

Short summary of test report n° 47 346, dated 8.11.2004

(Gemäß ECA-Version 3.0 – 03/2000)

Date material received	5.10.2004	Test reference	---
Name of quality:	Highline 630 mod. 750		
Manufacturer/applicant	EGETAEPER A/S		
Type of manufacture	M6: tufted	Type of surface	a1: cut pile
Primary backing	P7: man-made fibre fleece	Secondary backing	s17: needed fleece backing
Colouring	coloured patterned	Dimensions	tiles
Pile fibre composition	f1: 100% polyamide		
Total thickness (mm)	9,9	Surface pile thickness (mm)	4,6
Total carpet weight (g/m²)	2848	Surface pile weight (g/m²)	466
Surface pile density (g/cm³)	0,101	Number of tufts (1/m²)	239600
Foam density (g/m³)	---	foam thickness (mm)	---
Fibre bind	ok	Fibre bind; wool	---
Use class	class 4	Luxury class	class LC 2
Drum test: short term	4,0	Drum test; long term	3,5
Castor chair suitability	A	Stair suitability	class 4
Bodyvoltage walking test	< 2,0 kV	Vertical resistance	< 10 ¹⁰ Ω
Resistance of fraying	ok	Thermal resistance	---
Insulation from impact noise	---	Acoustical absorption	---
Incidental humid conditions suitability	---		
Dimensional stability tiles	ok	Planar stability tiles	ok
Dimensions of tiles	ok	Installation method	see manufacturer's recommendation
Squareness, straightness of edges	ok		

The manufacturer ensures that the quality complies with the requirements for colour fastness and linear density. The use properties, mentioned in this summary, are valid for the samples tested. It is the responsibility of the producer to guarantee that the production tolerance on the identification parameters are within the values stated in EN 1307.

Ökologie ♦ Technik ♦ Innovation



Vittor Bauer
ÖTI - Wien
Prüfinstitut

Anerkennendes
Institut

EUROPEAN
CARPET
ASSOCIATION





Report 47346

Test Report

Applicant

EGETAEPPER A/S
Industrivej Nord 25
DK-7400 HERNING
DÄNEMARK

Reference

UID/VAT-Nr. DK 384 542 18
Mrs. Ormstrup

Application

Testing and classification of the use area, stair- and castor chair suitability and electrical resistance.

Test Material

Highline 630 mod. 750

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

Issuing and Signatures

Number of pages contained: 15

Original Issue / Vienna 2004-11-09 / AM / KK21000120

Responsible for Testing, Ing. Hannes Vittek

Responsible for Technical Group, Ing. Hanspeter Bauer

Director, Dipl.-Ing. Dr. Erich Zippel





Contents

1	Order.....	3
1.1	Chronology	3
1.2	Sample Material	3
2	Findings / Tests performed.....	3
2.1	Description of specimen	3
2.2	Determination of mass per unit and pile mass per unit area	4
2.3	Determination of thickness and thickness of pile	4
2.4	Calculation of surface pile density and pile fibre volume ratio	5
2.5	Determination of number of tufts or loops	5
2.6	Determination of the mass loss of textile floor coverings using the Lisson Tretrad machine	5
2.7	Determination of the side length, squareness and straightness of tiles.....	6
2.8	Determination of the resistance to fraying	6
2.9	Determination of dimensional changes and distortion out of plane	7
2.10	Determination of changes in appearance – Drum Test	8
2.11	Determination of the basic requirement of pile carpets with synthetic pile-fibres.....	9
2.12	Classification of pile carpets in use classes.....	10
2.13	Classification of pile carpets, additional requirements for carpet tiles.....	11
2.14	Classification of the suitability for use on stairs	12
2.15	Determination of castor chair suitability of textile floor coverings	12
2.16	Determination of electrical resistances.....	13
2.17	Assessment of static electrical propensity – walking test	13
2.18	Summary of Results	14
3	Remarks	15



1 Order

1.1 Chronology

<i>Date</i>	<i>Received</i>	<i>Order</i>
2004-09-08	2004-09-14	Testing and classification of the use area, stair- and castor chair suitability and electrical resistance.

1.2 Sample Material

<i>No.</i>	<i>Received</i>	<i>Quantity</i>	<i>Description</i>
1	2004-10-05 ⁽¹⁾	20 tiles 48x48 cm	Textile floor covering "Highline 630 mod. 750"
2	2004-10-05 ⁽¹⁾	20 tiles 48x48 cm	Textile floor covering "Highline 630 mod. 750"

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

2 Findings / Tests performed

2.1 Description of specimen

According to ISO 2424

Tested sample: 1

Dimensions: tiles

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 according to directive 71/307/CEE*): 100 % polyamide (according to the specification by the applicant)

*) Fibre materials making up less than 2 % of the pile weight are not considered.



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
Mean value (g/m²)	2848	466
Coefficient of variation (%)	0,8	2,3
Confidence interval (P = 95 %) absolute width (g/m ²)	± 35	± 17

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 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 pile

Test conditions

Testing according

Determination of thickness according to ISO 1765

Determination of thickness of pile 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

	thickness	thickness of pile
Mean value (mm)	9,9	4,6
Coeffizient of variation (%)	0,4	1,3
Confidence interval (P = 95 %) absolute width (mm)	± 0,1	± 0,1



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:	100 % polyamide
Density of pile material (g/cm ³):	1,14
Mass of pile per unit area (g/m ²):	466
Thickness of above the substrate pile (mm):	4,6

Test results

Tested sample: 1

Surface pile density (g/cm ³)	0,101
Relative surface pile density (%)	8,9

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:	59,9
in cross direction:	40,0
Number of tufts or loops per dm ² :	2396
Number of tufts or loops per m ² :	239.600

2.6 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: 2300

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})
Mean value	11 g/m²	2,4 %
Coefficient of variation	22,0 %	22,0 %
Confidence interval (P = 95 %) absolute width	± 4 g/m ²	± 0,8 %

Tretradindex: 4,0



2.7 Determination of the side length, squareness and straightness of tiles

Test conditions

According to EN 994

Number of tested specimens: 5

Nominal dimension: Length: 480 mm; Width: 480 mm

Test results

Tested sample: 1

Determination of dimensions	Length direction	Cross direction
mean length (mm)	480,7	480,4
min. average length (mm)	480,6	480,3
max. average length (mm)	480,9	480,6
difference between the smallest and the largest average length (mm)	0,3	0,3
max. deviation from mean length (%)	0,04	0,04
max. deviation from nominal dimension (%)	0,19	0,12
Squareness and straightness		
max. deviation (mm)	0,70	
max. deviation (%)	0,15	

2.8 Determination of the resistance to fraying

Test conditions

Testing according to EN 1814

Classification according to EN 1307

Drum turns per minute: 16

Number of drum turns: 11 000

Number of test samples: 1

Kind of test sample: tiles

Test results

Tested sample: 2

Damages on cut edge after treatment: none

Judgement

The tested specimen can be classified as **resistant to fraying**.

Explanation: Extra heavy walking conditions with a high use intensity are simulated by the conducted test. The judgement of the fraying behaviour is limited to the property of the tested sample itself. Precautions for strengthening during the installation or other actions, which could improve the fraying behaviour, are not considered by this test. The judgement of the fraying behaviour of carpet rolls is only valid, when the carpet is complete glued down to the subfloor.



2.9 Determination of dimensional changes and distortion out of plane

Test conditions

According to EN 986

Test results

Tested sample: 1

		Dimension change	
		length	cross
1. Treatment 2 hours drying at 60 °C	1. Measurement	- 0,1 %	± 0,0 %
	2. Measurement	- 0,2 %	± 0,0 %
	3. Measurement	- 0,1 %	± 0,0 %
	Mean value	- 0,1 %	± 0,0 %
2. Treatment 2 hours water 20 °C	1. Measurement	± 0,0 %	± 0,0 %
	2. Measurement	- 0,1 %	± 0,0 %
	3. Measurement	± 0,0 %	± 0,0 %
	Mean value	± 0,0 %	± 0,0 %
3. Treatment 24 hours drying at 60 °C	1. Measurement	- 0,1 %	± 0,0 %
	2. Measurement	- 0,2 %	+ 0,1 %
	3. Measurement	- 0,1 %	± 0,0 %
	Mean value	- 0,1 %	± 0,0 %
4. Treatment 48 hours standard climate	1. Measurement	- 0,1 %	± 0,0 %
	2. Measurement	- 0,1 %	+ 0,1 %
	3. Measurement	- 0,1 %	± 0,0 %
	Mean value	- 0,1 %	± 0,0 %

Distortion out of plane after the treatment (step 4):

	maximum distortion (mm)
specimen 1	0
specimen 2	0
specimen 3	0

Note: A plus (+) is used to indicate an increase and a minus (-) is used to indicate shrinkage in dimensions.



2.10 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: 2

	5 000 revolutions	22 000 revolutions
Index of appearance change (median):	4,0	3,5
Index of colour change (median):	4	3 - 4
Main reasons for change:	colour	colour
Index after colour correcture (median):	4,0	3,5
Index after colour correcture (mean):	4,2	3,7

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

Damages by the treatment: none

2.11 Determination of the basic requirement of pile carpets with synthetic pile-fibres

Test conditions

According to EN 1307

Test results

Tested sample: 1

Surface structure:

Pile material:

cut pile carpet

100 % polyamide

Basic requirements

Test results

Colour fastness to

- light fastness
- fastness to rubbing
dry
wet
- fastness to water
plain carpets
patterned carpets

≥ 5 (pastel hue ≥ 4 ¹⁾)

≥ 3

$\geq 3 - 4$

$\geq 3 - 4$ ²⁾

≥ 4 ²⁾

The applicant
guarantees the
minimum values
of the colour
fastness as
stated beside.

Fibre bind of carpets with a
pile material of 100 % wool or
80 % wool/20 % polyamide

- Mass loss - wool
- Mass loss -
80 % wool/ 20 % polyamide

≤ 350 mg

-- mg

≤ 225 mg

-- mg

Fibre bind of carpets with synthetic
pile-material

- Loop pile carpets
- Cut pile carpets

Fussing below level
of reference
photographs

--

weight loss ≤ 25 % of
the pile weight

2,4 %

¹⁾ Pastel shade: Colour according to 1/12 judging type depth (ISO 105-A01:1995)

²⁾ Change in colour

Comment

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



2.12 Classification of pile carpets in use classes

Test conditions

According to EN 1307

Test results

Tested sample: 1, 2

Surface structure:	cut pile
Pile material:	100 % polyamide
Surface pile weight (g/m ²):	466
Surface pile thickness (mm):	4,6
Surface pile density (g/cm ³):	0,101
Number of tufts (tufts/m ²):	239.600
Mean fibre fineness (dtex):	--
Fibre factor (F _F):	--
Tretrad index (I _{TR}):	4,0
Drum test (Vettermann):	
• Short term (5.000 turns):	4,0
• Long term (22.000 turns):	3,5
Wear index (WI):	--
Luxury-index (CF):	21,8

According to EN 1307:1997 the tested carpet is specified as „Categorie N – other carpets“.

Classification

Use class:	class 4	wear class:	extreme
Luxury rating class:	class LC 2	luxury class:	good

Explanation:

Textile floor-coverings are classified to their suitability in different use classes. There are two essential characteristics for the classification: Wear behaviour and appearance change. 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 the appearance change.

The different use classes are described according to EN 1307 point 4.2 as followed:

Class of the use area	Intensity of use	Examples of use	
		living area	business area
1	easy use	easy	---
2	normal use	normal	---
3	heavy use	heavy	normal
4	extreme use	---	heavy



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

Wear class according EN 1307	Use class
1	low
2	normal
3	heavy
4	extreme

Luxury class according EN 1307	Luxury value
LC 1	simple
LC 2	good
LC 3	high
LC 4	luxurious
LC 5	prestige

2.13 Classification of pile carpets, additional requirements for carpet tiles

Test conditions

Additional requirements for tiles according EN 1307, annex A

Test results

Tested sample: 1, 2

	Test reference	Test results
Total carpet weight, ISO 8543	$\geq 3,5 \text{ kg/m}^2$ (only for loose laid tiles)	2,8 kg/m ²
Dimensions, EN 994	max. $\pm 0,3 \%$ on the nominal	max. Deviation to nominal Length direction 0,19 % Cross direction 0,12 %
Dimensions, EN 994	max. $\pm 0,2 \%$ in the same batch	max. Deviation to the middle Length Length direction 0,04 % Cross direction 0,04 %
Squareness, straightness of edges, EN 994	max. $\pm 0,15 \%$	max. Deviation 0,70 mm 0,15 %
Resistance to fraying, EN 1814	resistant to fraying	resistant to fraying
Dimensional stability, EN 986	max. $\pm 0,2 \%$ in both directions for loose laid and remove able tiles max. $- 0,4 \%$ or $+ 0,2 \%$ in both directions for adhered tiles	max. Dimension change Length direction $- 0,1 \%$ Cross direction $\pm 0,0 \%$
Planar stability, EN 986	max. curling $\leq 2 \text{ mm}$ (not relevant for adhered tiles)	0 mm

Judgement

The tested sample fulfils the additional requirements for adhered tiles according to EN 1307, Annex A, point A.2.2.



2.14 Classification of the suitability for use on stairs

Test conditions

According to EN 1963

Test method: Test B: nosing test

Test results

Tested sample: 1

Overall median of the appearance change in the edge area: **Note 3**

Judgement note: Note 1 - extreme appearance change
Note 2 - moderate appearance change
Note 3 - low appearance change

Classification

According to EN 1963 the specimen can be classified as **suitable for use area 4 („extreme“)**.

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

2.15 Determination of castor chair suitability of textile floor coverings

Test conditions

According to EN 985, Method A

Test apparatus: castor chair test equipment from Feingerätebau Baumberg

Castors according EN 985

Test results

Tested sample: 2

Number of revolutions	Index of appearance change	Index of colour change
after 5 000 revolutions	3,0	3
after 25 000 revolutions	2,5	2 - 3

Note: Index 1 - high change
Index 5 - no change

Main reasons influencing the assessment:

after 5 000 revolutions: colour + structure

after 25 000 revolutions: colour + structure

Castor chair index(r): 2,9

According to the specifications of EN 1307 the specimen can be classified as:
suitable for continuous use

Damages by the treatment: none



2.16 Determination of electrical resistances

Test conditions

According to ISO 10965

Test atmosphere: 23 °C, 25 % rel. humidity

Circuit voltage: 500 V

Deviation from standard: As desired by the applicant we only tested the vertical resistance.

Test results

Tested sample: 2

Sample	Measuring	Vertical resistance (Ohm)
1	1	$1,7 \times 10^{10}$
	2	$1,8 \times 10^{10}$
2	1	$1,0 \times 10^{10}$
	2	$4,0 \times 10^9$
3	1	$7,4 \times 10^9$
	2	$6,9 \times 10^9$
Geometric Mean value (Ohm)		$9,2 \times 10^9$

2.17 Assessment of static electrical propensity - walking test

Test conditions

According to EN 1815

Testing atmosphere: 23 °C ± 1 °C / 25 % ± 3 % rel. humidity

Base plate: > 10⁹ Ω rubber mat on metal plate

Sole-material: rubber

Deviation from standard: The test was carried out only with rubber-soles, because the PVC-soles are internationally not available at this time.

Test results

Tested sample: 2

	Body-Voltage (kV)
Test 1	+ 1,2
Test 2	+ 1,3
Test 3	+ 1,0
Mean value	+ 1,2

Classification

By walking over this floor covering no disturbing electric charges will occur, even not by disadvantageous room - climates.

This floor covering can be classified as antistatic.



2.18 Summary of Results

Details		
Pile material (by the applicant)	100% polyamide	
Total mass per unit area	2848 g/m²	
Mass of pile per unit area	466 g/m²	
Total thickness	9,9 mm	
Thickness of pile above the substrate	4,6 mm	
Surface pile density	0,101 g/cm³	
Number of tufts or loops	239600 /m²	
Mass loss		
Mass loss per unit area	11 g/m²	
Relative mass loss	2,4 %	
Tretrad-Index	4,0	
Change in appearance - drum test	Median	Mean value
Grade after colour correcture - 5000 cycles	4,0	4,2
Grade after colour correcture - 22000 cycles	3,5	3,7
Classification according EN 1307		
Carpet category	category N	
Basic requirements	fulfilled	
Level of use classification	class 4	
Wear class	extreme	
Luxury rating factor	21,8	
Luxury rating class	class LC 2	
Comfort class	good	
Additional requirements for tiles, EN 1307		
Max. deviation from nominal value	0,19 %	
Max. deviation within the same batch	0,04 %	
Max. deviation for squareness and straightness of edges	0,15 %	
Resistance to fraying	resistent	
Max. dimensional change in length direction	-0,10 %	
Max. dimensional change in cross direction	± 0,00 %	
Curling/plane stability	0 mm	
Requirements for loose laid tiles	not fulfilled	
Requirements for adhered tiles	fulfilled	
Stair suitability	suitable for wear class 4 („extreme“)	
Castor chair suitability	suitable for continuous use (r=2,9)	
Electrical resistance		
Vertical resistance	9,2 x 10⁹ Ω	
Walking test	+1,2 kV	



3 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 with the registration number 0534. The accreditation by the Federal Ministry as testing laboratory was repeated under AK 92714/263-1/12/04 (Individual accredited test procedures are marked with the federal laboratory logo), the accreditation for testing and surveillance of building products was given by the OIB (Österreichisches Institut für Bautechnik). Details and other accreditations are given on request and can be found on www.oeti.at.

Copyright und Usage Notes

It is pointed out, that any alterations, amendments or falsifications of reports not authorized by the issuer of the report will be prosecuted as civil and criminal offences; this especially to the appropriate requirements of ABGB, UrhG, UWG and criminal law and their respective international equivalents.

Reports are protected under international copyright laws. Written consent of the ÖTI is required for publications (also in excerpt) and reference to tests for public relation purposes. Reports may only be reproduced in full length.

End of Report