



Wiratec
WIRA TESTING CENTRE

Wira House
West Park Ring Road
Leeds
West Yorkshire
LS16 6QL
United Kingdom

SHIRLEY TECHNOLOGIES LTD

Our ref: 15634
Your ref:
Order No:

16 December 2003
Page 1 of 3
Gudbrandsdalens Uldvarefabrik as

Client: Gudbrandsdalens Uldvarefabrik as
N-2626
Lillehammer
Norway

Job Title: Various tests on one fabric sample

Material Received: 25 November 2003

Description of Sample: One full width sample of woven fabric reference:-
Quality 5218 Odal

Brief: Shirley Technologies Ltd. were requested to carry out the following tests on the sample supplied:-
ISO 12947-2
ISO 12945-2 (results also at 7,000 and 10,000 rubs)

UKAS Accreditation: Our Laboratories are UKAS accredited. However, it should be noted that:
tests marked * are not UKAS accredited in this report and are not included in the UKAS Accreditation Schedule for our laboratory, either due to the work not conforming fully to the standard (e.g. reduced number of specimens) or to it being outside the scope of our accreditation, or subcontracted

Testing Atmosphere: Unless otherwise specified the sample has been conditioned and tested, where appropriate, in the standard atmosphere for conditioning and testing textiles (BS EN20139:1992) of 65±2% r.h. and 20±2°C.

This report is incomplete without all the pages specified above, together with a copy of our standard terms of business.
The supply of all goods and services is subject to our standard terms of business, copies of which are available on request through Customer Services or at
(<http://www.bttg.co.uk/GeneralDocs/TermsAndConditions3.pdf>).

Reg.Office: Shirley Technologies Ltd., Wira House, West Park Ring Road, Leeds LS16 6QL, United Kingdom.
Company No. 4669651 © BTTG 2003



1066
Group



Wiratec
WIRA TESTING CENTRE

Wira House
West Park Ring Road
Leeds
West Yorkshire
LS16 6QL
United Kingdom

SHIRLEY TECHNOLOGIES LTD

Our ref: 15634
Your ref:
Order No:

16 December 2003
Page 2 of 3
Gudbrandsdalens Uldvarefabrik as

Abrasion Resistance Of Fabrics By The Martindale Method

Four specimens from the sample were tested, under a nominal pressure of 12 kPa ($795 \pm 7g$) in accordance with BS EN ISO 12947-2:1999, using a Martindale abrasion tester as described in BS EN ISO 12947-1:1999.

The reference abradant was mounted over woven backing felt and the physically significant end point assessed when at least two individual threads had broken. The change of shade of the test specimens was not assessed.

The tested specimens are enclosed.

No. of rubs to end point

165,000
168,000
165,000
160,000
mean: 164,500

Determination Of The Resistance To Pilling And Change Of Appearance Of Fabrics - Modified Martindale Method (*)

Specimens from the sample were tested on a modified Martindale Abrasion Machine, using wool abradant fabric and a loading weight of $415 \pm 2g$. The specimens were tested for 500, 1,000, 2,000, 5,000 rubs, as stated in Annex A, Table A.1, following the Category 1 procedure for upholstery fabric described in BS EN ISO 12945-2:2000, with additional assessments at 7,000 and 10,000 rubs, as requested by the Customer.

The specimens were visually assessed at the required intervals and rated according to the following scale. The tested specimens are enclosed.

- 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

This report is incomplete without all the pages specified above, together with a copy of our standard terms of business. The supply of all goods and services is subject to our standard terms of business, copies of which are available on request through Customer Services or at (<http://www.bttg.co.uk/GeneralDocs/TermsAndConditions3.pdf>).

Reg. Office: Shirley Technologies Ltd., Wira House, West Park Ring Road, Leeds LS16 6QL, United Kingdom.
Company No. 4669651 © BTTG 2003



1066
Group



Wiratec
WIRA TESTING CENTRE

Wira House
West Park Ring Road
Leeds
West Yorkshire
LS16 6QL
United Kingdom

SHIRLEY TECHNOLOGIES LTD

Our ref: 15634
Your ref:
Order No:

16 December 2003
Page 3 of 3
Gudbrandsdalens Uldvarefabrik as

<u>Number of rubs</u>	<u>Pilling grade</u>	<u>Description</u>
500	4-5	fuzzing
1,000	4	fuzzing
2,000	4	fuzzing
5,000	4	fuzzing
7,000	4	fuzzing
10,000	4	fuzzing

(*) test subcontracted, not UKAS accredited.

The information contained on page no's 1/3 of this certificate is hereby certified to be a correct statement of the tests and investigations carried out by Shirley Technologies Ltd. on the materials referred to.

Signed.....*L I Butler*.....Date.....*16.12.03*.....

L I Butler (Mrs)
Senior Technician - Textiles

Signed.....*Julia Bullers*.....Date.....*16.12.2003*.....

J M Bullers (Mrs)
Operational Head - Textiles

JMB/15634

This report is incomplete without all the pages specified above, together with a copy of our standard terms of business.

The supply of all goods and services is subject to our standard terms of business, copies of which are available on request through Customer Services or at

(<http://www.bttg.co.uk/GeneralDocs/TermsAndConditions3.pdf>).

Reg.Office: Shirley Technologies Ltd., Wira House, West Park Ring Road, Leeds LS16 6QL, United Kingdom.
Company No. 4669651 © BTTG 2003



1066
Group