

# Laboratory Test Report – Two Star Category



## Information for applicants

The applicant should complete sections one, three and four of this report before sending it to their appointed FIFA accredited test laboratory together with the following samples:

- 11m x 1m of artificial turf and adequate infill materials (this surface should have no joints or inlaid lines)
- 2m x 1m of any shockpad or e-layer
- 5m length of pile yarn – if more than one yarn is used to form the pile please send one length of each
- 1m by 1m sample of artificial turf split down the middle and rejoined using the proposed jointing / seaming method

Information designated 'reference' in Section 3 will be used to verify samples submitted for laboratory test are in accordance with the manufacturer's declaration. It was also be used to verify samples installed on site are the same as those previously tested in the laboratory. **Where a test method is specified the property must be measured using it.**

On completion of the test programme the test laboratory will send the completed report directly to FIFA Marketing AG.

It a Football Turf is laid on a base that is designed to contribute to the dynamic performance of the surface laboratory tests shall be carried out on tests specimens laid on the base. In such cases please supply adequate materials to construct a test bed measuring a minimum of 1m by 1m by the depth required to provide the dynamic response of the artificial turf system. If the test bed is to be constructed by test laboratory please also provide full installation instructions including details of compaction levels, etc.

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## Section 1: Product and applicant details

Surface name				
Applicant				
Address				
Tel.				
Fax.				
Email				
Web				
Contact name				
Tel.				
Email				
Contact signature				
Surface product code (mandatory)				
Carpet name				
Performance infill				
Stabilising infill				
Shockpad or e-layer				
Base on which tests are to be made	Concrete	<input type="radio"/>	Unbound aggregate	<input type="radio"/>

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## Section 2: Summary of results

Surface Name		Product code	
Performance infill		Stabilising infill	
Shockpad / e-layer		Base	
<b>Property</b>	<b>Pass/fail</b>	<b>Property</b>	<b>Pass/fail</b>
<b>Ball/Surface interaction</b>			
Vertical ball rebound		Vertical ball rebound after simulated wear	
Ball roll		Angle ball rebound	
<b>Player/Surface interaction</b>			
Shock absorbency		Shock absorbency at 40°C	
Shock absorbency at -5°C <sup>(1)</sup>		Shock absorbency after simulated wear	
Deformation		Deformation after simulated wear	
Rotational resistance		Stud slide value	
Stud deceleration value		Skin abrasion	
Skin / surface friction			
<b>Effects of Artificial Weathering</b>			
Pile yarn colour change		Pile yarn tensile strength	
Polymeric infill colour change			
<b>Miscellaneous properties</b>			
Unaged joint strength		Water aged joint strength	
Water permeability		Tensile strength of shockpad	
<b>Overall assessment</b>			
<b>Passed</b>		<b>Failed</b>	
Signature		Date	
Test Laboratory			
Laboratory reference			

1 Surfaces that fail the shock absorption test at -5°C may only be installed on pitches that have an under pitch heating system or in locations that do not experience temperatures below 0°C.

## Section 3: Reference information

Component	Property	Test Method	Specification	Property	Test Method	
Artificial turf	Carpet mass per unit area	ISO 8543		Total tufts per unit area	ISO 1763	
	Tuft withdrawal force	ISO 4919		Overall pile length	ISO 2549	
	Total pile weight	ISO 8543				
	Pile yarn characterisation	<b>Yarn A</b>		<b>Yarn B</b>		<b>Yarn C</b>
Performance infill	Particle size (range)	EN 933 - Part 1		Particle shape	prEN 14955	
	Bulk density	EN 13041		Material type		
Stabilising infill	Particle size (range)	EN 933 - Part 1		Particle shape	prEN 14955	
	Bulk density	EN 13041		Material type		
Shockpad	Thickness	EN 1969		Shock absorption	EN 14808	



## Section 4: Product description

<b>Artificial Turf</b>			
Manufacturer			
Tuft pattern			
Pile yarn	<b>Yarn A</b>	<b>Yarn B</b>	<b>Yarn C</b>
Manufacturer			
Product name / code			
Pile length	mm	mm	mm
Pile weight	g/m <sup>2</sup>	g/m <sup>2</sup>	g/m <sup>2</sup>
Pile detex			
Pile width	mm	mm	mm
No of tufts / m <sup>2</sup>			
Pile thickness	micron	micron	micron
Pile colour (RAL No)			
<b>Primary turf backing</b>			
Manufacturer			
Product name / code			
Type of product			
Polymer composition			
<b>Reinforcement scrim</b>			
Manufacturer			
Product name / code			
Type of product			
<b>Secondary backing (coating)</b>			
Manufacturer			
Product name / code			
Type of product			
Application rate	g/m <sup>2</sup>		
<b>Carpet joints</b>			
<b>Stitched seams</b>			
Tread or Velcro manufacturer / brand name / product code			

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<b>Bonded seams</b>		
Adhesive manufacturer / brand name		
Adhesive application rate		g/m
Backing film manufacturer / brand name / product code		
<b>Performance infill</b>		
Manufacturer / supplier		
Product name / code		
Material		
Application rate / depth	kg/m <sup>2</sup>	mm
<b>Stabilising infill</b>		
Manufacturer / supplier		
Product name / code		
Material		
Application rate / depth	kg/m <sup>2</sup>	mm
<b>Shockpad / e-layer (when supplied as part of system)</b>		
Manufacturer		
Product name / code		
Composition (type, rubber granule grading, binder content, etc)		
Nominal mass per unit area		kg/m <sup>2</sup>



## Section 5: Detailed laboratory tests results

Property	Specified range	Test condition	Mean result	Pass / fail
Vertical ball rebound	0.6 m – 0.85 m	Dry		
		Wet		
		After simulated wear		
Angle ball rebound	45 % - 60 %	Dry		
	45 % - 80 %	Wet		
Ball roll	4 m – 8 m	Dry		
		Wet		
Shock absorption	60 % - 70 %	Dry		
		Wet		
		After simulated wear		
		-5°C <sup>(1)</sup>		
		40°C		
Deformation	4 mm – 8 mm	Dry		
		Wet		
		After simulated wear		
Rotational resistance	30 Nm – 45 Nm	Dry		
		Wet		
		After simulated wear		
Linear friction Stud deceleration value	3.0 g – 5.5 g	Dry		
		Wet		
Linear friction Stud slide value	130 – 210	Dry		
		Wet		

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Property	Specified range	Test condition	Mean result	Pass / fail
Skin / surface friction	0.35 $\mu$ – 0.75 $\mu$	Dry		
Skin abrasion	$\pm$ 30 %	Dry		
<b>Effects of artificial weathering</b>				
Property	Aspect	Requirement	Result	Pass / fail
Pile yarn (s)	Colour change	$\geq$ Grey scale 3		
	Yarn tensile strength	% change $\leq$ 50%		
Polymeric infills	Colour change	$\geq$ Grey scale 3		
	Visual change in composition	No change		
<b>Miscellaneous</b>				
Property	Requirement	Condition	Result	Pass / fail
Joint strength	$\geq$ 1000 N/100mm	Unaged		
		Water aged		
	$\geq$ 25 N/100mm	Unaged		
		Water aged		
Water permeability	>180 mm/h	N/A		
Tensile strength of shock / e-layer	0.15 Mpa	Unaged		
<b>Product identification</b>				
Artificial turf and pile yarn(s)	Mass per unit area			
	Tufts per unit area			
	Tuft withdrawal force			
	Pile length			

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	Pile weight		
	Pile yarn characterisation (attach DSC graph to test report)		
Infill layer depth(s)	<b>Layer 1</b>	<b>Layer 2</b>	<b>Layer 3</b>
Performance infill	Particle size range (attach particle size grading to test report)		
	Particle shape		
	Bulk density		
	Polymer Type		
	Thermo-gravimetric analysis	% organic	
		% inorganic	
Residual compression & change in appearance			
Stabilising infill	Particle size range (attach particle size grading to test report)		
	Particle shape		
	Bulk density		
Shockpad or e-layer (if supplied as part of system)	Shock Absorption		
	Thickness		
Unbound sub-bases (if tested as part of system)	Composition		
	Particle size range (attach particle size grading to test report)		
	Particle shape		
	Thickness		



## Section 6: laboratory tests for data collection

Property	Test condition	Mean result
Shock absorption – studded foot	Dry	
	Wet	
Deformation – studded foot	Dry	
	Wet	