



## Report 65358 Test Report

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### Reference

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### Application

Testing and classification according to EN 1307, determination of castor chair suitability, stair suitability and static electrical propensity.

### Test Material

"highline 80/20 1100 ab"

Material used in testing was anonymized for laboratory purposes. A detailed sample list is contained in the report.

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## 1 Order

### 1.1 Chronology

<i>Date</i>	<i>Received</i>	<i>Order</i>
2011-01-21	2011-01-26	Testing and classification according to EN 1307, determination of castor chair suitability, stair suitability and static electrical propensity.

### 1.2 Samples

<i>No.</i>	<i>Received</i>	<i>Sample Identification</i>	<i>Sample Material</i>
1	2010-07-15	"Highline 80/20 1100 ab"	Textile floor covering, approx. 159 x 400 cm
2	2011-01-26 <sup>(1)</sup>	"Highline 80/20 1100 ab"	Textile floor covering, approx. 120 x 200 cm

(1) Samples provided by the customer. (2) Sample drawn by ÖTI.



## 2 Findings / Tests performed

### 2.1 Description of specimen

Description of specimen according to ISO 2424

#### Test Results

Sample tested: 1

Dimensions:	rolls
Manufacturing procedure:	tufted
Structure of face side:	cut pile
Coloration of face side:	multicoloured patterned
Type of backing:	textile nonwoven backing
Type of fibres at face side *):	80% wool / 20% polyamide (according to the specification by the applicant)

\*) In accordance with the at present valid version of the appropriate European Directives; fibre materials less than 2 % are not considered

According to EN 1307, this is a pile carpet.

### 2.2 Determination of mass per unit and pile mass per unit area

#### Test conditions

According ISO 8543

Test atmosphere: 20° C / 65 % rel. humidity

Type of shearing apparatus: Sharp pointed knife

Number of samples: 4

#### Test results

Tested sample: 1

	mass per unit area	pile mass per unit area
<b>Mean value</b>	<b>2788 g/m<sup>2</sup></b>	<b>760 g/m<sup>2</sup></b>
Coefficient of variation	0.4 %	1.0 %
Confidence interval (P = 95 %) absolute width	± 20 g/m <sup>2</sup>	± 13 g/m <sup>2</sup>

Note:

The pile mass per unit area of pile carpets represents the mass over the carpet-ground which can be sheared with the sharp pointed knife. If other procedures are consulted for the shearing of the pile material, then it is to be counted on deviating results. The pile mass per unit area should not be confounded with the pile weight.



## 2.3 Determination of thickness and thickness of wear layer

### Test conditions

Testing according

Determination of thickness according to ISO 1765

Determination of thickness of wear layer according to ISO 1766

Test atmosphere: 20° C / 65 % rel. humidity

Shearing method: Sharp pointed knife

Number of samples: 4

### Test results

Tested sample: 1

	total thickness	thickness of wear layer
Mean value	9.9 mm	5.3 mm
Coefficient of variation	0.7 %	3.1 %
Confidence interval (P = 95 %) absolute width	± 0.2 mm	± 0.3 mm

## 2.4 Calculation of surface pile density and pile fibre volume ratio

### Test conditions

The calculation was made according ISO 8543 with integration of the following test results:

Pile material	80% wool / 20% polyamide
Density of pile material	1.28 g/cm <sup>3</sup>
Mass of pile per unit area	760 g/m <sup>2</sup>
Thickness of above the substrate pile	5,3 mm

### Test results

Tested sample: 1

Surface pile density	0.143 g/cm <sup>3</sup>
Relative surface pile density	11.2 %

## 2.5 Determination of number of tufts or loops

### Test conditions

According to ISO 1763

### Test results

Tested sample: 1

Number of tufts or loops / 10 cm	in length direction:	37.9
	in cross direction:	31.8
Number of tufts or loops per dm <sup>2</sup> :		1205
Number of tufts or loops per m <sup>2</sup> :		120500



## 2.6 Determination of the basic requirement of pile carpets

### Test conditions

According to EN 1307:2008

### Test results

Tested sample: 1

Surface structure	Cut pile carpet
Pile material	80% wool / 20% polyamide

		Basic requirements	Test results
<b>Colour fastness to a)</b>			
♦ Light		≥ 5 (pastel shade <sup>b)</sup> ≥ 4)	Conformity to be declared by the manufacturer for each colour
♦ Rubbing			
- dry		≥ 3-4	
- wet		≥ 3	
♦ Water – change in colour			
- plain carpets		≥ 3-4	
- other carpets		≥ 4	
♦ Water – staining <sup>c)</sup>			
- - all carpets		≥ 2-3	
<b>Fibre bind for all carpets &lt; 80 % Wool</b>			
♦ Loop pile carpets		Fuzzing below level of reference photographs	--
♦ Cut pile carpets		Loss of mass ≤ 25 %	--
<b>Colour change <sup>d)</sup></b>			
♦ Due to spilled water		≥ 4	Conformity to be declared by the manufacturer for each production run
♦ Due to soiling subsequent to spilled water		≥ 3	

a) Conformity to be declared by the manufacturer for each colour

b) Pastel shade: colour corresponding to a standard depth ≤ 1/12 (in accordance with EN ISO 105-A01)

c) On multi fibre: worst result

d) Conformity to be declared by the manufacturer

### Judgement

The tested material fulfills the basic requirements of pile carpets according to EN 1307:2008, point 6.

**For pile carpets with ≥ 80 % wool in the wear layer there are no basic requirements according EN 1307, therefore this floor covering fulfill the basic requirements "a priori"**



## 2.7 Determination of the mass loss of textile floor coverings using the Lisson Tretrad machine

### Test conditions

According to EN 1963, test A

Soles: Vulcanised SBR-rubbers with a wave profile

Number of treads: 2200

Adjustment of wheel height: 5 mm

Number of specimens: 4

### Test results

Tested sample: 1

	Mass loss per unit area [ $m_v$ ]	Relative mass loss [ $m_{rv}$ ]
<b>Mean value</b>	<b>301 g/m<sup>2</sup></b>	<b>39.6 %</b>
Coefficient of variation	2.9 %	2.9 %
Confidence interval (P = 95 %) absolute width	± 14 g/m <sup>2</sup>	± 1.8 %
<b>Tretradindex:</b>	3.2	

Note:

The primary function of the test with the "Lisson-Tretrad-Machine" is to obtain from textile floor coverings a criteria for the wear performance in practical use. The used "Lisson-Tretrad" with four feet – which are covered with changeable rubber soles – runs on a straight line forwards and backwards, with a slip of 20 % and a surface pressure of 150 N, on the surface of the test specimen (which is lying on a test table). After a defined count of reciprocating motion the mass loss will be ascertained.

## 2.8 Determination of changes in appearance – Drum Test

### Test conditions

According to EN 1307 and ISO/TR 10 361

Assessment according EN 1471

Number of drum revolutions: 5 000 and 22 000

Number of specimens: 1

### Test results

Tested sample: 1

	5 000 revolutions	22 000 revolutions
Index of appearance change (median)	3.5	3.0
Index of colour change (median)	3-4	2-3
Main reasons for change	colour + structure	colour + structure
<b>Index after colour correction (median)</b>	<b>3.5</b>	<b>3.0</b>
<b>Index after colour correction (mean)</b>	<b>3.6</b>	<b>2.7</b>
Demages by the treatment	none	

Assessment indices: Index 1 – high change, Index 5 – no change



## 2.9 Classification of pile carpets

### Test conditions

According to EN 1307:2008

### Test results

Tested sample: 1

Surface structure		cut pile
Pile material		80% wool/ 20% polyamid
Surface pile weight	[g/m <sup>2</sup> ]	760
Surface pile thickness	[mm]	5.3
Surface pile density	[g/cm <sup>3</sup> ]	0.143
Number of tufts	[tufts/m <sup>2</sup> ]	120500
Tretrad index	[I <sub>TR</sub> ]	3.2
Drum test (Vettermann)	♦ Short term [5.000 turns]	3.5
	♦ Long term [22.000 turns]	3.0
Luxury rating factor	[C <sub>F</sub> ]	30.2



### Classification

Type of carpet	Type 1
Classification for wear	class 23/32
Classification for change in appearance	class 23/32
<b>Overall use class</b>	<b>class 23/32</b>
<b>Luxury rating class</b>	<b>LC 3</b>

#### Explanations:

Textile floor coverings are classified to their suitability in different use classes. There are two essential characteristics for the classification: wear behaviour and change in appearance. These both characteristics serve the description of the use behaviour in dependence to the intensity of use. **The use class assigned to the carpet is the lower one that was reached after the testing of the wear behaviour and change in appearance.** The different use classes are described as followed:

Domestic		Commercial	
Class	Use intensity	Class	Use intensity
21	moderate / light	---	---
22	general / medium	---	---
22+	general	31	moderate / light
23	heavy	32	general
---	---	33	heavy

The use- and comfort-classes are corresponding to the following till now common judgements for the wear- and comfort behaviour.

Level of use classification		"use class"
EN 1307:2008	EN 1307:1997	
21	1	low
22	2	normal
22+ / 31		
23 / 32	3	heavy
33	4	extreme

Luxury rating class	"luxury value"
LC 1	plain
LC 2	good
LC 3	high
LC 4	luxurious
LC 5	prestige

## 2.10 Determination of the castor chair suitability of textile floor coverings

### Test conditions

According to EN 985, Method A

Test apparatus: castor chair test equipment, Typ: Feingerätebau Baumberg

Castors: according EN 985





## Test results

Tested sample: 1

Test duration	change of attribute	Index of colour change *)	Index of appearance change *)
5 000 revolutions	colour + structure	2	2.5
25 000 revolutions	colour + structure	1	1.5
<b>Castor chair index (r)</b>	<b>2.3</b>		

\*) Note: Index 1 - high change / Index 5 - no change

Damages by the treatment: none

## Classification

According to the specifications of **EN 1307** the specimen can be classified as:

**"suitable for occasional use"**

## 2.11 Classification of the suitability for use on stairs

### Test conditions

According to EN 1963; Test method B: nosing test

### Test results

Tested sample: 1

<b>Appearance change*) in the edge area</b>	<b>moderate appearance change</b>
---	-----------------------------------

\*)complete mean

Note: Primary backing partly slight visible due to change in pine lay and not due to wear out.

### Classification

According to EN 1307 the specimen can be classified as suitable

**"for time to time use"**

Note: A workmanlike construction of the stair nose with a rounding radius of at least 10 mm is presupposed to the judgement.

## 2.12 Assessment of static electrical propensity – walking test

### Test Conditions

According to ISO 6356

Testing atmosphere:  $23 \pm 1$  °C /  $25 \pm 3$  % rel. humidity

Base plate: Isolating rubber mat on metal plate

Sole-material: XS-664P Neolite

Pretreatment: none

Deviation from standard: Two carpets of 36 cm and 61,5 cm wide and 199,5 cm length assembled on a tape.



## Test results

Tested sample: 2

Supplied condition			
Measurement 1	Measurement 2	Measurement 3	Mean value
0,2 kV	0,2 kV	0,2 kV	<b>0,2 kV</b>

## Judgement

The tested sample in supplied condition can be classified as **antistatic** according EN 14041:2004.



### 3 Summary of results

<p><b>Constructive characteristics</b></p> <p>material of use surface(by the applicant)</p> <p>Total mass per unit area</p> <p>Mass of pile per unit area</p> <p>Total thickness</p> <p>Thickness of pile above the substrate</p> <p>Surface pile density</p> <p>Number of tufts or loops</p>	<p>80% wool / 20% polyamide</p> <p>2788 g/m<sup>2</sup></p> <p>760 g/m<sup>2</sup></p> <p>9.9 mm</p> <p>5.3 mm</p> <p>0.143 g/cm<sup>3</sup></p> <p>120500 /m<sup>2</sup></p>						
<p><b>Basic requirements</b></p>	<p><b>fulfilled *)</b></p>						
<p><b>Tests for determination of use classification level</b></p> <p><b>Wear behaviour "Lisson-Tretrad" (EN 1963 method A)</b></p> <p>mass loss per unit area [m<sub>v</sub>]</p> <p>relative mass loss [m<sub>r,v</sub>]</p> <p>Tretradindex [I<sub>tr</sub>]</p> <p><b>Change in appearance – "Vettermann" drum test (ISO 10 361)</b></p> <p>assesment after colour correction – 5000 cycles</p> <p>assesment after colour correction – 22000 Touren</p>	<p>301 g/m<sup>2</sup></p> <p>39.6 %</p> <p>3.2</p> <table border="0"> <tr> <td>Median</td> <td>Mean value</td> </tr> <tr> <td>Note 3.5</td> <td>Note 3.6</td> </tr> <tr> <td>Note 3.0</td> <td>Note 2.7</td> </tr> </table>	Median	Mean value	Note 3.5	Note 3.6	Note 3.0	Note 2.7
Median	Mean value						
Note 3.5	Note 3.6						
Note 3.0	Note 2.7						
<p><b>Classification according EN 1307</b></p> <p>Carpet category</p> <p>Basic requirements</p> <p>Classification of the wear performance</p> <p>Classification of the appearance retention</p> <p><b>Level of use classification</b></p> <p>Use intensity</p> <p><b>Luxury rating classification</b></p> <p>Luxury value</p>	<p>Type 1</p> <p>fulfilled</p> <p>Class 23/32</p> <p>Class 23/32</p> <p><b>Class 23/32</b></p> <p>domestic use 23 "heavy"</p> <p>commercial use 32 "general"</p> <p><b>LC3</b></p> <p>LC3 "high"</p>						
<p><b>Additional characteristics</b></p> <p><b>Castor chair suitability (EN 985)</b></p> <p><b>Suitability for use on stairs (EN 1963 method D)</b></p> <p><b>Antistatic (ISO6356)</b></p> <p>Walkingtest (before cleaning)</p>	<p><b>"suitable for occasional use"</b></p> <p><b>"suitable for time to time use"</b></p> <p><b>antistatic</b></p> <p>0,2 KV</p>						

\*)For pile carpets with ≥ 80 % wool in the wear layer there are no basic requirements according EN 1307, therefore this floor covering fulfill the basic requirements "a priori"



## 4 Remarks

### Sample Material

Results of performed tests only refer to the sample material provided.

Without explicit written other agreement testing is destructive and the sample material is transferred to the property of ÖTI, which is entitled to freely decide on storage and disposal.

### Quality management and accreditations

All tests and services are performed under a quality management system according to EN ISO 17025.

ÖTI is accredited by several organisations for various tests offered. It also is a Notified Body for several directives with the registration number 0534 (see <http://ec.europa.eu/enterprise/newapproach/nando/>). The accreditation by the Federal Ministry of Economy, Family and Youth as testing laboratory was repeated under reference 92.714/0560-I/12/2009 (Individual accredited test procedures are marked with the federal laboratory logo), the accreditation for testing and inspection of construction products was given by the OIB (Austrian Institute of Construction Engineering). Details and other accreditations are given on request and can be found on [www.oeti.at](http://www.oeti.at).

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