



# Confidential Report

**Our Ref: 25/12163/01/24**





Wira House, West Park Ring Road, Leeds, LS16 6QL, UK.  
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Website: [www.bttg.co.uk](http://www.bttg.co.uk)

Date: 26 January 2024

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**Client:** Unifloor B.V.

Arnsbergstraat 4  
7418 EZ Deventer  
Netherlands

**Job Title:** Classification on One Sample of Underlay

**Clients Order Ref:** -

**Date of Receipt:** 15 January 2024

**Description of Sample:** One sample of foam crumb underlay, referenced; Comfort Green 6mm.

**Work Requested:** We were asked to make the following test(s):

BS EN 14499

- \* subcontracted test, UKAS accredited
- \*\* subcontracted test, EN ISO/IEC 17025 accredited
- \*\*\* not UKAS accredited

Note: This report relates only to the items tested.



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Client: **Unifloor B.V.**

### Breaking Strength And Elongation (Strip Method)

Five 5cm. wide specimens from each direction of the sample were tested on an Instron Strength Tester using a gauge length of 20cm, in accordance with BS EN ISO 13934-1:2013, as required by BS EN 14499:2015.

The mean elongation at break and at 30N is quoted to the nearest 0.5% or 0.2% as applicable.

<u>Direction</u>	<u>Elongation at 30N (%)</u>	<u>Breaking strength (N)</u>	<u>Elongation at break (%)</u>
1	3.02	293	13.9
	2.50	274	12.6
	2.68	267	12.4
	3.12	247	12.8
	<u>3.24</u>	<u>283</u>	<u>13.3</u>
Mean:	2.91	273	13.0
2	3.20	46.3	12.7
	0.82	130	7.14
	0.96	114	6.02
	0.94	115	6.27
	<u>0.88</u>	<u>114</u>	<u>6.38</u>
Mean:	1.35	104	7.70





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### Static Loading Test (long term)

Five specimens from the sample were tested in accordance with ISO 3416:1986 (2012), as required by BS EN 14499:2015.

	<u>Original thickness</u>	<u>Thickness loss (mm) after recovery period</u>		
	<u>(mm)</u>	<u>2 min</u>	<u>1 hr</u>	<u>24 hrs</u>
	6.1	0.8	0.4	0.2
	6.2	0.8	0.5	0.3
	6.3	0.8	0.4	0.3
	6.3	0.7	0.4	0.3
	<u>6.3</u>	<u>0.7</u>	<u>0.4</u>	<u>0.3</u>
Mean:	6.2	0.8	0.4	0.3

Thickness loss after 24 hours recovery (%) = 4.8

### Static Loading Test (short term)

Five specimens from the sample were tested in accordance with ISO 3415:1986 (2012), as required by BS EN 14499:2015.

<u>Specimen No.</u>	<u>Loss in thickness (mm)</u>	
	<u>Pressure 2h</u>	<u>Recovery after 1 hour recovery</u>
1	0.51	0.15
2	0.66	0.13
3	0.61	0.14
4	0.66	0.14
5	<u>0.66</u>	<u>0.15</u>
Mean	0.62	0.14
CoV%	10.65	6.87

Percentage thickness loss after 1 hour recovery (%) = 2.26





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### Dynamic Loading Test

Two specimens from the sample were subjected to 1000 impacts on a Wira Dynamic Loading Machine in accordance with BS ISO 2094:1999 (2015), as required by BS EN 14499:2015.

	<u>Mean original thickness</u> (mm)	<u>Mean thickness loss after</u> <u>1000 impacts (mm)</u>
	6.2	0.2
	6.3	0.2
	6.1	0.3
	<u>6.1</u>	<u>0.2</u>
Mean:	6.2	0.2

Thickness loss at 1000 impacts (%): 3.2

### Total Thickness

The sample was conditioned and tested at 20 ± 2°C and 65 ± 4% r.h.

The total thickness was measured in accordance with ISO 1765:1986 (2012) as required by BS EN 14499:2015 .

	<u>Total thickness</u> (mm)
	6.1
	6.1
	6.2
	6.4
	6.3
	6.3
	6.2
	6.4
	6.3
	<u>6.3</u>
Mean:	6.3

Difference between maximum and minimum thickness (mm) = 0.3



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### Work of Compression Test

Four specimens from the sample were tested in accordance with BS 4098:1975 (2003) and BS ISO 2094:1999 (2015), before and after dynamic loading, as required by BS EN 14499:2015.

<u>Mean Work of Compression of Dynamic Loading (J/m<sup>2</sup>)</u>		<u>Mean Work of Compression Retained (%)</u>	<u>Compression After Dynamic Loading (mm)</u>
<u>Before</u>	<u>After</u>		
125	117	93.2	3.1

### Resistance to Breaking and Cracking Test

The sample was tested in accordance with BS EN 14499:Annex A:2015.

Degree of cracking directly under plate

No Cracking

Degree of cracking not directly under plate

No Cracking



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## Assessment of the Change in Surface Structure and Colour of Textile Floor Coverings - Hexapod Test

Date Test Completed **24/01/24**

Two sets of carpet specimens, one with underlay and one without, were fatigued for 12,000 revs in a Hexapod Tumbler Tester, in accordance with BS ISO 10361:Method B:2015, as required by BS EN 14499:2015. The specimens were vacuumed at intervals of 2,000 revs and before grading using a commercial upright vacuum cleaner.

Each carpet specimen was assessed for change in appearance in accordance with BS EN ISO 9405:2017 on the following scale using the ISO Cut Scale.

Deviation from standard – It was not possible to verify that the studs of the Hexapod conform to the tolerances specified.

- 5 No change
- 4 Slight change
- 3 Moderate change
- 2 Considerable change
- 1 Severe change

Colour was assessed using large size standard grey scales.

	<u>Change in appearance</u>	<u>Change of Colour</u>	<u>Dominant factor</u>
Without underlay	1.5	1	Colour
With underlay	3.0	2	Colour

**Appearance/use – No negative effect**



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**BS EN 14499:2015**

**Textile floor coverings. Minimum requirements for carpet underlays**

Characteristic	Requirement	Pass/Fail
Breaking Strength (maximum force)	≥30N in each direction	Pass
Elongation	≤15% for applied force of 30N	Pass
Thickness loss of static loading long term after 24 h recovery		Pass
Fibrous underlay	≤ 40 %	
Non-fibrous underlay	≤ 15 %	
Combined underlay	≤ 40 %	
Thickness loss of static loading short term after 1 h recovery		Pass
Fibrous underlay	≤ 40 %	
Non-fibrous underlay	≤ 15 %	
Combined underlay	≤ 40 %	
Thickness loss of dynamic loading		Pass
Fibrous underlay	≤ 40 %	
Non-fibrous underlay	≤ 15 %	
Combined underlay	≤ 40 %	
Thickness	≥ 4.0 mm	Pass







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Characteristic	Requirement	Pass/Fail
Thickness deviation		
a) mean from nominal		Pass
Fibrous or combined underlay	≤ 15 %	
Non-fibrous underlay	≤ 12 %	
b) from max to min		Pass
Fibrous or combined underlay	≤ 4 mm	
Non-fibrous Underlay	≤ 3mm	
Resistance to breaking or cracking	No cracks greater than 50 mm along the fold	Pass
	No cracks in backing	Pass
Compression after dynamic loading	Minimum 2 mm, maximum 8 mm	Pass
Work of compression after dynamic loading	Minimum 50 J/m <sup>2</sup> , Maximum 200 J/m <sup>2</sup>	Pass
Retention of original work of compression	≥ 40 %	Pass
Appearance/use	No negative effect	Pass

## End Use Classification

**HC/U – Heavy contract use**, suitable for heavy foot and wheel traffic and castor chair



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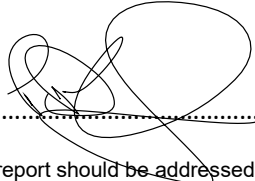
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Where required to make a judgement to any pass/fail criteria an estimation of uncertainty of measurement has been taken into account. Under our Policy we have used a non-binary decision rule.

See our decision rules Policy (<https://www.bttg.co.uk/about-us/decision-rules-policy/>) for further information.

Reported by:  ..... D Carruthers, Laboratory Technician

Countersigned by:  ..... P Doherty, Manager

Enquiries concerning this report should be addressed to Customer Services.



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## Uncertainty Budget

The overall uncertainty budget for BS EN 14499 is as follows:-

Overall uncertainty  $\pm 1$  Class



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