



Report VNIF 82128.5 Test Report

Applicant

Reference

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Application

Testing and classification of use area according to EN1307, determination of castor chair suitability, stair suitability, resistance to fraying, and determination of static electrical propensity.

Test Material

"ege tuft 440 ECT350"

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


Issuing and Signatures

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1 Order

1.1 Chronology

<i>Date</i>	<i>Received</i>	<i>Order</i>
2010-05-19	2010-05-26	Testing and classification of use area according to EN 1307, determination of castor chair suitability, stair suitability, resistance to fraying, and determination of static electrical propensity.

1.2 Samples

<i>No.</i>	<i>Received</i>	<i>Sample Identification</i>	<i>Sample Material</i>
1	2010-05-26 (1)	"ege tuft 440 ECT350"	textile floor covering, 34 tiles approx. 48 cm x 48 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:	tiles
Manufacturing procedure:	tufted
Structure of face side:	loop pile
Coloration of face side:	multicoloured patterned
Type of backing:	textile non woven backing
Type of fibres at face side *):	100% polyamide (according to the specification by the applicant)

According to EN 1307, this is a pile carpet.

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

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

Test conditions

According ISO 8543 (a)

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	2166 g/m²	304 g/m²
Coefficient of variation	1.6 %	3.5 %
Confidence interval (P = 95 %) absolute width	± 55 g/m ²	± 17 g/m ²

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 wear layer

Test conditions

Testing according

Determination of thickness according to ISO 1765 (a)

Determination of thickness of wear layer according to ISO 1766 (a)

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	6.9 mm	3.0 mm
Coefficient of variation	1.3 %	1.6 %
Confidence interval (P = 95 %) absolute width	± 0.2 mm	± 0.1 mm

2.4 Calculation of surface pile density and pile fibre volume ratio

Test conditions

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

Pile material	100% polyamide
Density of pile material	1.14 g/cm ³
Mass of pile per unit area	304 g/m ²
Thickness of above the substrate pile	3.0 mm

Test results

Tested sample: 1

Surface pile density	0.101 g/cm ³
Relative surface pile density	8.9 %

2.5 Determination of number of tufts or loops

Test conditions

According to ISO 1763 (a)

Test results

Tested sample: 1

Number of tufts or loops / 10 cm	in length direction:	46.0
	in cross direction:	39.8
Number of tufts or loops per dm ² :		1831
Number of tufts or loops per m ² :		183100



2.6 Determination of fibrebind of synthetic looppile carpets

Test Conditions

Testing according EN 1963, Test C (a)

Evaluation according: EN 1307

Duration: 400 double passages

Test Results

Tested sample: 1

Assessment of appearance change: better than photostandard

Evaluation

The specimen fulfills the requirements of EN 1963 or 1307.

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

Test conditions

According to EN 1963, test A (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 _r]
Mean value	2 g/m²	0.5 %
Coefficient of variation	47.8 %	47.8 %
Confidence interval (P = 95 %) absolute width	± 1 g/m ²	± 0.4 %
Tretradindex:	3.3	

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 the basic requirement of pile carpets

Test conditions

According to EN 1307:2008 (a)

Test results

Tested sample: 1

Surface structure	loop pile carpet
Pile material	100% polyamide

	Basic requirements	Test results
Colour fastness to ^{a)}		
♦ Light	≥ 5 (pastel shade ^{b)} ≥ 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 ^{c)}		
- - all carpets	≥ 2-3	
Fibre bind for all carpets < 80 % Wool		
♦ Loop pile carpets	Fuzzing below level of reference photographs	fulfilled
♦ Cut pile carpets	Loss of mass ≤ 25 %	--
Colour change ^{d)}		
♦ 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.



2.9 Determination of changes in appearance – Drum Test

Test conditions

According to EN 1307(a) and ISO/TR 10 361 (a)
Assessment according EN 1471 (a)
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)	5	4.5
Index of colour change (median)	5	4-5
Main reasons for change	--	colour & structure
Index after colour correction (median)	5	4.5
Index after colour correction (mean)	4.7	4.2
Demages by the treatment	none	

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

2.10 Determination of the resistance to fraying

Test conditions

Testing according to EN 1814:2005 (a)
Number of test samples: 4
Kind of test sample: tiles

Test results

Tested sample: 1

Damages on cut edge after treatment: none

Judgement

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

2.11 Classification of the suitability for use on stairs

Test conditions

According to EN 1963; Test methode B: nosing test (a)

Test results

Tested sample: 1

Appearance change*) in the edge area	low appearance change
---	------------------------------

*)complete mean

Classification

According to EN 1307 the specimen can be classified as suitable

"for intensive 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 Determination of the castor chair suitability of textile floor coverings

Test conditions

According to EN 985, Method A (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	3-4	3.5
25 000 revolutions	colour & structure	3	3.0
Castor chair index (r)	3.4		

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

Damages by the treatment: none

Classification

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

"suitable for intensive use"

2.13 Assessment of static electrical propensity – walking test

Test Conditions

According to ISO 6356 (a)

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

Base plate: Isolating rubber mat on metal plate

Sole-material: XS-664P Neolite

Pretreatment: none

Test results

Tested sample: 1

Supplied condition			
Measurement 1	Measurement 2	Measurement 3	Mean value
- 0.4 kV	- 0.7 kV	- 0.6 kV	- 0.6 kV

Judgement

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



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

Test condition

According to EN 994 (a)

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]	480.3	480.2
min. average length	[mm]	480.1	480.1
max. average length	[mm]	480.4	480.5
difference between the smallest and the largest average length	[mm]	0.3	0.4
max. deviation from mean length	[%]	< 0.1	< 0.1
max. deviation from nominal dimension	[%]	0.1	0.1

Squareness and straightness		
max. deviation	[mm]	< 0.20
max. deviation	[%]	< 0.04

2.15 Determination of total mass of individual tile

Test conditions

According ISO 8543 (a)

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

Number of samples: 4

Test results

Tested sample: 1

	total mass of individual tile
Mean value	0.500 kg
Coefficient of variation	0.0 %
Confidence interval (P = 95 %) absolute width	± 0.000 kg



2.16 Determination of dimensional changes and distortion out of plane

Test conditions

According to EN 986 (a)

Test results

Tested sample: 1

		Dimensional change [%]	
		length	cross
1. Treatment 2 hours storage (drying) at 60 °C	1. Measurement	± 0.0	± 0.0
	2. Measurement	- 0.1	± 0.0
	3. Measurement	- 0.1	± 0.0
	Mean value	- 0.1	± 0.0
2. Treatment 2 hours storage in water at 20 °C	1. Measurement	± 0.0	± 0.0
	2. Measurement	- 0.1	± 0.0
	3. Measurement	- 0.1	± 0.0
	Mean value	- 0.1	± 0.0
3. Treatment 24 hours storage (drying) at 60 °C	1. Measurement	- 0.2	+ .01
	2. Measurement	- 0.2	+ 0.1
	3. Measurement	- 0.2	± 0.0
	Mean value	-0.2	± 0.0
4. Treatment 48 hours storage at standard climate	1. Measurement	- 0.1	+ 0.1
	2. Measurement	- 0.1	+ 0.1
	3. Measurement	- 0.1	± 0.0
	Mean value	- 0.1	+ 0.1

maximum distortion out of plane [mm] after the treatment (step 4):			
specimen 1	specimen 2	specimen 3	Mean value
0	0	0	0

Note:

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



2.17 Classification of pile carpets

Test conditions

According to EN 1307:2008 (a)

Test results

Tested sample: 1

Surface structure		loop pile carpet
Pile material		100% polyamide
Surface pile weight	[g/m ²]	304
Surface pile thickness	[mm]	3.0
Surface pile density	[g/cm ³]	0.101
Number of tufts	[tufts/m ²]	183100
Fibre factor	[FF]	--
Tretrad index	[I _{TR}]	3.3
Drum test (Vettermann)	♦ Short term [5.000 turns]	5
	♦ Long term [22.000 turns]	4.5
Resistance to fraying		resistant to fraying
Wear index	[W _i]	--
Luxury rating factor	[C _F]	6.9

Classification

Type of carpet	Type 1
Classification for wear	class 33
Classification for change in appearance	class 33
Overall use class	class 33
Luxury rating class	LC 1

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"	Luxury rating class	"luxury value"
EN 1307:2008	EN 1307:1997			
21	1	low	LC 1	plain
22	2	normal	LC 2	good
22+ / 31			LC 3	high
23 / 32	3	heavy	LC 4	luxurious
33	4	extreme	LC 5	prestige

2.18 Classification of pile carpets, additional requirements for pile carpet tiles

Test conditions

According to EN 1307:2008, annex A (a)

Test results

Tested sample: 1

	Non adhered file	Requirements Adhered file		Test results
	Loose laid	Removable	Permanent	
Total mass of individual tile, ISO 8543	≥ 0.875 kg	≥ 0.625 kg	---	0.500 kg
Total mass per unit area, ISO 8543	≥ 3.5 kg/m ²	≥ 2.5 kg/m ²	---	2.2 kg/m ²
Dimensions, EN 994	± 0.30 % on nominal dimensions			max. deviation on nominal dimensions longitudinal 0.1 % cross 0.1 %
	± 0.20 % in the same batch			max. deviation to the mean length longitudinal < 0.1 % cross < 0.1 %
Squareness and straightness of edges, EN 994	± 0.15 % in both directions			max. deviation < 0.04 %
Dimension stability, EN 986	shrinkage in both directions ≤ 0.2 %		≤ 0.4 %	max. dimensional change longitudinal - 0.2 % cross + 0.1 %
	extension in both directions ≤ 0.2 %		≤ 0.2 %	
Curling / doming, EN 986	max. deviation of any part of the sample from its plane ≤ 2 mm		---	max. curling / max. doming 0 mm
Damage at cut edge (fraying), EN 1814	no damage			no damage

Judgement

The submitted sample fulfils the additional requirements for permanent adhered carpet tiles according EN 1307:2008, Annex A (normative).



2.19 Summary of Results

Article	"ege tuft 440 ECT350"									
<p>Constructive characteristics</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>100% Polyamid</p> <p>2166 g/m²</p> <p>304 g/m²</p> <p>6.9 mm</p> <p>3.0 mm</p> <p>0.101 g/cm³</p> <p>183100 /m²</p>									
<p>Basic requirements</p> <p>Fibre bind - Loop-Pile Carpets</p> <p>Lisson Tretrad (EN 1963, method C)</p> <p>- appearance change</p>	<p>fulfilled</p> <p>better than photostandard</p>									
<p>Tests for determination of use classification level</p> <p>Wear behaviour "Lisson-Tretrad" (EN 1963 method A)</p> <p>mass loss per unit area [m_v]</p> <p>relative mass loss [m_{rv}]</p> <p>Tretradindex [I_{tr}]</p> <p>Change in appearance – "Vettermann" drum test (ISO 10 361)</p> <p>assesment after colour correction – 5000 cycles</p> <p>assesment after colour correction – 22000 Touren</p>	<p>2 g/m²</p> <p>0.5 %</p> <p>3.3</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; text-align: center;">Median</td> <td style="width: 5%; border-left: 1px dashed black;"></td> <td style="width: 45%; text-align: center;">Mean value</td> </tr> <tr> <td style="text-align: center;">Note 5</td> <td></td> <td style="text-align: center;">Note 4.7</td> </tr> <tr> <td style="text-align: center;">Note 4.5</td> <td></td> <td style="text-align: center;">Note 4.2</td> </tr> </table>	Median		Mean value	Note 5		Note 4.7	Note 4.5		Note 4.2
Median		Mean value								
Note 5		Note 4.7								
Note 4.5		Note 4.2								
<p>Classification according EN 1307</p> <p>Carpet category</p> <p>Basic requirements</p> <p>Classification of the wear performance</p> <p>Classification of the appearance retention</p> <p>Level of use classification</p> <p>Use intensity</p> <p>Luxury rating classification</p> <p>Luxury value</p>	<p>Type 1</p> <p>fulfilled</p> <p>Class 33</p> <p>Class 33</p> <p>Class 33</p> <p>commercial use 33 "heavy"</p> <p>LC1</p> <p>LC1 "plain"</p>									



Additional characteristics Castor chair suitability (EN 985) Antistatic (ISO 6356) Suitability for use on stairs (EN 1963 method B) Fraying behaviour (EN 1814)	A ¹⁾ - 0.6 kV (antistatic) "suitable for intensive use" resistant to fraying
Additional Requirements for tiles Total mass of individual tile (ISO 8543) Total mass per unit area (ISO 8543) Dimensions (EN 994) - max. deviation to nominal Squareness / straightness of edges (EN 994) - max. deviation to nominal Dimension stability (ISO 986) - length direction - cross direction Curling/oming (ISO 986) ³⁾	fulfilled ²⁾ 0.500 kg 2.170 kg/m ² longitudinal 0.1 % cross 0.1 % < 0.04 % -0.2 % +0.1 % 0 mm

¹⁾ A suitable for intensive use

²⁾ Fulfils the requirements for "permanent adhered tiles"

³⁾ In case of doming only the planar stability at the edges can be measured



3 Remarks

Validity

There are no regulations concerning duration of validity in the individual test standards. As the results of the examinations refer only to the submitted and examined samples, the report is valid for these for an unlimited period. A period of validity specified as part of an expert evaluation is in the discretion of the consultant or the ÖTI. The applicability of results and expert evaluations for materials not tested is in the responsibility of the applicant. Whereby an apportionment of results as well as any specified period of validity can only be done for identically constructed products and only as long as the product produced unchanged.

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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.

Issuance

The valid first issue is done in paper and has single-handed signatures. For reference purposes and filing an unsigned electronic duplicate can be delivered in pdf format. Duplicates and translations will be marked accordingly on the cover sheet.

Quality management, Accreditation and Notification

This issue is a rewriting of report 63650, dated 2010-07-08.

All tests and services are performed under a quality management system according to EN ISO/IEC 17025 respectively EN ISO/IEC 17065.

The ÖTI is accredited as Testing Laboratory and Certification Body for products. It also is a Notified Body for several directives with the registration number 0534 (see <http://ec.europa.eu/enterprise/newapproach/nando/>). Accreditation as Testing Laboratory was provided by Akkreditierung Austria (bmwfw). The scope of accreditation is listed on www.bmwfw.gv.at/akkreditierung.

In this report test conditions of individual accredited test procedures are marked with (a).

According to the decree on the use of the accreditation mark ("AkkZV") the accreditation mark is only to be used by the accredited Conformity Assessment Body.

Application of the registration number of the Notified Body: As to personal protective equipment (PPE) the requirements of PSA-SV § 10, BGBl. Nr. 596/1994 as amended and article 13 of the Directive 89/686/EEC have to be kept. With construction products the application is only permitted within the declaration of performance for CE-marking.

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