

Shirley  
Technologies  
Limited

## Confidential Report

**Our Ref: 29/01897i/07/16**

Shirley Technologies Limited. Registered Office :  
Wira House, West Park Ring Road, Leeds, LS16 6QL.  
A company registered in England & Wales with company number 04669651.  
VAT Number GB 816764800.  
The supply of all goods and services is subject to our standard terms of  
business, copies of which are available on request.  
Our laboratories are accredited to EN ISO/IEC 17025





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Shirley Technologies Limited  
Wira House  
West Park Ring Road  
Leeds, LS16 6QL  
United Kingdom  
  
Tel: +44 (0)113 259 1999  
Fax: +44 (0)113 274 8344  
Web: <http://www.shirleytech.com>  
Email: [info@shirleytech.co.uk](mailto:info@shirleytech.co.uk)

16 August 2016

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Our Ref: 29/01897i/07/16  
Your Ref:

Client: Gudbrandsdalens Uldvarefabrik as

Address: N-2626 Lillehammer  
Norway

Job Title: Determination of Abrasion Resistance on One Sample

Client's Order Ref:

Date of Receipt: 12 July 2016

Description of Sample(s): One full width sample of woven fabric referenced by the Client:-  
**8345**

Work Requested: EN ISO 12947-2 Martindale abrasion, end point 2 threads broken, 12kPa  
Colour change by abrasion at 3,000 and 15,000 rubs

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Testing atmosphere: Unless otherwise specified the sample(s) 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.

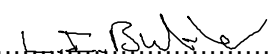
**Determination of the Abrasion Resistance of Fabrics by the Martindale Method – Determination of Specimen Breakdown**

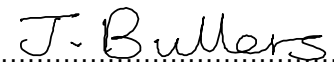
Date of test start: 03.08.16. Four specimens from the sample were tested, under a nominal pressure of 12 kPa(795±7g), with foam backing as requested by the Client, in accordance with BS EN ISO 12947-2:1998, using a Martindale abrasion tester as described in BS EN ISO 12947-1:1998. Specimen breakdown (end point) was reached when two separate threads had completely broken. The change of shade of the test specimens was assessed after both 3,000 rubs and 15,000 rubs, as requested by the Client, in accordance with ISO 105-A02. The tested specimens have been returned separately.

	<u>No. of rubs to end point</u>
	80,000
	75,000
	75,000
	<u>70,000</u>
mean:	75,000

Observations during testing: pills formed at approximately 3,000 rubs and continued throughout the test; these were cut off at intervals

Assessment: maximum colour change at 3,000 rubs: grey scale 3-4  
maximum colour change at 15,000 rubs: grey scale 3

Reported by:  L I Butler (Mrs)  
Senior Technician - Textiles

Countersigned by:  J M Bullers (Mrs)  
Operational Head – Textiles

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