



Document Ref: FS1013-SEL-EX-XX-T-SC-9001

Doc Title: 3G Synthetic Turf System Specification

Revision: P02

Purpose of Issue: S4 - For Stage Approval

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GRASS SPECIFICATION

Grass Name	SIS Grass Xtreme 60+		
Premium, long-pile monofilament 3G synthetic surface suitable for football. Featuring our latest propeller-shaped monofilament and our specially developed SIS Bond polyurethane coating technology.			
Application	Football		
Colour	Turf green / Bright green		
Product Description	Premium, long-pile, polyethylene monofilament surface		
Product Benefits	Dense, durable and resilient system		
	Excellent ball-surface and player-surface interaction and performance		
	Made in the UK using the latest yarn and PU coating technologies		
Yarn Type	Heavy-metal free, UV stabilised, polyethylene fibrillated		
Yarn Structure	6-ply, 12,000 dtex, propeller shape		
Tuft Characteristics			
Pile Weight	1,273g per m2	Pile Height	60mm
Number of Stitches	13 per 10cm	Machine Gauge	5/8”
Backing Characteristics			
Primary Backing	Backing structure	2 x woven polypropylene primary backings	
Secondary Backing			
Compound base	SIS Bond polyurethane		
Colour	Beige	Coating Weight	600g per m2
Particulate Infill			
Sand Type	Silica sand at 0.2-0.7mm	Performance Infill Type	SBR at 0.8-2.0mm
Recommend Infill Ratio	18kg per m2	Recommend Infill Ratio	18kg per m2
Width	4m	Length	Up to 65m
Total Product Weight	2,096g per m2		





FIFA LABORATORY TEST REPORT

TM Football Turf I 2015
01.01.2015

Product	SIS Grass Xtreme 60 +
FIFA Licensee	Support in Sport Group Limited
Test Institute	Surface Performance Ltd.

Test Number	146509
External Test Number	SP4879
Date of Test	31.10.2025
Test Result	Passed
Quality Level	FIFA Quality/Quality PRO
Test Type	Initial



Licensee

Main Address

Name	Support in Sport Group Limited
Address	Glasson Ind. Estate
ZIP / City	UK CA15 8NT / Maryport, Cumbria
Website	
Contact Email	
Contact Phone	+44/19008 12786

Test institute

Main Address

Name	Surface Performance Ltd.
Address	Surface Performance Ltd Unit 16 Vicarage Farm Sunbury On Thames
ZIP / City	TW16 6DW / London
Website	
Contact Email	
Contact Phone	

Approval

Test Institute Director	Callum Reid
Signature	
Date	31.10.2025

Test Institute Engineer	Alisson Biscaia
Signature	
Date	31.10.2025



1 – Test Results

Name	Comment	Result
1 - Summary		
Vertical ball rebound FIFA Quality		Passed
Vertical ball rebound FIFA Quality Pro		Passed
Angle ball rebound FIFA Quality		Passed
Angle ball rebound FIFA Quality Pro		Passed
Reduced ball roll FIFA Quality		Passed
Reduced ball roll FIFA Quality Pro		Passed
Shock absorption FIFA Quality		Passed
Shock absorption FIFA Quality Pro		Passed
Deformation FIFA Quality		Passed
Deformation FIFA Quality Pro		Passed
Rotational resistance FIFA Quality		Passed
Rotational resistance FIFA Quality Pro		Passed
Skin / surface friction		Passed
Skin abrasion		Passed
1 - Test Details Object		
Product Name		SIS Grass Xtreme 60 +
Product ID		SIS Grass Xtreme 60 +
Synthetic Turf System		3G
Performance infill		SBR
Stabilising infill		Silica Sand
Shock-pad or elastic layer		N/A
Sub-base composition		Concrete
2 - Test Details Test Institute		
Date(s) of test		31.10.2025
Report created by		Russell Thompson
Laboratory Test report number		146509
Test Institute Project number		SP4879
3 – Product Declaration (Manufacturer)		
Manufacturer		Support in Sport Group Ltd
Tuft pattern		Straight
Yarn manufacturer yarn 1		Consan
Detailed tuft decitex (Dtex) [g/10000m]		6000 + 6000



Name	Comment	Result
Product name, code yarn 1		SupDura
Pile yarn profile yarn 1		Propeller
Pile thickness (µ m) yarn 1		380.0
Pile colour (RAL) value 1 yarn 1		6010
Pile colour (RAL) value 2 yarn 1		6025
Pile width (mm) yarn 1		1.20
Number of tufts/m2 yarn 1	ISO1773	8190.00
Pile length (mm) yarn 1	ISO 2549	60.00
Pile weight (g/m2) yarn 1	ISO 8543	1273.00
Pile yarn characterization yarn 1		LLDPE
Pile yarn dtex yarn 1		12000
Primary backing Product name, code		X2
Primary backing Manufacturer		Carpet Backing
Secondary backing Product name, code		SIS Bond
Secondary backing Manufacturer		Polytex
Secondary backing Dry application rate (g/m2)		600.0
Carpet Minimum tuft withdrawal force (N)		40
Carpet Carpet mass per unit area [g/m2]		2096.0
Method of jointing		Bonded
Bonded joints Adhesive brand name		Ultrafix
Bonded joints Adhesive manufacturer		Envirostik
Bonded joints Application rate (g/m)		625
Bonded joints Jointing film brand name		LPX
Bonded joints Jointing film manufacturer		Envirostik
Performance Infill Product name, code		MiSport 0820
Performance Infill Manufacturer		Murfitts Industries
Performance Infill Material grading		SBR
Performance Infill Particle shape	prEN 14955	Irregular
Performance Infill Particle size range	EN 933-Part 1	0.8 - 2.0
Performance Infill Bulk density (g/cm3)	EN 1097-3	0.460
Performance Infill Application rate (kg/m2)		16.0

Name	Comment	Result
Stabilising Infill Product name, code		2EW
Stabilising Infill Manufacturer		Garside Sands
Stabilising Infill Material type		Silica Sand
Stabilising Infill Material grading		0.2 - 0.8
Stabilising Infill Particle shape	prEN 14955	Round
Stabilising Infill Particle size range	EN 933-Part 1	0.2 - 0.8
Stabilising Infill Bulk density (g/cm ³)	EN 1097-3	1.56
Stabilising Infill Application rate (kg/m ²)		22.0
Other, detail		Skin abrasion no longer a requirement of FIFA Test Manual II -Test Requirements October 2015 v3.5.
3 – Test Results Player / Surface Interaction		
Rotational Resistance Initial Dry (Quality)	27 - 48 Nm	32
Rotational Resistance Initial Dry (Pro)	32 - 43 Nm	32
Rotational Resistance Initial Wet (Quality)	27 - 48 Nm	32
Rotational Resistance Initial Wet (Pro)	32 - 43 Nm	32
Rotational Resistance after simulated wear 3'000 cycles (5*)	32 - 43 Nm	32
Rotational Resistance after simulated wear 6'000 cycles (5*)	27 - 48 Nm	37
4 – Product Identification		
Artificial Turf Carpet mass per unit area [g/m ²]		1947
Artificial Turf Tufts per unit area [m ²]		7702
Artificial Turf Pile length above backing [mm]		61.0
Artificial Turf Pile weight [g/m ²]		1171
Detailed tuft decitex (Dtex) [g/10000m]		6014 + 6014
Artificial Turf Water permeability of carpet [mm/h]		2399



Name	Comment	Result
Artificial Turf Free pile height		15
Performance infill Particle size range [mm]		1 - 2.5
Performance infill Particle shape		A2
Performance infill Bulk density [g/cm ³]		0.503
Performance infill Infill depth [mm]		27
Performance infill Thermographic analysis organic [%]		64
Performance infill Thermographic analysis inorganic [%]		36
Stabilising infill Particle size range [mm]		0.315 - 0.8
Stabilising infill Particle shape		C2
Stabilising infill Bulk density [g/cm ³]		1.51
5 – Test Results Ball / Surface interaction		
Vertical Ball Rebound Initial Dry (Quality)	0.6 - 1m	0.75
Vertical Ball Rebound Initial Dry (Pro)	0.6 - 0.85m	0.75
Vertical Ball Rebound Initial Wet (Quality)	0.6 - 1m	0.60
Vertical Ball Rebound Initial Wet (Pro)	0.6 - 0.85m	0.60
Vertical Ball Rebound after simulated wear 3'000 cycles (5*)	0.6 - 0.85m	0.83
Vertical Ball Rebound after simulated wear 6'000 cycles (5*)	0.6 - 1m	0.95
Angle Ball Rebound Dry	45 - 80 %	53
Angle Ball Rebound Wet	45 - 80 %	70
Reduced Ball Roll Initial Dry (Quality)	4 - 10 m	7.3
Reduced Ball Roll Initial Dry (Pro)	4 - 8 m	7.3
Reduced Ball Roll after simulated wear 3'000 cycles (5*) Dry	4 - 8 m	7.5
Reduced Ball Roll after simulated wear 3'000 cycles (5*) Wet	4 - 8 m	7.5
Reduced Ball Roll after simulated wear 6'000 cycles (5*) Dry	4 - 12 m	7.2



Name	Comment	Result
Reduced Ball Roll after simulated wear 6'000 cycles (5*) Wet	4 - 12 m	7.8
Shock absorption Initial Dry (Quality)	57 - 68 %	64.8
Shock absorption Initial Dry (Pro)	62 - 68 %	64.8
Shock absorption Initial Wet (Quality)	57 - 68 %	62.8
Shock absorption Initial Wet (Pro)	62 - 68 %	62.8
Shock absorption after simulated wear 3'000 cycles (5*)	62 - 68 %	64.6
Shock absorption after simulated wear 6'000 cycles (5*)	57 - 68 %	60.0
Shock absorption 50°C	57 - 68 %	63.30
Shock absorption -5°C (optional)	57 - 68 %	64.50
Other, detail		Environmental impact results taken from Sportslabs report no. 12343/5963 & 12343/5962
5 – Test Results Player / Surface interaction		
Deformation Initial Dry (Quality)	4 - 11 mm	9.8
Deformation Initial Dry (Pro)	4 - 10 mm	9.8
Deformation Initial Wet (Quality)	4 - 11 mm	9.3
Deformation Initial Wet (Pro)	4 - 10 mm	9.3
Deformation after simulated wear 3'000 cycles (5*)	4 - 10 mm	9.0
Deformation after simulated wear 6'000 cycles (5*)	4 - 11 mm	8.4
Skin / surface friction Dry	0.35 - 0.75 μ	0.67
Skin / surface friction Dry 3'000 cycles	0.35 - 0.75 μ	0.53
Skin / surface friction Dry 6'000 cycles	0.35 - 0.75 μ	0.66
Skin abrasion Dry	$\pm$ 30 %	0
6 – Environmental impact (artificial, light, water)		
Pile yarn 1 Colour change after artificial weathering	$\geq$ Grey scale 3	5
Pile yarn 2 Colour change after artificial weathering	$\geq$ Grey scale 3	5

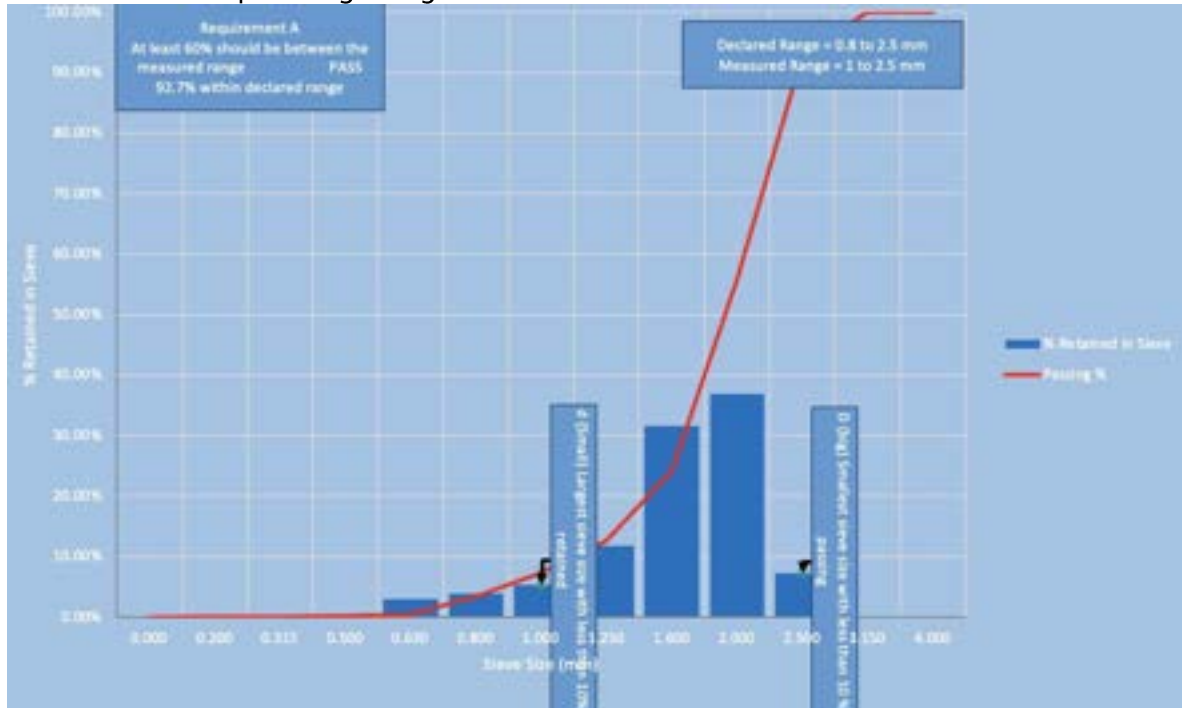


Name	Comment	Result
Pile yarn 1 Peak Breakage Force before artificial weathering		17.30
Pile yarn 1 Peak Breakage Force after artificial weathering		17.7
Pile yarn 1 Peak Breakage Force Green Reference value before artificial weathering		17.30
Pile yarn 1 Peak Breakage Force Variation after weathering from Green Reference value	Change $\leq$ 25 %	2.00
Pile yarn 2 Peak Breakage Force before artificial weathering		17.30
Pile yarn 2 Peak Breakage Force after artificial weathering		17.1
Pile yarn 2 Peak Breakage Force Green Reference value before artificial weathering		17.30
Pile yarn 2 Peak Breakage Force Variation after weathering from Green Reference value	Change $\leq$ 25 %	10.00
Polymeric infill Colour change after artificial weathering	$\geq$ Grey scale 3	5
Polymeric infill Visual change in composition after artificial weathering	No change	5
Complete system Water permeability	$>$ 180 mm/h	1466
Stitched joints Strength un-aged	$\geq$ 1000N/100mm	11100
Stitched joints Strength water aged	$\geq$ 1000N/100mm	6900
Carpet tuft Withdrawal force un-aged	$\geq$ 40N	40
Carpet tuft Withdrawal force water aged	$\geq$ 40N	41
Heat Category	for information	3
Turf Product Report Details		
Shockpad, E-layer Type Category		No Shockpad
Performance Infill Material type Category		End of Life Tires Infill (ELT)
Splash Characteristics Category		$\geq$ 1.5%

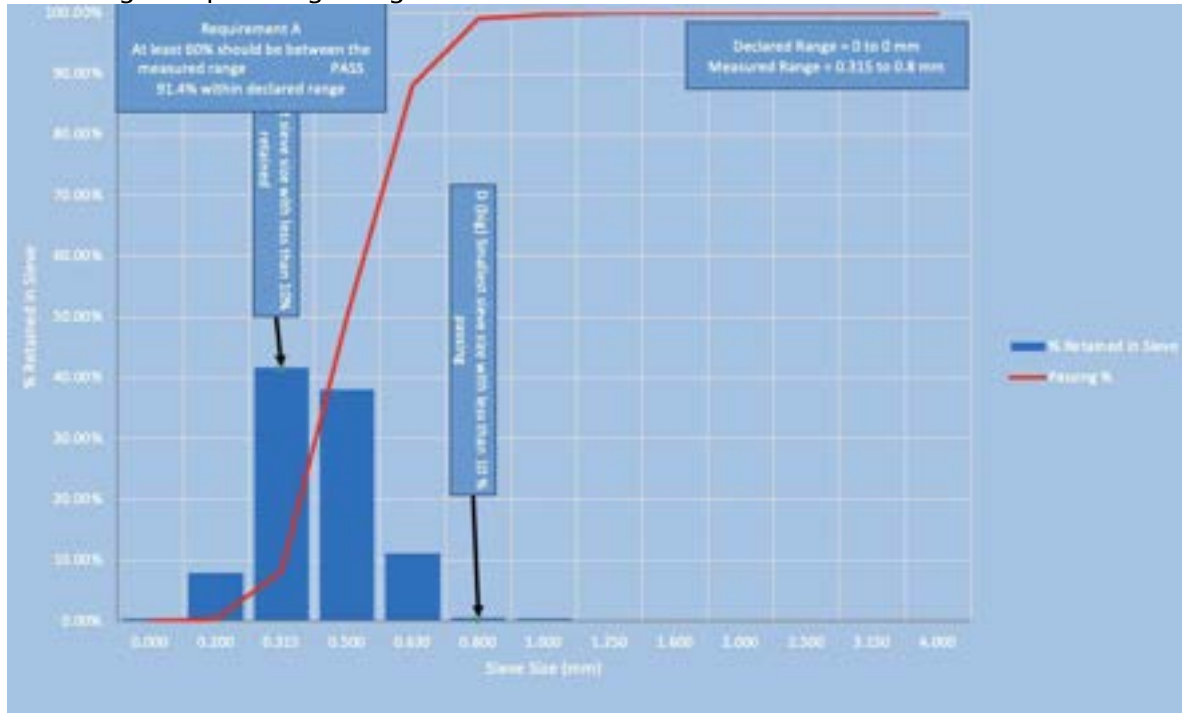


2 – Test Images

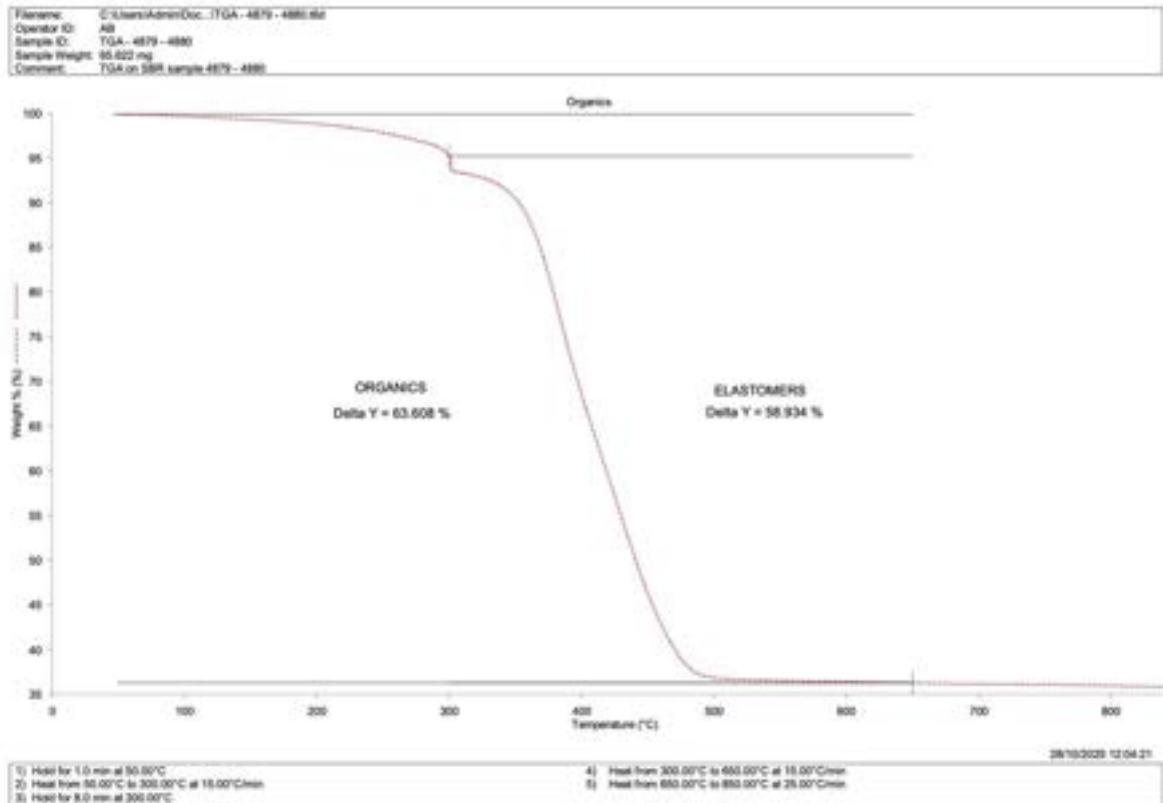
Performance infill particle grading curve



Stabilising infill particle grading curve



TGA of performance infill



Simulated wear - Before 1



Simulated wear - Before 2



Simulated wear - Before 3



Simulated wear - Before 4



Simulated wear - After 1



Simulated wear - After 2



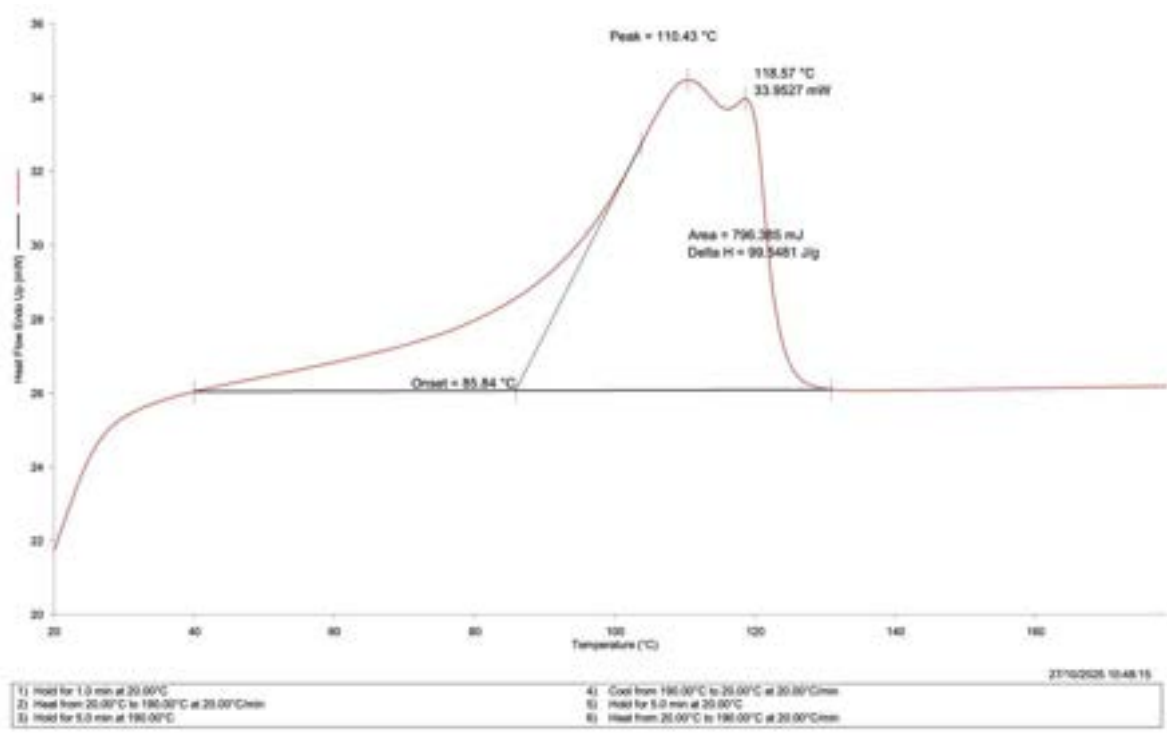
Simulated wear - After 3



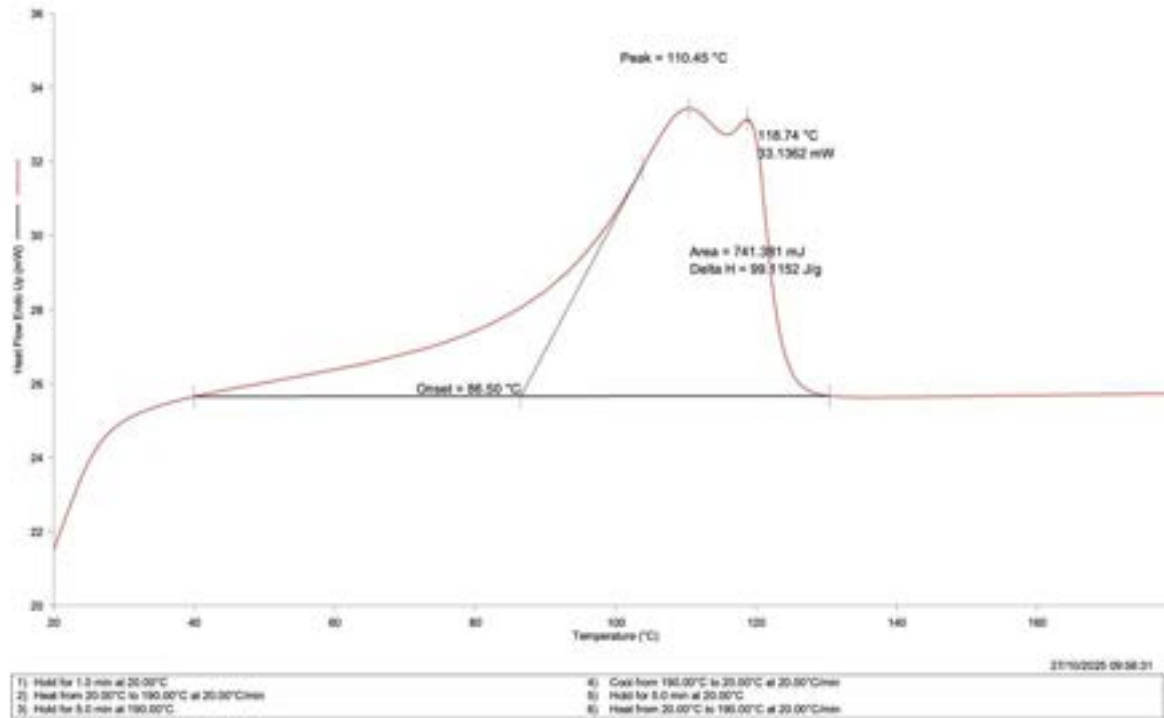
Simulated wear - After 4



Yarn Characteristics DSC



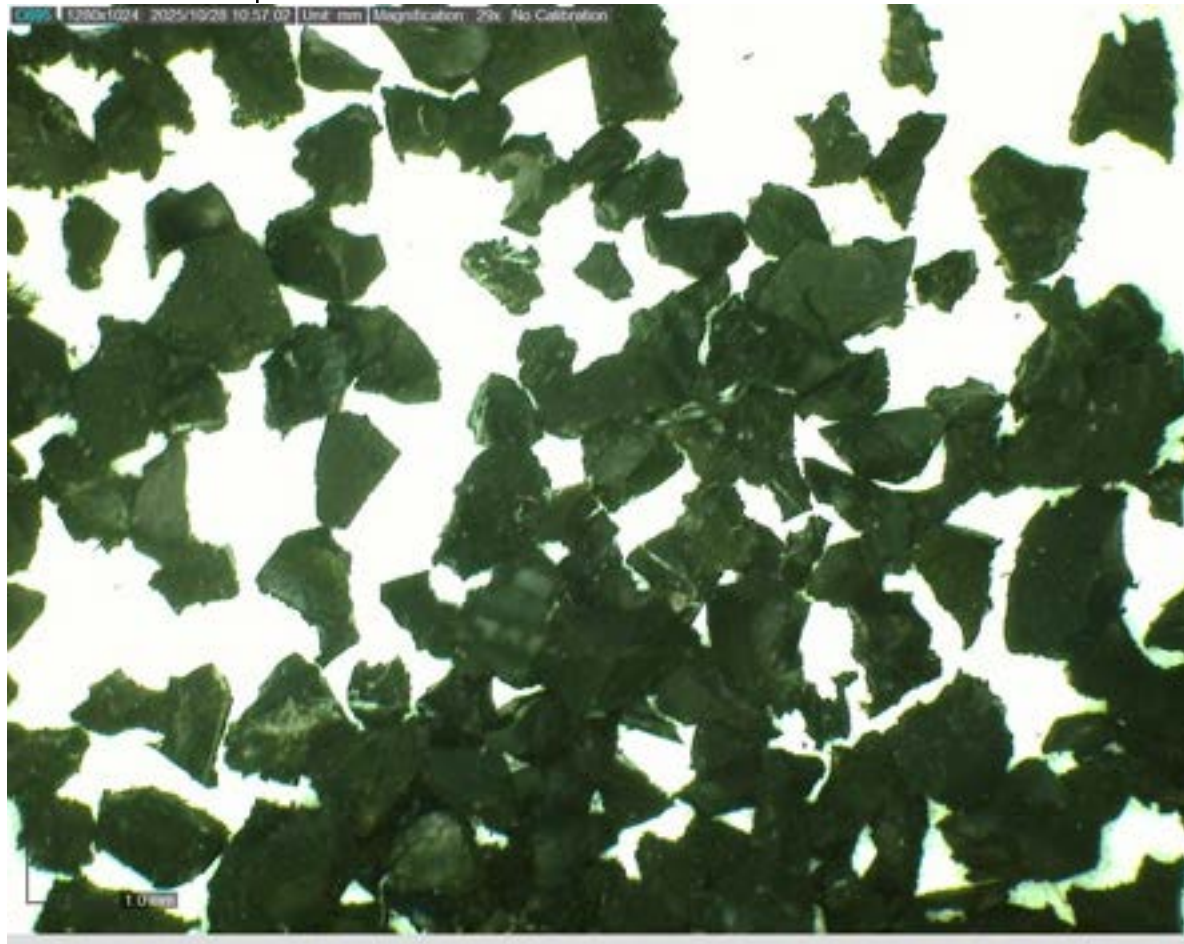
Yarn Characteristics DSC - 2



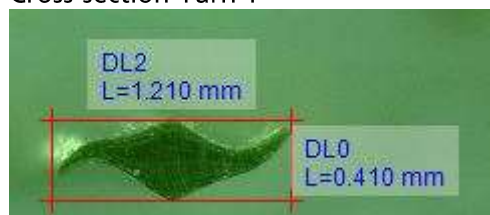
Stabilising Infill - picture



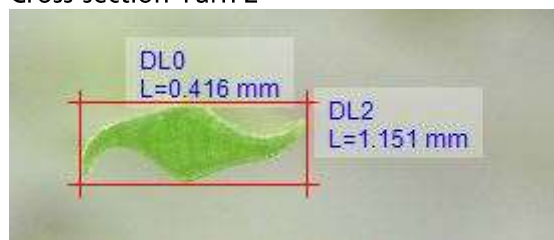
Performance Infill - picture



Cross-section Yarn 1



Cross-section Yarn 2





RUGBY TURF PRODUCT TEST REPORT FOR REGULATION 22

SIS Grass Xtreme 60+ VRS10

SIS Pitches

Tested by



Manufacturer



Test details

Test	
Test date	31/10/2025
Technician Name	Alisson Biscaia
Report Date	31.10.2025
Base Type	Concrete

Product	
Manufacturer Name	SIS Pitches
Carpet Name	Xtreme 60+
Pile Height	61
Shockpad Name	RevoSport 10/290
Product Name	SIS Grass Xtreme 60+ VRS10

Infill		
Material	Supplier	Application Rate (kg/m3)
Silica Sand	Garside	30
SBR	Murfitts	12

Shockpad	
Manufacturer Name	
Shockpad Name	RevoSport 10/290
Thickness	10
Mass per unit area (kg / m2)	2.9

Accredited Test Institute	
Institute Name	Surface Performance
Institute Director	Callum Reid
ATI Reference Number	SP4880B
Contact Details	russell@surfaceperformance.com

SIS Pitches SIS Grass Xtreme 60+ VRS10 has been found to satisfy the product test requirements of World Rugby Regulation 22, the Performance Specification for Rugby Turf (2016 Performance Specification) and the World Rugby Laws of the Game – Law 1 for use on Outdoor and Indoor venues.

Performance Testing

Shock Absorption (%)				
Requirement	57% - 68%			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	67%	67%	66%	Pass
Preconditioned – Wet	66%	67%	66%	Pass
After simulated wear	64%	65%	63%	Pass
@ -5°C	67%			Pass
@ +50°C	66%			Pass

Vertical Deformation (mm)				
Requirement	6mm - 10mm			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	9.85	9.95	9.75	Pass
Preconditioned – Wet	9.88	9.95	9.80	Pass
After simulated wear	9.27	9.64	8.96	Pass
@ -5°C	9.84			Pass
@ +50°C	9.75			Pass

Energy Restitution (%)				
Requirement	22% - 48%			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	38%	39%	36%	Pass
Preconditioned – Wet	40%	41%	39%	Pass
After simulated wear	39%	40%	39%	Pass
@ -5°C	25%			Pass
@ +50°C	45%			Pass

Vertical Ball Rebound (m)				
Requirement	0.6m - 1m			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	0.69			Pass
Preconditioned – Wet	0.79			Pass
After simulated wear	79%			Pass

Angled Ball Rebound (%)				
Requirement	45% - 80%			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	53%			Pass
Preconditioned – Wet	57%			Pass

Rotational Resistance (Nm)				
Requirement	32Nm - 43Nm			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	32.00			Pass
Preconditioned – Wet	32.20			Pass
After simulated wear	38.00			Pass

Impact Attenuation (m)				
Requirement	≥1.3m (Single drop ≤1,000 HIC)			
Test	Result	Max	Min	Test Status
Preconditioned – Dry	1.33			Pass
Preconditioned – Wet	1.33			Pass
After simulated wear	1.30			Pass
@ -5°C	1.10			Pass
@ +50°C	1.40			Pass

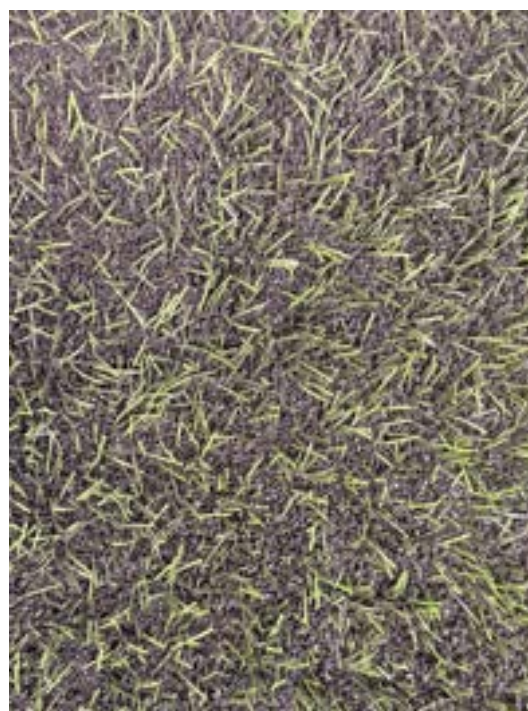
Ratings	
Test	Result
Splash	Normal
Heat	3

Identification Tests

Rugby Turf - Carpet				
Test	Result	Declaration	Permitted Variance	Test Status
Pile length (mm)	61	60	≥ 60 m	Pass
Mass per unit area (kg/m ²)	1,947	2,096	$\pm 10\%$	Pass
Tufts/Knots per unit area (m ⁻²)	7,702	8,190	$\pm 10\%$	Pass
Tuft withdrawal force (N)	40	40	$\geq 90\%$	Pass
Total pile weight (kg/m ²)	1,171	1,273	$\pm 10\%$	Pass
Water permeability (mm/hr)	1,466	-	≥ 500 mm/hr	Pass



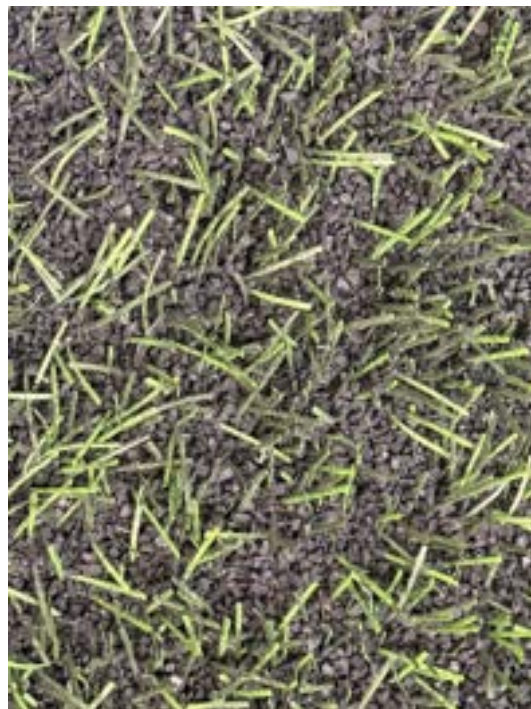
Pre-wear carpet



Post-wear carpet



Pre-wear closeup



Post-wear closeup



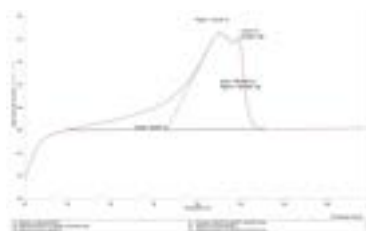
Pre-wear yarn closeup



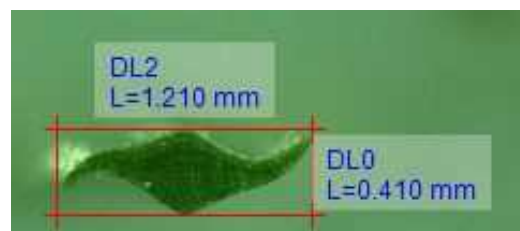
Post-wear yarn closeup

Yarn 01 - Turf green - Propeller

Test	Result	Declaration	Permitted Variance	Test Status
Thickness – Cross Section (nm)	410	380	≥ 90%	Pass
Thickness – Width (mm)	1.21	1.2	≥ 90%	Pass
Thickness - Depth (mm)	0.41	0.39	≥ 90%	Pass
dTex (dTex)	6,014	6,000	± 10%	Pass
DSC - Peak 01 (°C)	110	111	± 3°C	Pass
DSC - Peak 02 (°C)	119	120	± 3°C	Pass



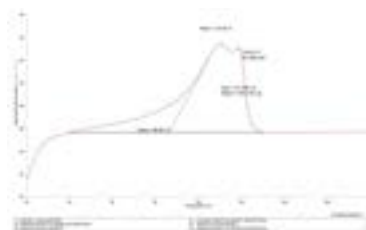
Yarn 1 DSC



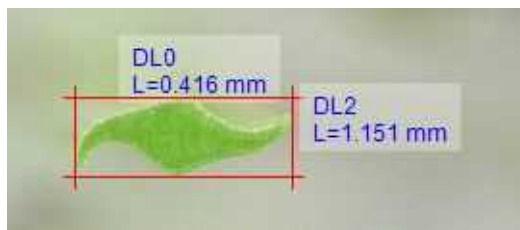
Yarn 1 cross section

Yarn 02 - Bright green - Propeller

Test	Result	Declaration	Permitted Variance	Test Status
Thickness – Cross Section (nm)	416	380	≥ 90%	Pass
Thickness – Width (mm)	1.15	1.2	≥ 90%	Pass
Thickness - Depth (mm)	0.42	0.39	≥ 90%	Pass
dTex (dTex)	6,014	6,000	± 10%	Pass
DSC - Peak 01 (°C)	110	110	± 3°C	Pass
DSC - Peak 02 (°C)	119	120	± 3°C	Pass

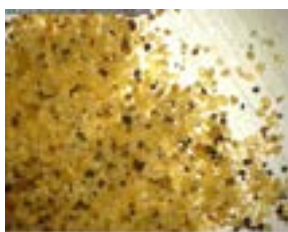


Yarn 2 DSC

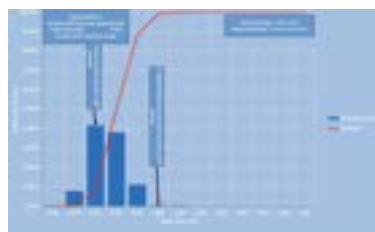


Yarn 2 cross section

Infill 01 - Silica Sand - Yellow - Stabilising				
Test	Result	Declaration	Permitted Variance	Test Status
Shape	C2 - Round - Medium sphericity	C2 - Round - Medium sphericity	Same shape	Pass
Size	0.315 - 0.8	0.2 - 0.8	± 1 Sieve Size	Pass
Bulk Density	1.51	1.56	± 15%	Pass
% Organic	0	0	± 10%	N/a



Infill 1

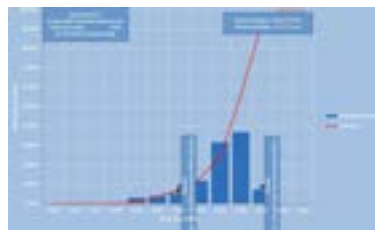


Infill 1 Grading

Infill 02 - SBR - Black - Performance				
Test	Result	Declaration	Permitted Variance	Test Status
Shape	A2 - Angular - Medium sphericity	B3 - Irregular - Low sphericity	Same shape	Pass
Size	1 - 2.5	0.8 - 2	± 1 Sieve Size	Pass
Bulk Density	0.5	0.45	± 15%	Pass
% Organic	0.64	0.66	± 10%	Pass



Infill 2



Infill 2 Grading

Shockpad				
Test	Result	Declaration	Permitted Variance	Test Status
Thickness	10	10	$\geq 90\%$	Pass
Shock Absorption	0.41	0.4	$\pm 5\%$	N/a
Deformation	3.5	4.5	$\pm 10\%$	Pass
Energy Restitution	0.44	-	-	N/a
Mass per unit area	2.9	2.9	$\pm 10\%$	Pass
Tensile strength	0.43	-	$\geq 0.15\text{Nm}$	Pass



Shockpad

Laboratory Tests

Skin Interaction Tests

Test	Result	Requirement	Test Status
Skin/Surface Friction	0.67	0.35 - 0.75 μ	Pass
Skin Abrasion	19%	$\pm$ 30%	Pass

Unaged Carpet Strength Tests

Test	Result	Requirement	Test Status
Parallel to Stitching	28.4	25 N/mm	Pass
Perpendicular to Stitching	28.4	25 N/mm	Pass

Unaged Joint Strength

Test	Result	Requirement	Test Status
Stitched	0	2500 N/100mm	N/a
Bonded	3,000	2500 N/100mm	Pass
Peel	11,100	25 N/mm	Pass

Aged Joint Strength

Test	Result	Requirement	Test Status
Stitched	0	2500 N/100mm	N/a
Bonded	3,000	2500 N/100mm	Pass
Peel	6,900	25 N/mm	Pass

Unaged Tensile Strength

Test	Result	Requirement	Test Status
Yarn 01	17.3	$\geq$ 8N (mono), $\geq$ 30 (fibb)	Pass
Yarn 02	17.3	$\geq$ 8N (mono), $\geq$ 30 (fibb)	Pass
Yarn 03	0	$\geq$ 8N (mono), $\geq$ 30 (fibb)	N/a

Aged Strength Tests

Test	Result	Requirement	Test Status
Yarn 01	17.7	>50% of unaged	Pass
Yarn 02	17.1	>50% of unaged	Pass
Yarn 03	0	>50% of unaged	N/a

Comments