



FIFA LABORATORY TEST REPORT

Test manual 2015
01.01.2015

Product	AVGCS130-50
FIFA Licensee	All Victory Grass (Guangzhou) Co., Ltd.
Test Institute	Labosport Ltd

Test Number	88701
External Test Number	LSUK.19-0638A
Date of Test	09.06.2019
Test Result	Passed
Quality Level	FIFA Quality
Test Type	Initial



Licensee

Main Address

Name	All Victory Grass (Guangzhou) Co., Ltd.
Address	All Victory Grass (Guangzhou) Co., Ltd. No. 19, Junda Road, East Area Guangzhou Economic-Technical Development District
ZIP / City	/ Guangzhou City
Website	http://avg1982.en.alibaba.com
Contact Email	nfo@avg1982.com
Contact Phone	+0086/20 38848877

Test institute

Main Address

Name	Labosport Ltd
Address	Labosport Ltd Unit 3 Aerial Way, Hucknall Business Park Watnall Road
ZIP / City	NG15 6DW / HUCKNALL, NOTTINGHAM
Website	
Contact Email	
Contact Phone	



Approval

Test Institute Director	Professor David James
Signature	
Date	01.08.2019

Test Institute Engineer	David Rigby (Laboratory Manager)
Signature	
Date	01.08.2019



1 – Test Results

Name	Comment	Result
1 - Summary		
Vertical ball rebound FIFA Quality		Passed
Angle ball rebound FIFA Quality		Passed
Reduced ball roll FIFA Quality		Passed
Shock absorption FIFA Quality		Passed
Deformation FIFA Quality		Passed
Rotational resistance FIFA Quality		Passed
Skin / surface friction		Passed
Skin abrasion		Passed
1 - Test Details Object		
Product Name		AVGCS130-50
Product ID		A650415CS13222
Synthetic Turf System		AVGCS130-50
Performance infill		SBR
Stabilising infill		Quartz Sand
Shock-pad or elastic layer		-
Sub-base composition		Rigid engineered base
2 - Test Details Test Institute		
Date(s) of test		09.06.2019
Report created by		Nicole Marshall
Other Test Engineer on site		Scott Parkin (Senior Lab Technician)
Laboratory Test report number		LSUK.19-0638A
Test Institute Project number		LSUK.19-0638
3 – Product Declaration (Manufacturer)		
Manufacturer		All Victory Grass (Guangzhou) Co., Ltd.
Tuft pattern		Straight
Yarn manufacturer yarn 1		All Victory Grass (Guangzhou) Co., Ltd.
Product name, code yarn 1		CS 130
Pile yarn profile yarn 1		C stem
Pile thickness (µ m) yarn 1		270.0
Pile colour (RAL) value 1 yarn 1		Field green
Pile colour (RAL) value 2 yarn 1		Olive green
Pile colour (RAL) value 3 yarn 1		-
Pile width (mm) yarn 1		1.10



Name	Comment	Result
Number of tufts/m2 yarn 1	ISO1773	9450.00
Pile length (mm) yarn 1	ISO 2549	50.00
Pile weight (g/m2) yarn 1	ISO 8543	1400.00
Pile yarn characterization yarn 1		PE
Pile yarn dtex yarn 1		13200
Yarn manufacturer yarn 2		-
Product name, code yarn 2		-
Pile yarn profile yarn 2		-
Pile thickness (μ m) yarn 2		
Pile colour (RAL) value 1 yarn 2		-
Pile colour (RAL) value 2 yarn 2		-
Pile colour (RAL) value 3 yarn 2		-
Pile width (mm) yarn 2		
Number of tufts/m2 yarn 2	ISO1773	
Pile length (mm) yarn 2	ISO 2549	
Pile weight (g/m2) yarn 2	ISO 8543	
Pile yarn characterization yarn 2		-
Pile yarn dtex yarn 2		
Yarn manufacturer yarn 3		-
Product name, code yarn 3		-
Pile yarn profile yarn 3		-
Pile thickness (μ m) yarn 3		
Pile colour (RAL) value 1 yarn 3		-
Pile colour (RAL) value 2 yarn 3		-
Pile colour (RAL) value 3 yarn 3		-
Pile width (mm) yarn 3		
Number of tufts/m2 yarn 3	ISO1773	
Pile length (mm) yarn 3	ISO 2549	
Pile weight (g/m2) yarn 3	ISO 8543	
Pile yarn characterization yarn 3		-
Pile yarn dtex yarn 3		
Primary backing Product name, code		PP cloth
Primary backing Manufacturer		Jiangmen Jinglong Plastic Packing Co., Ltd.
Re-enforcement scrim Product name, code		leno
Re-enforcement scrim Manufacturer		Jiangmen Jinglong Plastic Packing Co., Ltd
Secondary backing Product name, code		SBR Latex



Name	Comment	Result
Secondary backing Manufacturer		Tian jin Shi tong hua mao rubber Co. Ltd., BASF
Secondary backing Dry application rate (g/m ²)		1000.0
Carpet Minimum tuft withdrawel force (N)		35
Carpet Carpet mass per unit area (g/m ²)		2800.0
Method of jointing		Bonded
Bonded joints Adhesive brand name		Nanbao Adhesive
Bonded joints Adhesive manufacturer		Ultrabond
Bonded joints Application rate (g/m)		-
Bonded joints Jointing film brand name		Seaming tape
Bonded joints Jointing film manufacturer		Jiangmen Jinglong Plastic Packing Co., Ltd
Stitched seams Tread brand name/product code		-
Stitched seams Tread manufacturer		-
Stitched seams Stitch rate (stitch per 1m)		
Performance Infill Product name, code		SBR
Performance Infill Manufacturer		CHUAN'AO
Performance Infill Material type		SBR Rubber
Performance Infill Material grading		1.25 - 2.5mm
Performance Infill Particle shape	prEN 14955	SBR Rubber
Performance Infill Particle size range	EN 933-Part 1	1.25 - 2.5mm
Performance Infill Bulk density (g/cm ³)	EN 1097-3	0.420
Performance Infill Application rate (kg/m ²)		12.0
Stabilising Infill Product name, code		Quartz sand
Stabilising Infill Manufacturer		Various
Stabilising Infill Material type		Quartz sand
Stabilising Infill Material grading		0.315 - 0.8mm
Stabilising Infill Particle shape	prEN 14955	Rounded



Name	Comment	Result
Stabilising Infill Particle size range	EN 933-Part 1	0.315 - 0.8mm
Stabilising Infill Bulk density (g/cm ³)	EN 1097-3	1.28
Stabilising Infill Application rate (kg/m ²)		12.0
Shockpad, E-layer Product name, code		-
Shockpad, E-layer Manufacturer		-
Shockpad, E-layer Type		-
Shockpad, E-layer Composition		-
Shockpad, E-layer Bulk density (g/cm ³)		
Shockpad, E-layer Thickness	EN 1979	
Shockpad, E-layer Shock absorption (%)	FIFA 4a	
Shockpad, E-layer Deformation	FIFA 5a	
Shockpad, E-layer Tensile strength (MPa)		
Shockpad, E-layer Mass per unit area (kg/m ²)		
Other, detail		
4 – Product Identification		
Artificial Turf Carpet mass per unit area [g/m ²]		2812
Artificial Turf Tufts per unit area [m ²]		9623
Artificial Turf Pile length above backing [mm]		48.4
Artificial Turf Pile weight [g/m ²]		1427
Artificial Turf Water permeability of carpet [mm/h]		>2000
Artificial Turf Free pile height		16
Performance infill Particle size range [mm]		1.0 - 3.15mm
Performance infill Particle shape		Angular A3
Performance infill Bulk density [g/cm ³]		0.480
Performance infill Infill depth [mm]		24
Performance infill Thermographic analysis organic [%]		60
Performance infill Thermographic analysis inorganic [%]		40



Name	Comment	Result
Stabilising infill Particle size range [mm]		0.5 - 1.0mm
Stabilising infill Particle shape		Rounded C3
Stabilising infill Bulk density [g/cm3]		1.36
Shock pad / E-layer Shock absorption [%]	if part of supplied system	
Shock pad / E-layer Deformation	if part of supplied system	
Shock pad / E-layer Thickness	if part of supplied system	
Other, detail		Infill depth = 24mm SBR +10mm sand
5 – Test Results Ball / Surface interaction		
Vertical Ball Rebound Initial Dry (Quality)	0.6 - 1m	0.87
Vertical Ball Rebound Initial Wet (Quality)	0.6 - 1m	0.84
Vertical Ball Rebound after simulated wear 6'000 cycles (5*)	0.6 - 1m	0.97
Vertical Ball Rebound after simulated wear 6'000 cycles (20*)	0.6 - 1m	
Angle Ball Rebound Dry	45 - 80 %	53
Angle Ball Rebound Wet	45 - 80 %	66
Reduced Ball Roll Initial Dry (Quality)	4 - 10 m	8.8
Reduced Ball Roll after simulated wear 6'000 cycles (5*) Dry	4 - 12 m	10.9
Reduced Ball Roll after simulated wear 6'000 cycles (5*) Wet	4 - 12 m	10.8
Reduced Ball Roll after simulated wear 6'000 cycles (20*) Dry	4 - 12 m	
Reduced Ball Roll after simulated wear 6'000 cycles (20*) Wet	4 - 12 m	
Shock absorption Initial Dry (Quality)	57 - 68 %	63.0
Shock absorption Initial Wet (Quality)	57 - 68 %	62.5
Shock absorption after simulated wear 6'000 cycles (5*)	57 - 68 %	59.7



Name	Comment	Result
Shock absorption after simulated wear 6'000 cycles (20*)	57 - 68 %	
Shock absorption 50°C	57 - 68 %	63.20
Shock absorption -5°C	57 - 68 %	64.40
Deformation Initial Dry (Quality)	6 - 11 m	9.5
Deformation Initial Wet (Quality)	6 - 11 m	9.5
Deformation after simulated wear 6'000 cycles (5*)	6 - 11 m	8.0
Deformation after simulated wear 6'000 cycles (20*)	6 - 11 m	
Rotational Resistance Initial Dry (Quality)	27 - 48 Nm	33
Rotational Resistance Initial Wet (Quality)	27 - 48 Nm	33
Rotational Resistance after simulated wear 6'000 cycles (5*)	27 - 48 Nm	35
Rotational Resistance after simulated wear 6'000 cycles (20*)	27 - 48 Nm	
Other, detail		
5 – Test Results Player / Surface interaction		
Skin / surface friction Dry	0.35 - 0.75 μ	0.68
Skin / surface friction Dry 3'000 cycles	0.35 - 0.75 μ	
Skin / surface friction Dry 6'000 cycles	0.35 - 0.75 μ	0.55
Skin abrasion Dry	$\pm$ 30 %	25
Skin abrasion Dry 3'000 cycles	$\pm$ 30 %	
Skin abrasion Dry 6'000 cycles	$\pm$ 30 %	15
6 – Environmental impact (artificial, light, water)		
Pile yarn 1 Colour change after artificial weathering	$\geq$ Grey scale 3	Field Green: 3
Pile yarn 2 Colour change after artificial weathering	$\geq$ Grey scale 3	Olive green: 5
Pile yarn 3 Colour change after artificial weathering	$\geq$ Grey scale 3	-
Pile yarn 1 Yarn tensile strength after artificial weathering	Change $\leq$ 50 %	Field Green: 3%
Pile yarn 2 Yarn tensile strength after artificial weathering	Change $\leq$ 50 %	Olive green: 10%
Pile yarn 3 Yarn tensile strength after artificial weathering	Change $\leq$ 50 %	-

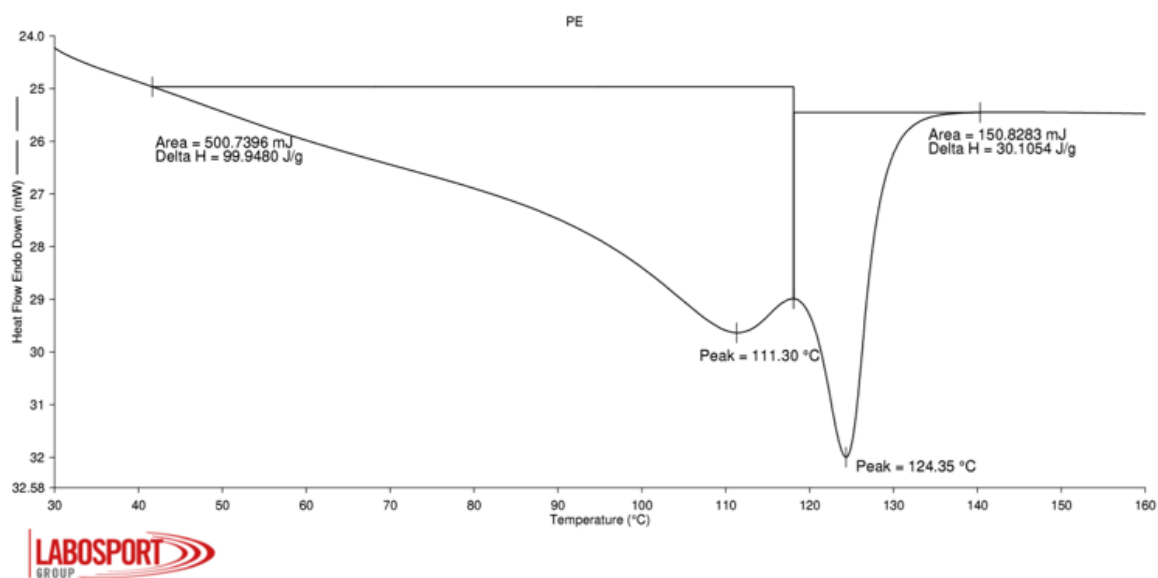
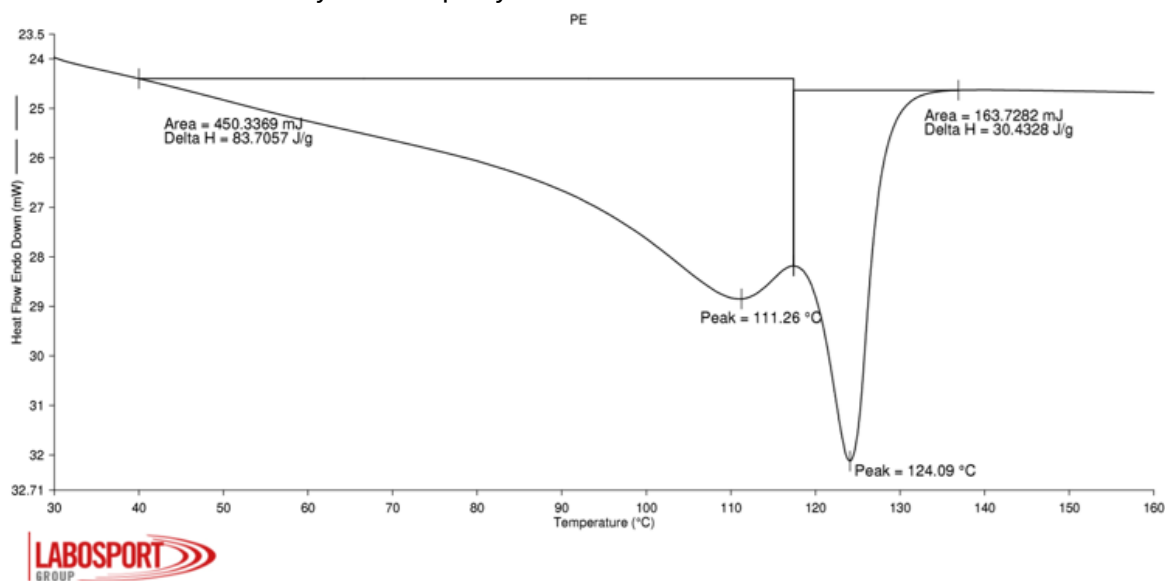


Name	Comment	Result
Polymeric infill Colour change after artificial weathering	≥ Grey scale 3	3-4
Polymeric infill Visual change in composition after artificial weathering	No change	No change
Complete system Water permeability	> 180 mm/h	2000
Stitched joints Strength un-aged	≥ 1000N/100mm	
Stitched joints Strength water aged	≥ 1000N/100mm	
Bonded joints Strength un-aged	≥ 75/100mm	102
Bonded joints Strength water aged	≥ 75/100mm	88
Carpet tuft Withdrawal force un-aged	≥ 30N	45
Carpet tuft Withdrawal force water aged	≥ 30N	39
Heat Category	for information	-
Splash Characteristics	for information	-
7 - Miscellaneous (shock pad, sub-base - if part of the system)		
Shock Pad / E-layer tensile strength un-aged	≥ 0.15 MPa	
Sub-base Composition		-
Sub-base Particle size range		-
Sub-base Particle shape		-
Sub-base Thickness		-
Sub-base Compaction & test method		-
Other, detail		



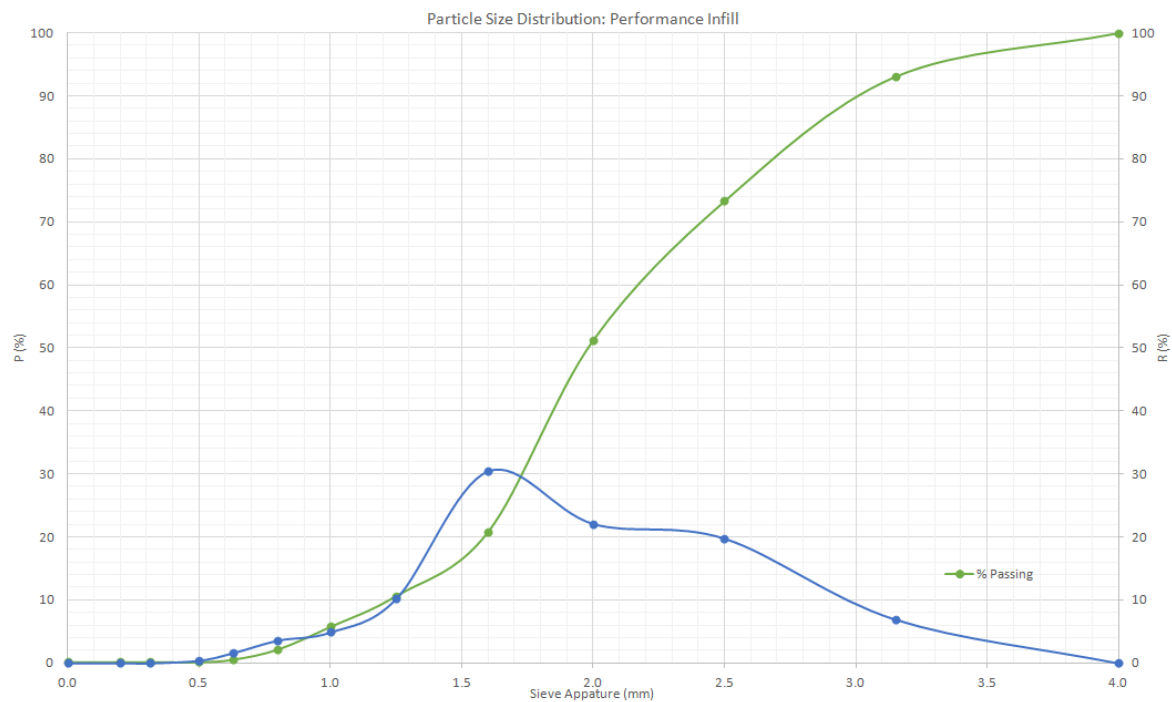
2 – Test Images

DSC Diff. Scan. Colorimetry scans of pile yarn



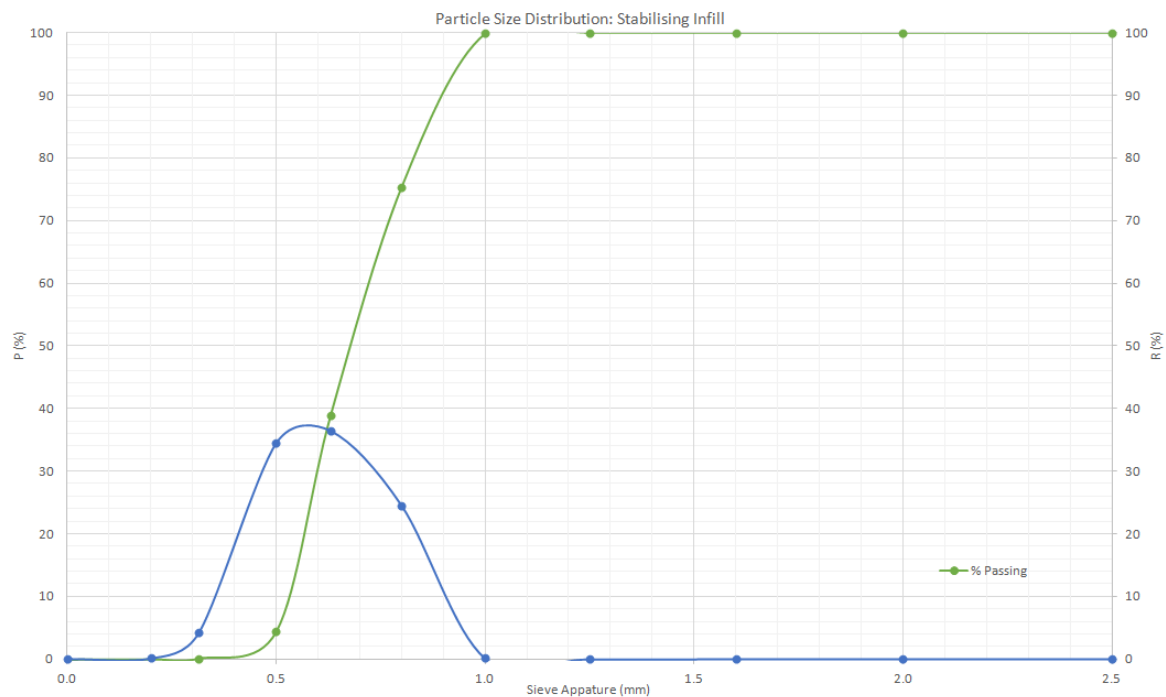


Performance infill particle grading curve

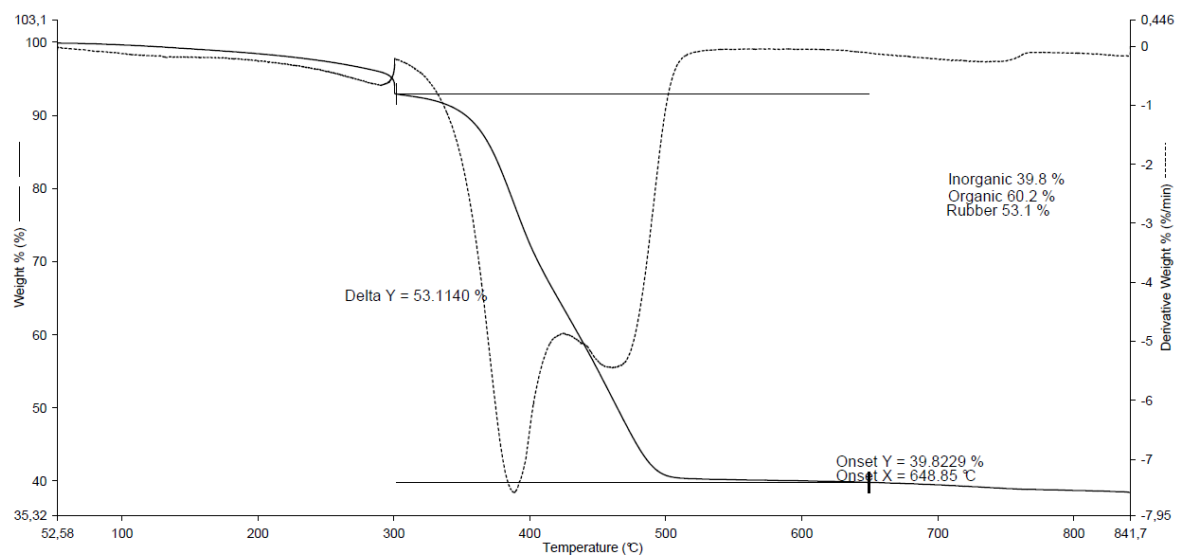




Stabilising infill particle grading curve



TGA of performance infill



Simulated wear - Before 1



Simulated wear - Before 2



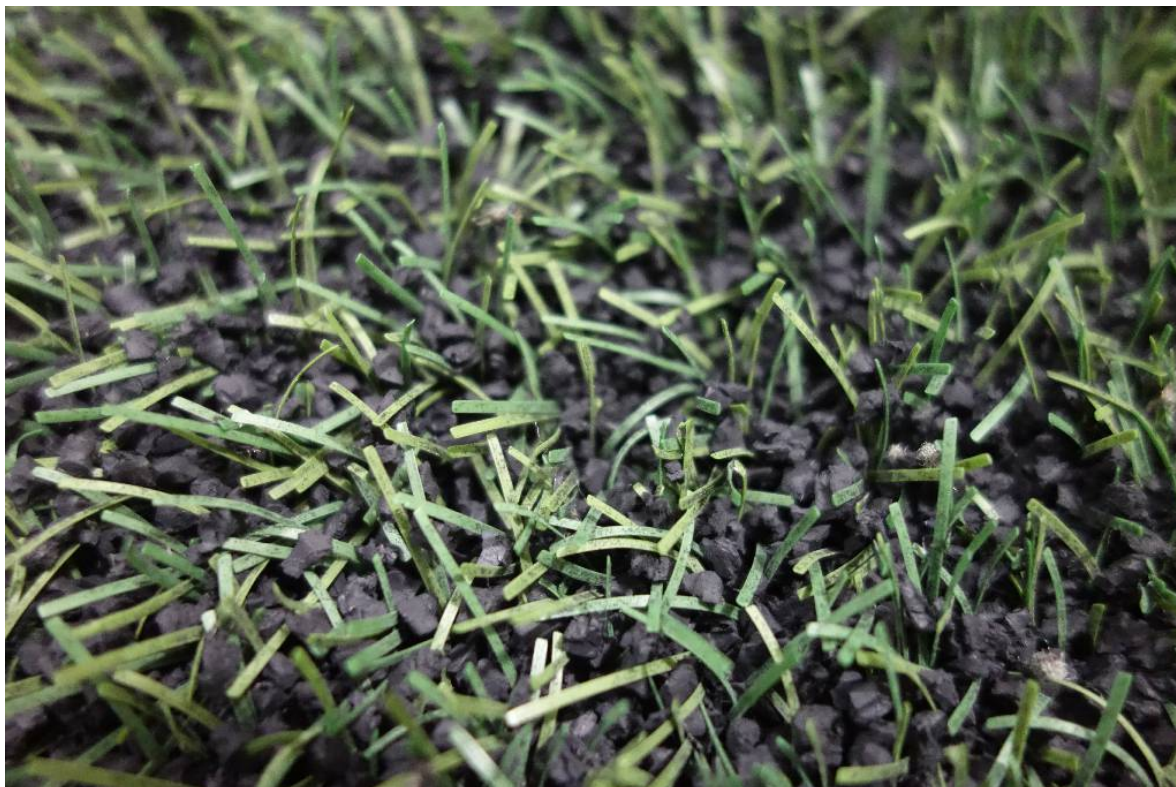
Simulated wear - Before 3



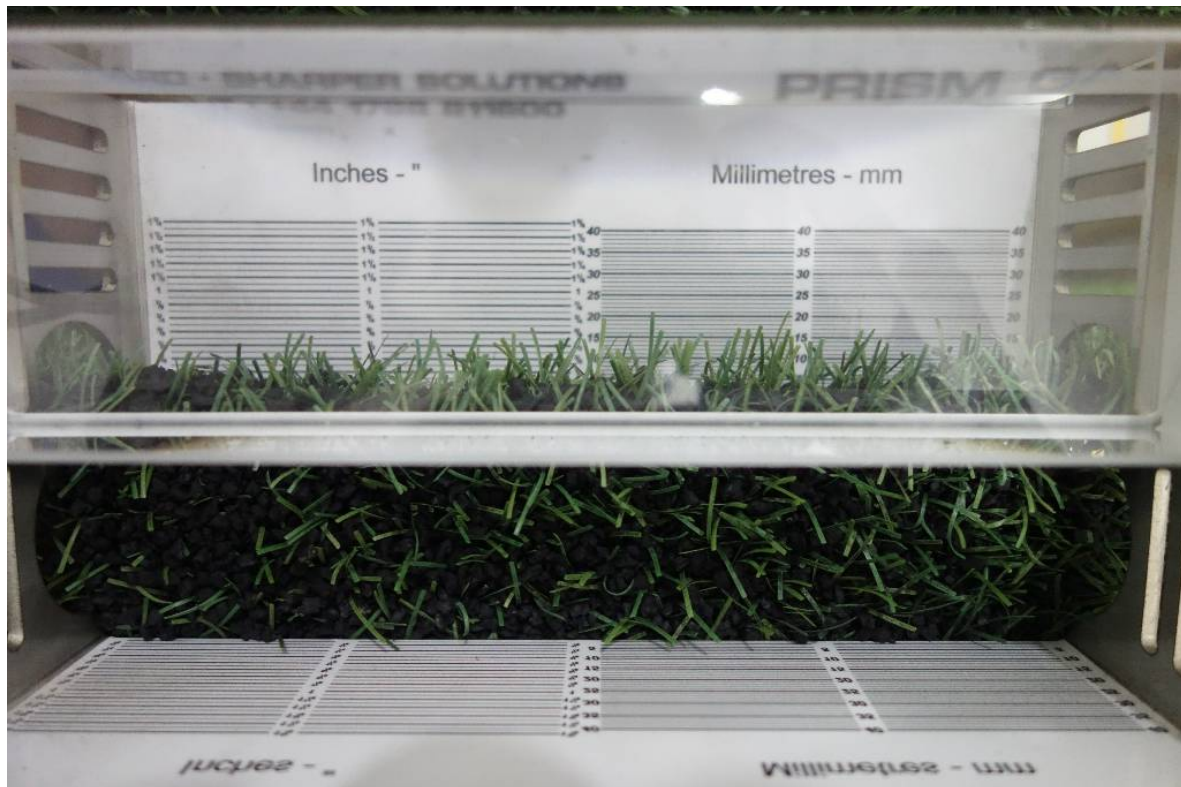
Simulated wear - After 1



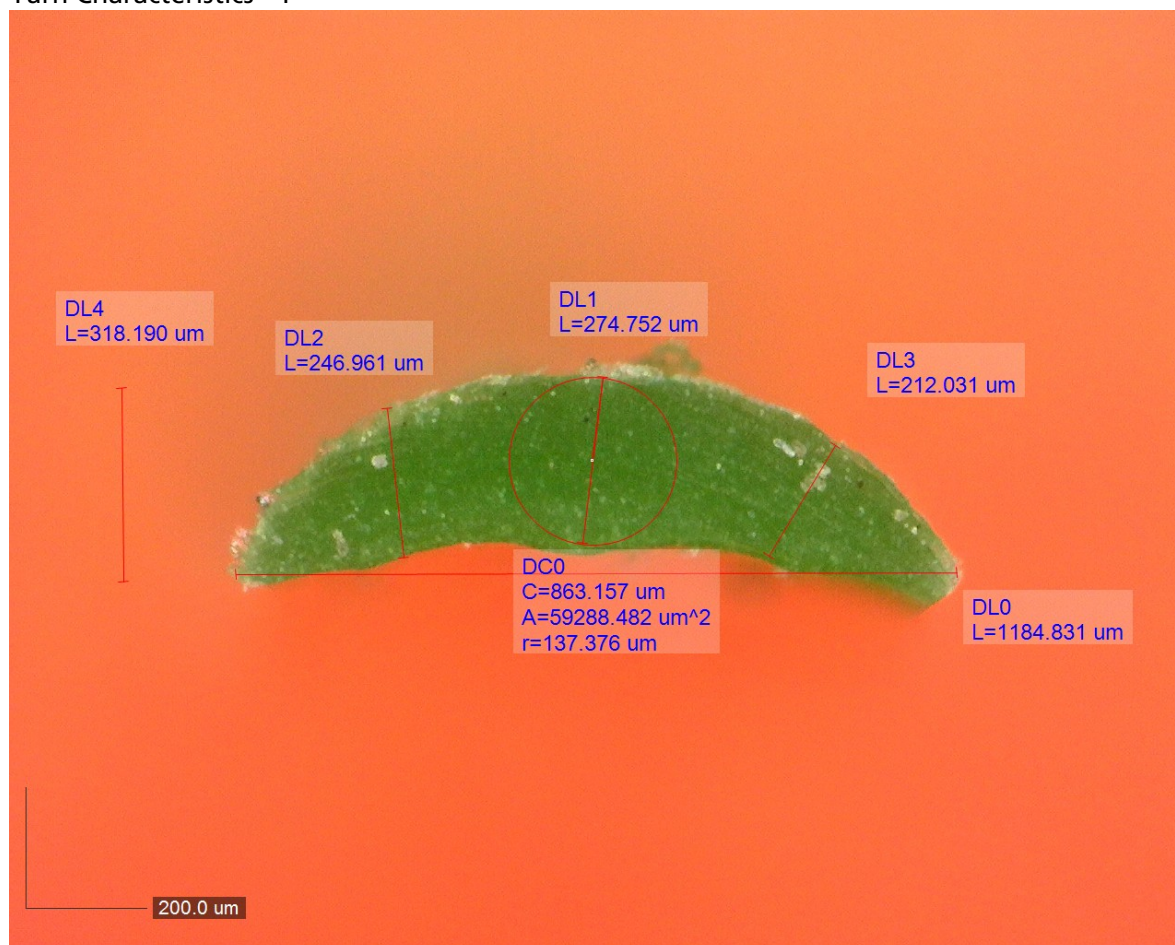
Simulated wear - After 2



Simulated wear - After 3



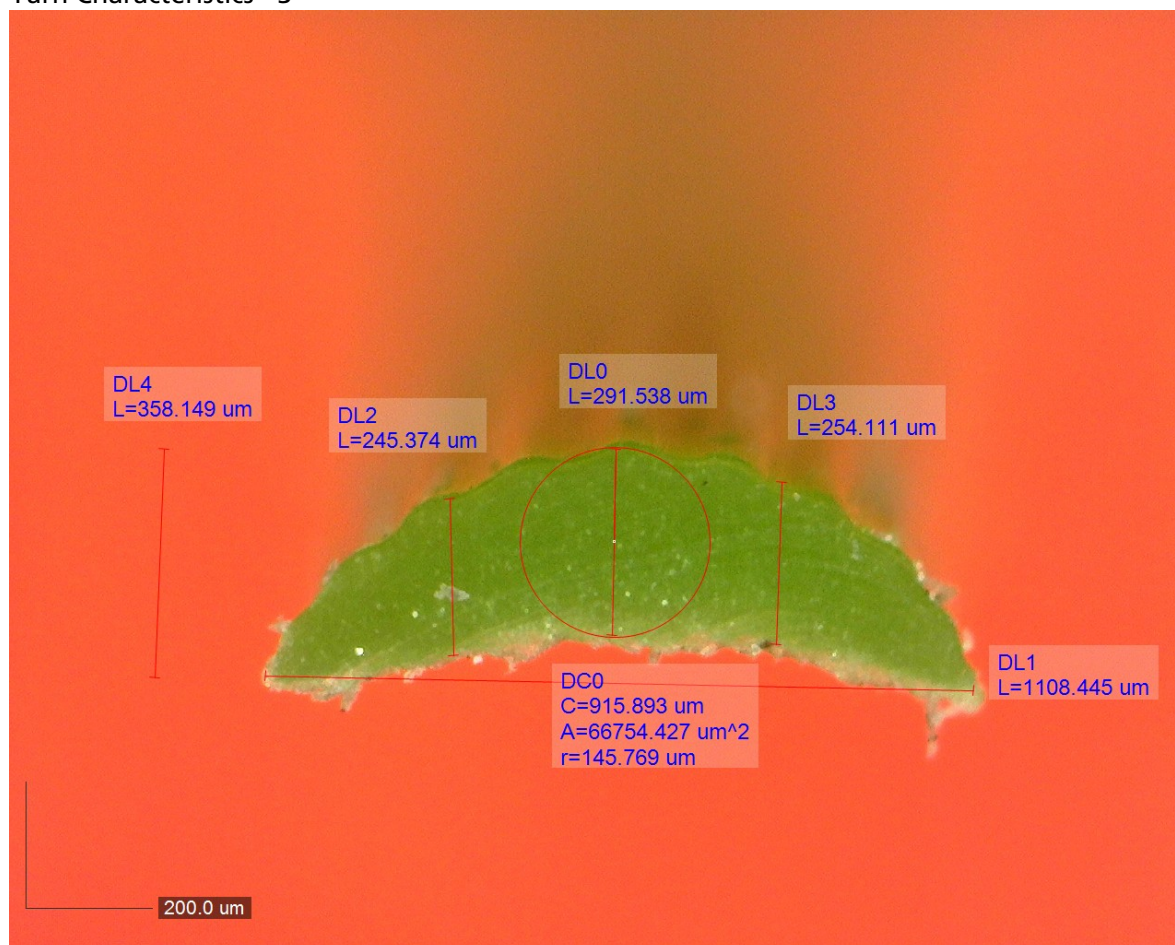
Yarn Characteristics - 1



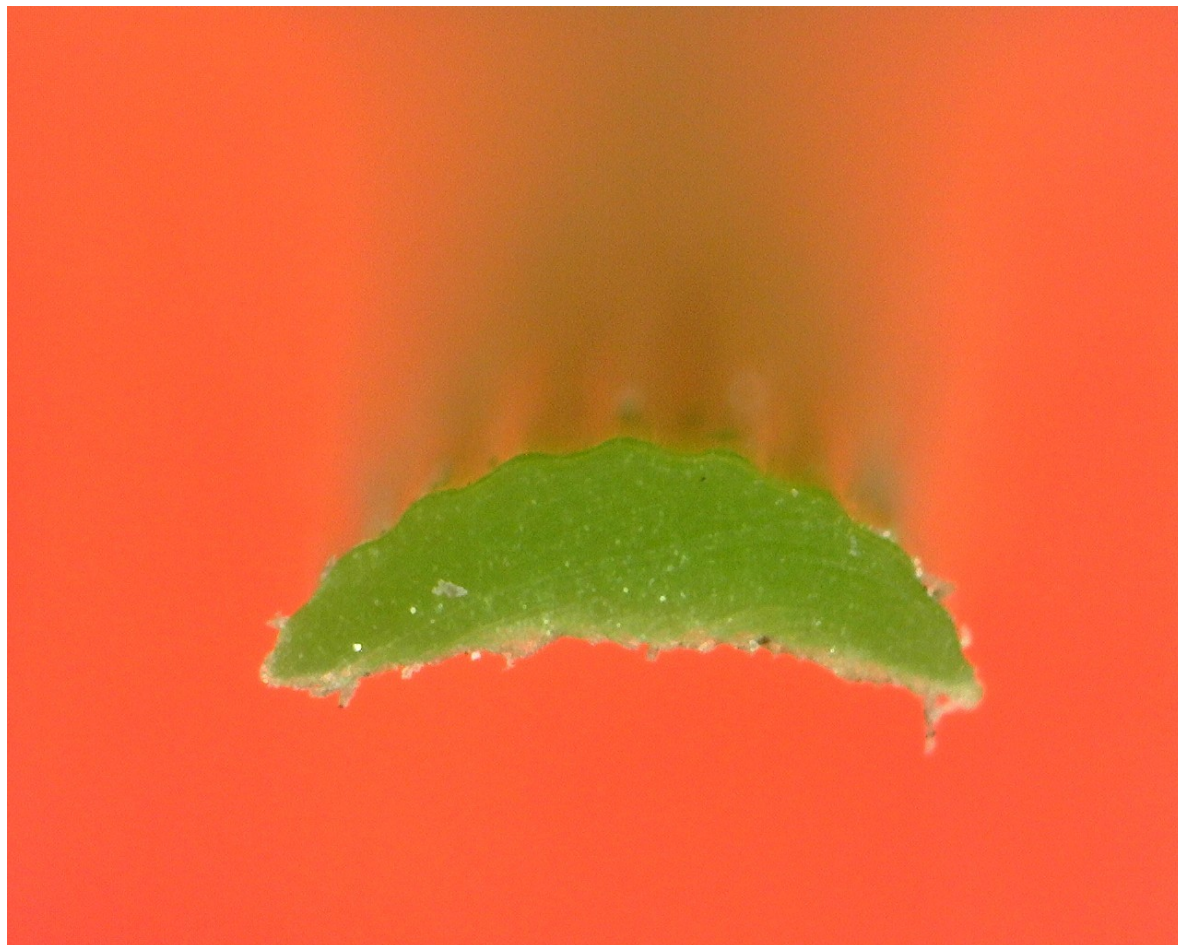
Yarn Characteristics - 2



Yarn Characteristics - 3



Yarn Characteristics - 4



Stabilising Infill - picture



Performance Infill - picture

