
|---------------|--------------------------|
| | <u>Mean Seam opening</u> |
| Warp Way Seam | 3 mm |
| Weft Way Seam | 3 mm |

Colour Fastness to Light: BS EN ISO 105-B02: 2014 Method 2^S

A specimen was exposed together with Standard References numbers 1-8. By comparison with the standard references the grading was found to be:

BWS Rating
6

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Colour Fastness to Water: BS EN ISO 105–E01: 2013

| | | |
|--------------|------------------|---|
| Staining on: | | |
| | Acetate | 5 |
| | Cotton | 5 |
| | Nylon 6.6 | 5 |
| | Polyester | 5 |
| | Acrylic | 5 |
| | Wool | 5 |
| | Change in Colour | 5 |

Colour Fastness to Perspiration: BS EN ISO 105–E04: 2013

| | | | |
|--------------|------------------|------|--------|
| Staining on: | | Acid | Alkali |
| | Acetate | 5 | 5 |
| | Cotton | 5 | 5 |
| | Nylon 6.6 | 5 | 5 |
| | Polyester | 5 | 5 |
| | Acrylic | 5 | 5 |
| | Wool | 5 | 5 |
| | Change in Colour | 5 | 5 |

Colour Fastness to Rubbing: BS EN ISO 105–X12: 2002

| | | | |
|-------------------|------------|------------|------------|
| | | <u>Dry</u> | <u>Wet</u> |
| Staining: | Length Way | 4-5 | 5 |
| | Width Way | 4-5 | 5 |
| Change in colour: | Length Way | 5 | 5 |
| | Width Way | 5 | 5 |

Note: Change in colour is not a requirement of the method but was carried out at the request of the client.

Colour Fastness to Rubbing with Foam Detergent: BS EN ISO 105–X12: 2002

| | | | |
|--|------------|-----------------|-------------------------|
| | | <u>Staining</u> | <u>Change in Colour</u> |
| | Length Way | 4-5 | 5 |
| | Width Way | 4-5 | 5 |

Note: Change in colour is not a requirement of the method but was carried out at the request of the client.

Colour Fastness to Rubbing with Organic Solvents: BS EN ISO 105–D02: 2002

| | | | |
|-------------------|------------|----------------------------|---------------------|
| | | <u>Tetrachloroethylene</u> | <u>White Spirit</u> |
| Staining: | Length Way | 4-5 | 4-5 |
| | Width Way | 4-5 | 4-5 |
| | | <u>Tetrachloroethylene</u> | <u>White Spirit</u> |
| Change in colour: | Length Way | 5 | 5 |
| | Width Way | 5 | 5 |

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Colour Fastness to Washing: BS EN ISO 105–C06: 2010 Procedure C2S at 60°C using 25 steel balls

| | |
|------------------|-----|
| Staining on: | |
| Acetate | 5 |
| Cotton | 5 |
| Nylon 6.6 | 4-5 |
| Polyester | 5 |
| Acrylic | 5 |
| Wool | 5 |
| Change in Colour | 5 |

Colour Fastness to Water Spotting: BS EN ISO 105–E16: 2007^s

| | |
|---------------------------------|--------------|
| | <u>Grade</u> |
| Inner circle of tested area : | 5 |
| Outer periphery of tested area: | 5 |
| Change in appearance: | None |

Dimensional Stability: BS EN ISO 5077: 2008

Washing Procedure: BS EN ISO 6330: 2012 Procedure 4M (40°C), Drying Procedure C Flat dry

| | |
|--------|---------------|
| Length | -4.0 % |
| Width | -2.0 % |

Note: a negative result indicates shrinkage.

Stretch & Recovery: BS EN ISO 14704-1: 2005 using a load of 27.5N^s

| | | |
|------------------------------|----------------|----------------|
| Time @ full extension | <u>60 Secs</u> | |
| Length | <u>1 Min</u> | <u>30 Mins</u> |
| Average % Recovery | 98.6% | 99.0% |
| Average % Residual Extension | 1.4% | 1.0% |
| Average % Stretch | 6.0% | |
| Width | <u>1 Min</u> | <u>30 Mins</u> |
| Average % Recovery | 97.0% | 97.8% |
| Average % Residual Extension | 3.0% | 2.2 |
| Average % Stretch | 7.1% | |

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