SPORTS LABS

TESTING TECHNOLOGY FOR SPORT

Laboratory Analysis Report

EN 15330-1: 2013 (Football)

CCGrass Leap NE 27-J2 SPE

Report Number: 15137/5847

Report Status: Final

Client: CCGrass
Floor 18th Dadi Building, No. 56, Huaqiao Road
Nanjing, 210029, China

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REGIONAL LOCATIONS

- England
- Netherlands
- Norway
- Sweden
- Italy
- Turkey
- United States
- France
- China

Foreword

This report has been prepared by Sports Labs Ltd with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it. This report is confidential to the Client, and Sports Labs Ltd accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.

The test results contained within this report represent the values measured on the samples received and tested under laboratory conditions. The compliance requirement limit(s) applied and reported make no allowance for measurement uncertainty.

The tests described in this report have been carried out in accordance with EN 15330-1: 2013 Surfaces for Sports Areas – Synthetic Turf and Needle-punched Surfaces Primarily Designed for Outdoor Use, and this report accurately reflects the outcome of the tests conducted.

* Not all tests carried out are within our scope of ISO 17025 accreditation.

This report is not an official National Governing Body report and does not imply NGB approval.

Remark: This report supersedes EN report 15137/5763 issued 13/01/2025. The Grey scale of yarn Leap 1 Olive has been updated at the request of the client. No other changes have been made. All previous versions of this EN15330-1 report are considered invalid and should be removed from circulation.

Report Written By:	Emma Steyn	**Report Checked By:**	Craig Melrose
Date:	29/01/2025	**Date:**	30/01/2025
Signed:		**Signed:**	

Test Laboratory

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Product Description		
Product Name:	CCGrass Leap NE 27-J2 SPE	
Synthetic Turf Name:	CCGrass Leap NE 27-J2	
Performance Infill:	-	-
Stabilising Infill:	-	-
Shockpad:	4101-8mm	Prefabricated shockpad
Substrate:	Rigid Engineered Base	
Number of Conditioning Rolls:	1000 conditioning rolls (per instruction from client)	
Free Pile Height:	Approx. 27 mm	

Surface Profile Image [Plan View]:	**Surface Profile Image [End Elevation]:**
	

Sample Reference			
Date of Test		18/10/2024 – 04/11/2024	
Laboratory Job No.		15137	**Date Received**
Sample Reference No.	**Synthetic Turf**	4855	04/10/2024
	Performance Infill	N/A	-
	Stabilising Infill	N/A	-
	Shockpad	Stock	-
Test Laboratories are required to store a reference sample of the tested product for a defined period. By checking the box opposite, we confirm that a 200x200mm sample has been placed in storage and will be retained as necessary.		☒ A sample of the tested product has been placed in storage and shall be retained as necessary.	
Ambient Temperature Range During Testing		21.0 – 25.0 °C (unless otherwise stated)	
Ambient Humidity Range During Testing		40 – 60 % (unless otherwise stated)	

Performance Results Summary					
Property	**Test Method**	**Test Condition**	**Mean Result**	**Requirement**	**Pass/ Fail**
Ball Rebound	EN 12235: 2013	DRY	**51 %**	45 – 75 %	**PASS**
		WET	**46 %**		
		20,200 Lisport Cycles	**69 %**		
Ball Roll	EN 12234: 2013	DRY	**9.8 m**	4 – 10.0 m	**PASS**
		WET	**9.9 m**		
Shock Absorption	EN 14808: 2005	DRY	**64 %**	55 – 70 %	**PASS**
		WET	**65 %**		
		20,200 Lisport Cycles	**61 %**		
Vertical Deformation	EN 14809: 2005	DRY	**8.6 mm**	4 – 9 mm	**PASS**
		WET	**8.9 mm**		
		20,200 Lisport Cycles	**6.2 mm**		
Rotational Resistance - Studded	EN 15301–1: 2007	DRY	**31 Nm**	25 – 50 Nm	**PASS**
		WET	**28 Nm**		
		20,200 Lisport Cycles	**38 Nm**		
Rotational Resistance - Dimpled	EN 15301–1: 2007	DRY	**29 Nm**	25 – 50 Nm	**PASS**
		WET	**26 Nm**		
Skin Friction	FIFA Test Method 08	WET	**0.694 μ** (1)	**For info**	
Water Permeability	EN 12616: 2022 Part 1 Method A	FILLED TURF	**1061 mm/hr**	≥ 500 mm/hr	**PASS**
		SYNTHETIC TURF ONLY	**1911 mm/hr**		

(1) Included for information only by request of the client – This is not a requirement of the EN 15330-1 specification.

Synthetic Turf - Identification						
Test method		**Manufacturer's Declaration**	**Mean Result**	**Variation**	**Requirement**	**Pass/Fail**
Carpet Mass	ISO 8543: 2020	4165 g/m^2	**4512 g/m^2**	+ 8.3 %	≤± 10 %	**PASS**
No. of Tufts	ISO 1763: 2020	23100 /m^2	**23589 /m^2**	+ 2.1 %	≤± 10 %	**PASS**
Gauge	ISO 1763: 2020	105	**105**	0 %	≤± 10 %	**PASS**
Stitch Rate		220	**224.7**	+ 2.1 %	≤± 10 %	**PASS**
Pile Length	ISO 2549: 1972/Cor 1:1990	27 mm	**28 mm**	+ 3.7 %	≤± 5 %	**PASS**
Pile Weight	ISO 8543: 2020	2942 g/m^2	**2901 g/m^2**	- 1.4 %	≤± 10 %	**PASS**
Pile Dtex	* EN 15330-1: 2013 - Section 4.8 Table 3 (Note b)	20700	**19041**	- 8.0 %	≤± 10 %	**PASS**
Water Permeability	EN 12616: 2022 Part 1 Method A	500 mm/hr	**1911 mm/hr**	382 %	≥ 50 % of declaration & ≥ 500 mm/h	**PASS**

Synthetic Turf – Material Tests					
Test method		**Test Condition**	**Mean Result**	**Requirement**	**Pass/Fail**
Tuft Withdrawal	ISO 4919: 2012	Un-aged	**58 N**	≥ 30 N & ≥ 85 % of declaration	**PASS**
	ISO 4919: 2012 & * EN 13744: 2004	14 Days Water Aged	**57 N**	≥ 30 N & ≥ 75 % of unaged	**PASS**
		After Lisport	**54 N** (2)	**For info**	
Carpet Tensile Strength	* EN 13934–1: 2013	Un-aged	**30 N/mm**	≥ 15 N/mm and ≤ 30% difference	**PASS**
			32 N/mm		**PASS**
Seam Strength – Peel	EN 12228: 2013 Method 2	Un-aged	**188 N/mm**	≥ 60 N/100mm	**PASS**
	EN 12228: 2013 Method 2 & * EN 13744: 2004	14 Days Water Aged	**155 N/mm**	≥ 60 N/100mm & ≥ 75 % of unaged	**PASS**

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

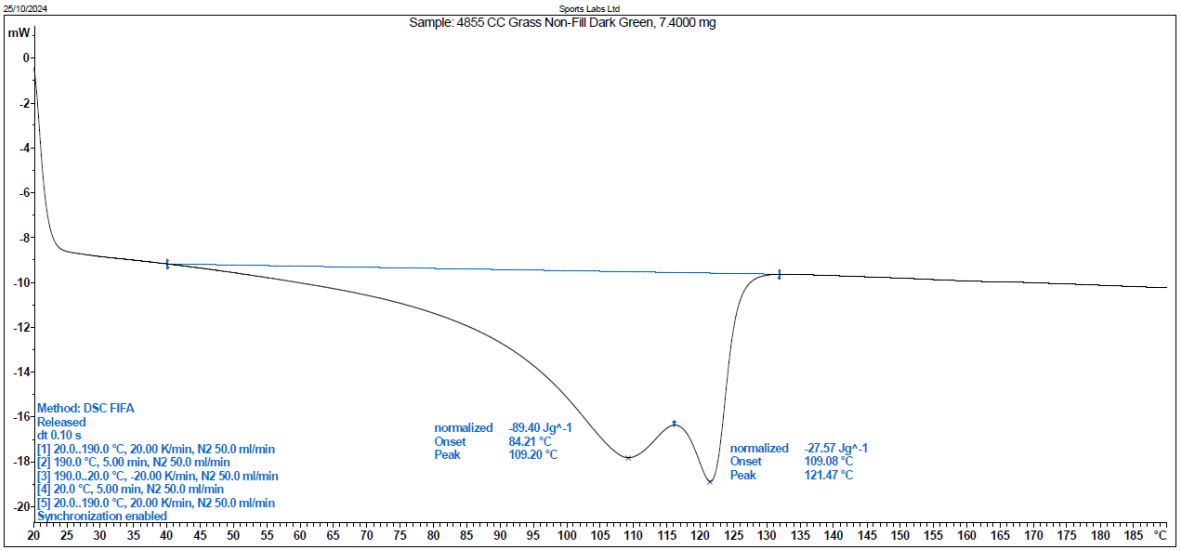
(2) Included for information only by request of the client – This is not a requirement of the EN 15330-1 specification.

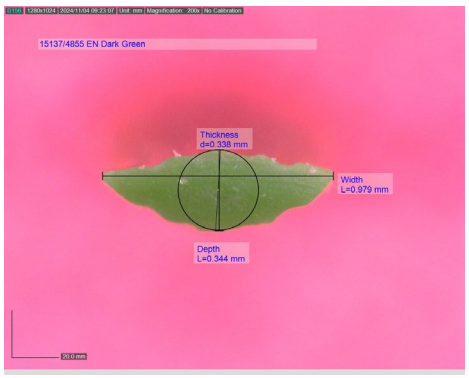
Synthetic Turf Yarns – Resistance to Artificial Weathering								
Test method		**Test Condition**	**Mean Result**				**Requirement**	**Pass/Fail**
Yarn Tensile Strength	* EN 13864: 2004	**Monofilament**	**Leap 1 Emerald**	**Leap 1 Olive**	**Leap 2 Emerald**	**Leap 3 Emerald**	Monofilament ≥ 8 N	**PASS**
		Un-aged	**19.4 N**	**19.0 N**	**8.0 N**	**8.3 N**		
	* EN 13864: 2004 & * EN 14836: 2018	UVA 340nm aged	**18.5 N**	**17.5 N**	**7.0 N**	**6.9 N**		
% Change in Tensile Strength	* EN 13864: 2004 & * EN 14836: 2018	UVA 340nm aged	**5 %**	**8 %**	**12.9 %**	**16.9 %**	≤ 50 % change	
Colour Change (Grey-scale)	* EN 20105–A02	UVA 340nm aged	**4-5**	**4**	**4**	**4-5**	≥ 3 grey-scale	

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

Yarn Identification	
Yarn Name	**Leap 1 – Emerald Green**
Yarn Composition	**PE**

Yarn Material Tests

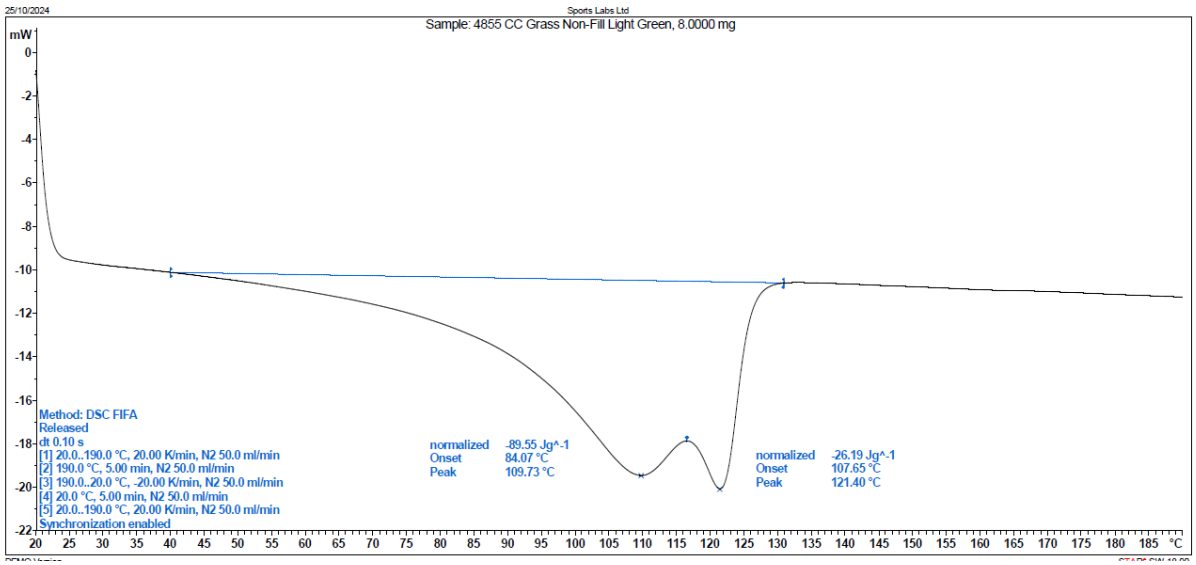


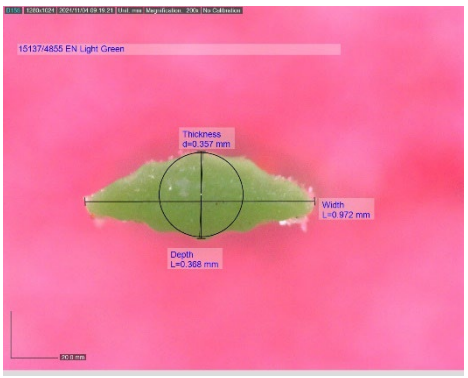
Property	Test Method	Manufacturer's Declaration	Mean Result	Requirement	Pass/ Fail
Polymer Composition	ISO 11357-3: 2018	113.04 & 123.15 °C	**109.20 & 121.47 °C**	± 4 °C (peak) Same number of peaks & profile	**PASS**
Thickness	FIFA Test Method 25	370 microns	**338 microns**	> 90 %	**PASS**
Width		1.0 mm	**1.0 mm**	-	**PASS**
Colour	* Visual (RAL)	RAL 6002	**RAL 6002**	Same Colour	**PASS**
Dtex	* EN 15330-1: 2013 Section 4.8 Table 3 (Note b)	2000 x 2	**1905 x 2**	≤± 10 %	**PASS**
Profile Shape	* Visual	Wave olive	**Wave olive**	Same Shape	**PASS**
Yarn Image					

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

Yarn Identification	
Yarn Name	**Leap 1 – Olive Green**
Yarn Composition	**PE**

Yarn Material Tests

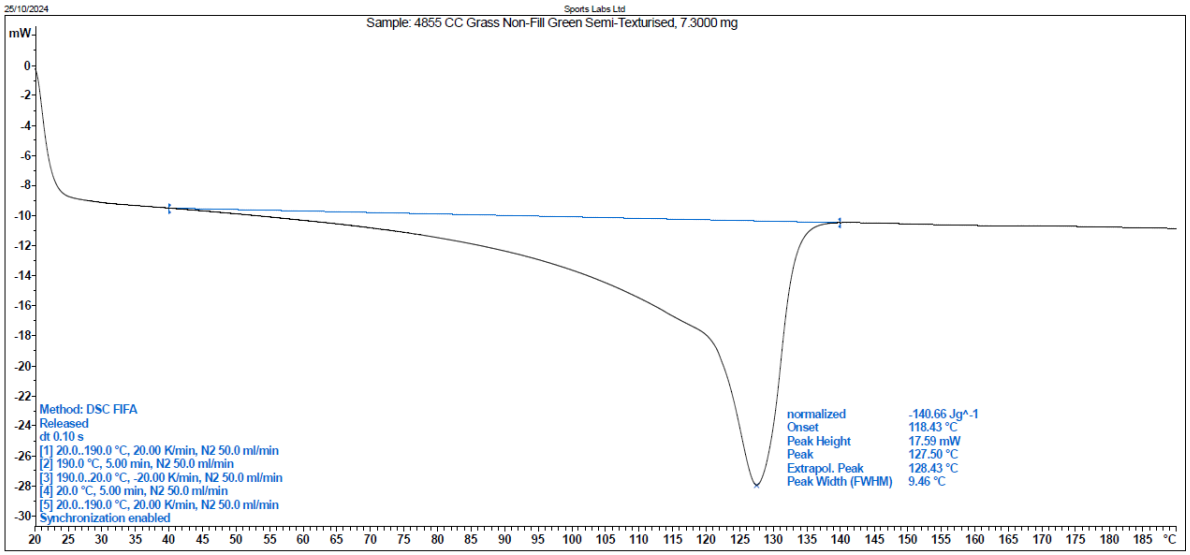


Property	Test Method	Manufacturer's Declaration	Mean Result	Requirement	Pass/ Fail
Polymer Composition	ISO 11357-3: 2018	112.53 & 123.11 °C	**109.73 & 121.40 °C**	± 4 °C (peak) Same number of peaks & profile	**PASS**
Thickness	FIFA Test Method 25	370 microns	**357 microns**	> 90 %	**PASS**
Width		1.0 mm	**1.0 mm**	-	**PASS**
Colour	* Visual (RAL)	RAL 6025	**RAL 6025**	Same Colour	**PASS**
Dtex	* EN 15330-1: 2013 Section 4.8 Table 3 (Note b)	2000 x 2	**1918 x 2**	≤± 10 %	**PASS**
Profile Shape	* Visual	Wave olive	**Wave olive**	Same Shape	**PASS**
Yarn Image					

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

Yarn Identification	
Yarn Name	**Leap 2 – Emerald Green**
Yarn Composition	**PE**

Yarn Material Tests

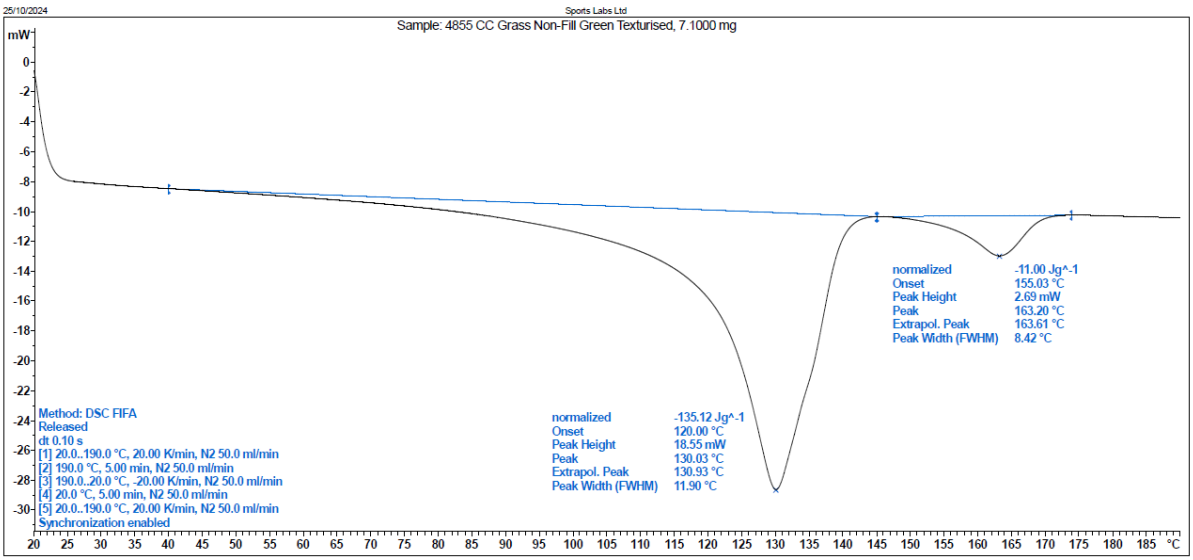


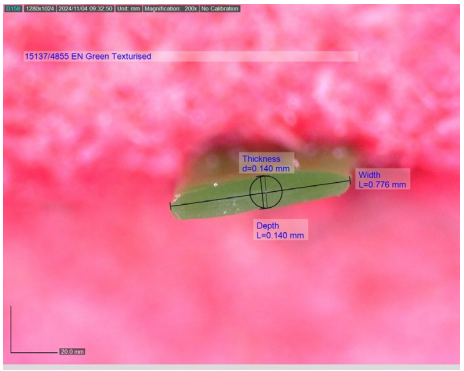
Property	Test Method	Manufacturer's Declaration	Mean Result	Requirement	Pass/ Fail
Polymer Composition	ISO 11357-3: 2018	129.64°C	**127.50 °C**	± 4 °C (peak) Same number of peaks & profile	**PASS**
Thickness	FIFA Test Method 25	200 microns	**201 microns**	> 90 %	**PASS**
Width		0.95 mm	**0.9 mm**	-	**PASS**
Colour	* Visual (RAL)	RAL 6002	**RAL 6002**	Same Colour	**PASS**
Dtex	* EN 15330-1: 2013 Section 4.8 Table 3 (Note b)	1200 x 6	**1094 x 6**	≤± 10 %	**PASS**
Profile Shape	* Visual	Diamond	**Diamond**	Same Shape	**PASS**
Yarn Image					

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

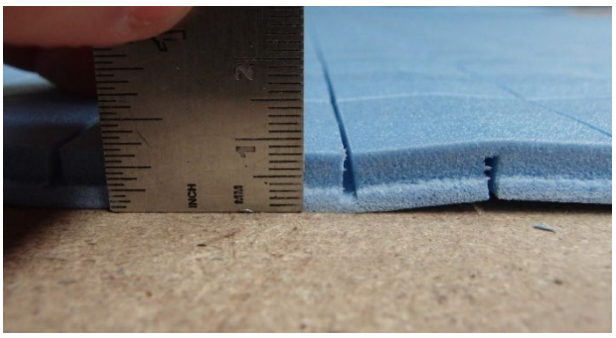
Yarn Identification	
Yarn Name	**Leap 3 – Emerald Green**
Yarn Composition	**PE**

Yarn Material Tests



Property	Test Method	Manufacturer's Declaration	Mean Result	Requirement	Pass/ Fail
Polymer Composition	ISO 11357-3: 2018	130.18 & 162.38 °C	**130.03 & 163.2 °C**	± 4 °C (peak) Same number of peaks & profile	**PASS**
Thickness	FIFA Test Method 25	140 microns	**140 microns**	> 90 %	**PASS**
Width		0.8 mm	**0.8 mm**	-	**PASS**
Colour	* Visual (RAL)	RAL 6002	**RAL 6002**	Same Colour	**PASS**
Dtex	* EN 15330-1: 2013 Section 4.8 Table 3 (Note b)	917 x 6	**878 x 6**	≤± 10 %	**PASS**
Profile Shape	* Visual	Flat	**Flat**	Same Shape	**PASS**
Yarn Image					

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

Shockpad - Identification					
Shockpad Name	**4101-8mm**				
Shockpad Composition	**Physically cross-linked closed cell polyolefin foam**				
Shockpad – Material Tests					
Property	**Test Method**	**Test Condition**	**Mean Result**	**Requirement**	**Pass/ Fail**
Mass per unit area	ISO 8543: 2020	Unaged	**622 g/m^2**	-	**PASS**
Thickness	EN 1969: 2000	Unaged	**8 mm**	≥ 90 % of declaration	**PASS**
Shock Absorption	EN 14808: 2005	Unaged	**35 %**	≤± 5 % of declaration	**PASS**
Vertical Deformation	EN 14809: 2005	Unaged	**5.4 mm**	-	**PASS**
Tensile Strength	* EN 12230: 2023(3)	Unaged	**1.47 kN/m (3)**	≥ 0.15 MPa	**PASS**
	* EN 12230: 2023(3) & * EN 13817: 2004	14 Days Air Aged	**1.11 kN/m (3)**		**PASS**
Shockpad Image					

(* note: these tests are outwith our scope of ISO 17025 Accreditation)

(3) Tensile strength tested to *EN 12230: 2023 Method 3. Result expressed in kN/m.

Conclusion

The product submitted was tested in accordance with the methods and requirements outlined in EN 15330-1: 2013. We confirm all information presented within this report is accurate and appropriately reflects the performance of the samples submitted. Based upon the test results we consider the product supplied to have:

☒ Met all requirements of EN 15330-1: 2013 for surfaces designed primarily for football

☐ Failed to meet some requirements of EN 15330-1: 2013 for surfaces designed primarily for football

The test results contained within this report represent the values measured on the samples received and tested under laboratory conditions. Any change to materials/components may affect the outcome of the tests.

The compliance requirement limit(s) applied and reported make no allowance for measurement uncertainty.

Sample Pictures

Pre-Wear	After 20,200 Lisport Cycles
	
	

(* note: these tests are out with our scope of ISO 17025 Accreditation)

Appendix A – Test Method, Equipment and Uncertainty Value Summary			
Test Method		**SL Equipment Number**	**Uncertainty Value**
Ball Rebound	EN 12235: 2013	SL113, SL198, SL282, SL481	(k=2.52) ± 2.21 %
Ball Roll	EN 12234: 2013	SL277, SL061, SL198	(k=2.83) ± 0.05 m
Shock Absorption	EN 14808: 2005	SL121, SL281, SL053	(k=2.24) ± 2.13 %
Vertical Deformation	EN 14809: 2005	SL121, SL118, SL053, SL107, SL108	(k=4.25) ± 0.83 mm
Rotational Resistance	EN 15301–1: 2007	SL098, SL194, SL224	(k=2.30) ± 2.50 Nm
Water Permeability	EN 12616: 2022 Part 1 Method A	SL023, SL071, SL215	(k=2.37) ± 14.3 %
* Simulated Use	* EN 15306: 2014	SL201	-
Mass per unit area	ISO 8543: 2020	SL093	± 9.9 g/m^2
Tufts per unit area	ISO 1763: 2020	SL049	± 12.3 /m^2
Gauge and stitch rate	ISO 1763: 2020	SL049	± 12.3 /m^2
Pile length above backing	ISO 2549: 1972/Cor 1:1990	SL049	± 0.76 mm
Pile Weight	ISO 8543: 2020	SL093	± 8.8 g/m^2
* Pile Dtex	* EN 15330-1: 2013 Section 4.8 Table 3 (Note b)	SL049, SL093	± 2.23 dtex
Tuft Withdrawal	ISO 4919: 2012 & * EN 13744: 2004	SL178	± 5.1 %
* Colour (Tufted yarn)	* Visual (RAL)	SL204	-
Polymer Characterisation	ISO 11357-3: 2018	SL599	± 0.17 °C
Particle Size	EN 933–1: 2012	SL160-169	-
Particle Shape	EN 14955: 2005	Visual, SL020	-
Loose Bulk Density	EN 1097-3: 1998	SL020, SL227	(k=2.86) ± 0.004 Mg/m^3
Thickness	EN 1969: 2000	SL290	(k=2.00) ± 0.14 mm
* Shockpad Tensile & Air Ageing	* EN 12230: 2023 & * EN 13817: 2004	SL178, SL084, SL479	(k=2.87) ± 0.03 MPa
Joint Strength – Peel	EN 12228: 2013 Method 2 & * EN 13744: 2004	SL178, SL177	(k=2.32) ± 7.05 N
* Carpet Tensile Strength	* EN 13934–1: 2013	SL178	-
* Yarn Tensile Strength	* EN 13864: 2004	SL178	-
* Resistance to Artificial Weathering	* EN 14836: 2018 & * EN 13864: 2004	SL178, SL085, SL214, SL200, SL439	-
* Colour Fastness (Grey-scale)	* EN 20105–A02 & * EN 14836: 2018	SL085, SL214, SL200, SL439	-

END OF REPORT

TESTING TECHNOLOGY FOR SPORT