

FIFA LABORATORY TEST REPORT

Test manual 2015 01.01.2015

Product	AVGCS130-50 White		
FIFA Licensee	All Victory Grass (Guangzhou) Co., Ltd.		
Test Institute	Labosport Ltd		
Test Number	88702		
External Test Number	LSUK.19-0638B		
Date of Test	17.06.2019		
Test Result	Passed		
Quality Level	FIFA Quality		
Test Type	Initial Chicks and a Local Control of the Control o		
	F .		

Test manual 2015 Report - No. 88702 Date: 17.06.2019



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
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Test institute

Main Address

Named chinitio, o	Labosport Ltd 9/997/54
Address 3	Labosport Ltd Unit 3 Aerial Way, Hucknall Business Park Watnall Road
ZIP / City	NG15 6DW / HUCKNALL, NOTTINGHAM
Website	
Contact Email	
Contact Phone	



Approval

Approvai		
Test Institute Director	Professor David James	
Signature		
Date	01.08.2019	
Test Institute Engineer	David Rigby (Laboratory Manager)	
Signature	De de	
Date	01.08.2019	



1 – Test Results

Name	Comment	Result
1 - Summary	Comment	. resure
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	11: 2 - 1	/
Quality Merchelle DI	10/100,71	Passed 54
Skin / surface friction		Passed
Skin abrasion		Passed
1 - Test Details Object		1
1 -		AVGCS130-50
Product Name		White
		A650415CS13222
Product ID		White
		AVGCS130-50
Synthetic Turf System		White
Performance infill		SBR
Stabilising infill		Quartz Sand
Shock-pad or elastic layer		-
•		Rigid engineered
Sub-base composition		Base
2 - Test Details Test Institute		1 - 300
Date(s) of test		17.06.2019
Report created by		Nicole Marshall
,		Scott Parkin
Other Test Engineer on site		(Senior Lab
3		Technician)
Laboratory Test report		
number		LSUK.19-0638B
Test Institute Project		LCUK 10 0C38
number		LSUK.19-0638
3 - Product Declaration (Manufa	cturer)	
		All Victory Grass
Manufacturer		(Guangzhou)
		Co., Ltd.
Tuft pattern		Straight
		All Victory Grass
Yarn manufacturer yarn 1		(Guangzhou)
17		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		\A/bita
yarn 1		White
J		
Pile colour (RAL) value 2		



Name	Comment	Result
Pile colour (RAL) value 3		_
yarn 1		
Pile width (mm) yarn 1		1.10
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		PE
yarn 1		
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	11.	/
yarn 2 hantin	16/10 2 1/	777154
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		PP cloth
name, code		11 Clour
Primary backing		Jiangmen
Manufacturer		Jinglong Plastic
		Packing Co., Ltd.
Re-enforcement scrim		leno
Product name, code		
Re-enforcement scrim		Jiangmen
Manufacturer		Jinglong Plastic
		Packing Co., Ltd.



Name	Comment	Result
Secondary backing Product		
name, code		SBR Latex
		Tian jin Shi tong
Secondary backing Manufacturer		hua mao rubber
Manufacturer		Co. Ltd., BASF
Secondary backing Dry		1000.0
application rate (g/m2)		1000.0
Carpet Minimum tuft		25
withdrawel force (N)		35
Carpet Carpet mass per		3800.0
unit area (g/m2)		2800.0
Method of jointing		Bonded
Bonded joints Adhesive		Nanbao
brand name		Adhesive
Bonded joints Adhesive		
manufacturer		Ultrabond
Bonded joints Application		
rate (g/m)		-
Bonded joints Jointing film		_
brand name		Seaming tape
		Jiangmen
Bonded joints Jointing film		Jinglong Plastic
manufacturer		Packing Co., Ltd
Stitched seams Tread		racking co., Eta
brand name/product code		-
Stitched seams Tread		
manufacturer	11.0.00	10001-11
Stitched seams Stitch rate	11/2/11/11/11/	1227154
(stitch per lm)		
Performance Infill L Product		
name, code		SBR
Performance Infill		
Manufacturer		CHUAN'AO
Performance Infill Material		
·		SBR Rubber
type 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/cm3)	EN 1097-3	0.420
Performance Infill		
Application rate (kg/m2)		12.0
Stabilising Infill Product		
name, code		Quartz sand
Stabilising Infill		
Manufacturer		Various
Stabilising Infill Material		
		Quartz sand
type Stabilising Infill Material		
· .		0.315 - 0.8mm
grading	<u> </u>	



Name	C	Decele
Name	Comment	Result
Stabilising Infill Particle	prEN 14955	Rounded
shape	1	
Stabilising Infill Particle	EN 933-Part 1	0.315 - 0.8mm
size range		
Stabilising Infill Bulk	EN 1097-3	1.28
density (g/cm3)		-1-2
Stabilising Infill		12.0
Application rate (kg/m2)		-
Shockpad, E-layer Product		_
name, code		
Shockpad, E-layer		_
Manufacturer		
Shockpad, E-layer Type		-
Shockpad, E-layer		_
Composition	10.	10071-1
Shocknad, E-layer Bolk	UDELCA L	122/154
density (g/cm3)		
Shockpad, E-layer Thickness	EN 1979	
Shockpad, E-layer Shock	FIFA 4a	
absorption (%)	-	
Shockpad, E-layer	FIFA 5a	
Deformation		
Shockpad, E-layer Tensile		
strength (MPa)		
Shockpad, E-layer Mass per		
unit area (kg/m2)		
Other, detail		
4 - Product Identification	T	T
Artificial Turf Carpet mass		3008
per unit area [g/m2]		
Artificial Turf Tufts per		9549
unit area [m2]		
Artificial Turf Pile lenght		48.4
above backing [mm]		
Artificial Turf Pile weight		1412
[g/m2]		
Artificial Turf Water		>2000
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/cm3]		0.480
Performance infill Infill		
depth [mm]		24
Performance infill		
Thermographic analysis		60
organic [%]		
Organic [70]	l .	



Name	Comment	Result
Performance infill		
Theremographic analysis		40
inorganic [%]		
Stabilising infill Particle		0.5 - 1.0 mm
size range [mm]		0.5 - 1.0 111111
Stabilising infill Particle		Rounded C3
shape		Rounded C3
Stabilising infill Bulk		1.36
density [g/cm3]		1.50
Shock and / Ellower Shock	if part of	
Shock pad / E-layer Shock	supplied	
absorption [%]	system	
Shook and / Filoson I	if part of	
Shock pad / E-layer Deformation	supplied	
Deformation	system	
SI I I/FI I	if part of	
Shock pad / E-layer	supplied	
Thickness	system 1 1	1277154
A CHUZULU PA	W WW ZH	Infill depth =
Other, detail		24mm SBR
		+10mm sand
5 - Test Results Ball / Surface inte	raction	
Vertical Ball Rebound		0.05
Initial Dry (Quality)	0.6 - 1m	0.85
Vertical Ball Rebound		
Initial Wet (Quality)	0.6 - 1m	0.85
Vertical Ball Rebound after		
simulated wear 6'000	0.6 - 1m	0.98
cycles (5*)		
Vertical Ball Rebound after		
simulated wear 6'000	0.6 - 1m	
cycles (20*)	0.0	
Angle Ball Rebound Dry	45 - 80 %	50
Angle Ball Rebound Wet	45 - 80 %	65
Reduced Ball Roll Initial		03
Dry (Quality)	4 - 10 m	8.5
Reduced Ball Roll after		
simulated wear 6'000	4 - 12 m	10.5
cycles (5*) Dry	7-12111	10.5
Reduced Ball Roll after		
simulated wear 6'000	4 - 12 m	10.8
· ·	4-12111	10.0
cycles (5*) Wet		
Reduced Ball Roll after	4 12 m	
simulated wear 6'000	4 - 12 m	
cycles (20*) Dry		
Reduced Ball Roll after	4 12 m	
simulated wear 6'000	4 - 12 m	
cycles (20*) Wet		
Shock absorption Initial	57 - 68 %	63.5
Dry (Quality)		-
Shock absorption Initial	57 - 68 %	63.3
Wet (Quality)		



N		P
Name	Comment	Result
Shock absorption after		
simulated wear 6'000	57 - 68 %	59.2
cycles (5*)		
Shock absorption after		
simulated wear 6'000	57 - 68 %	
cycles (20*)		
Shock absorption 50°C	57 - 68 %	63.70
Shock absorption -5°C	57 - 68 %	64.60
Deformation Initial Dry	6 - 11 m	9.5
(Quality)	0 - 11 111	9.5
Deformation Initial Wet	6 - 11 m	9.5
(Quality)	6 - 11 m	9.5
Deformation after		
simulated wear 6'000	6 - 11 m	8.0
cycles (5*)		
Deformation after	611. 7 2	12271-11
simulated wear 5'000	UDIGICA LI	44107
cycles (20*)		
Rotational Resistance		
Initial Dry (Quality)	27 - 48 Nm	32
Rotational Resistance		
Initial Wet (Quality)	27 - 48 Nm	33
Rotational Resistance after		
· ·	27 - 48 Nm	36
simulated wear 6'000	27 - 40 INIII	36
cycles (5*)		
Rotational Resistance after	27 40 Nov.	
simulated wear 6'000	27 - 48 Nm	
cycles (20*)		
Other, detail		
5 – Test Results Player / Surface in		
Skin / surface friction Dry	0.35 - 0.75 μ	0.66
Skin abrasion Dry	± 30 %	23
Skin / surface friction Dry	± 30 %	
3'000 cycles	1 30 70	
Skin / surface friction Dry	± 30 %	0.50
6'000 cycles	± 30 %	0.30
6 - Environmental impact (arficial,	light, water)	
Pile yarn 1 Colour change	> Cray scale 2	4
after artificial weathering	≥ Grey scale 3	4
Pile yarn 2 Colour change	6 1 2	
after artificial weathering	≥ Grey scale 3	-
Pile yarn 3 Colour change	6 13	
after artificial weathering	≥ Grey scale 3	-
Pile yarn 1 Yarn tensile		
strength after artificial	Change ≤ 50	6
weathering	%	
Pile yarn 2 Yarn tensile		
strength after artificial	Change ≤ 50	_
weathering	%	
Pile yarn 3 Yarn tensile		
· ·	Change ≤ 50	
strength after artificial	%	-
weathering	<u> </u>	



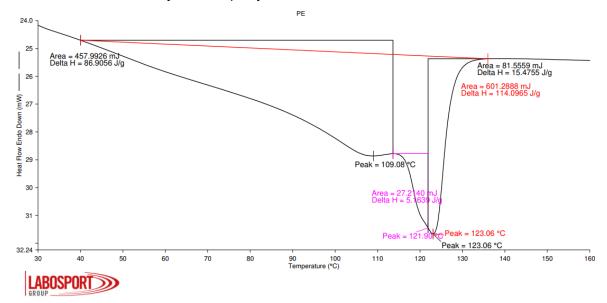
Comment Comment Result	N		D. H
change after artificial weathering Polymeric infill Visual change in composition after artificial weathering Complete system Water permeability Complete system Water permeability Stitched joints Strength ≥ 180 mm/h 2000 Stitched joints Strength ≥ 180 mm/h 2000 Stitched joints Strength ≥ 1000N/100mm Stitched joints Strength ≥ 75/100mm 2000 Bonded joints Strength ≥ 75/100mm 3000 Bonded joints Strength ≥ 30N 300 Carpet tuft With drawal force un-aged 300 300 Carpet tuft Withdrawal force water aged 300 300 300 Heat Category for information 300 300 Formation 500 500 500 500 500 500 500 500 500 50	Name	Comment	Result
weathering No change No change Polymeric infill Visual change in composition after artificial weathering No change No change Complete system Water permeability > 180 mm/h 2000 Stitched joints Strength and a page of the permeability ≥ 1000N/100mm 1000N/100mm Stitched joints Strength and a page of the permeability ≥ 75/100mm 109 Bonded joints Strength and a page of the permeability ≥ 75/100mm 86 Carpet fuff Withdrawal force un-aged of the permeability ≥ 30N 39 Carpet fuff Withdrawal force water aged of the permeability ≥ 30N 39 Heat Category for information for info			
Polymeric infill Visual change in composition after artificial weathering Complete system Water permeability Stitched joints Strength ≥ 180 mm/h 2000 Stitched joints Strength ≥ 1000N/100mm Stitched joints Strength ≥ 1000N/100mm Stitched joints Strength ≥ 75/100mm Bonded joints Strength ≥ 75/100mm Bonded joints Strength ≥ 75/100mm Bonded joints Strength ≥ 30N Carpet tuft Witndrawal force un-aged Carpet tuft Witndrawal force water aged Heat Category For information Splash Characteristics For information Splash Characteristics For information Shock Pad / E-layer tensile strength un-aged Sub-base Composition Sub-base Particle shape Sub-base Particle shape Sub-base Thickness Sub-base Composition & - Sub-base Composition &		≥ Grey scale 3	3-4
change in composition after artificial weathering Complete system Water permeability Stitched joints Strength ≥ 180 mm/h Stitched joints Strength ≥ 1000N/100mm Stitched joints Strength ≥ 1000N/100mm Stitched joints Strength ≥ 75/100mm Bonded joints Strength ≥ 75/100mm Bonded joints Strength ≥ 75/100mm Bonded joints Strength ≥ 75/100mm Sorce un-aged Carpet tuft! Witndraval force un-aged Carpet tuft! Witndraval force water aged Heat Category for information -			
after artificial weathering Complete system Water permeability Stitched joints Strength			
Complete system Water permeability > 180 mm/h 2000		No change	No change
permeability Stitched joints Strength			
Stitched joints Strength		> 180 mm/h	2000
un-aged 1000N/100mm Stitched joints Strength water aged ≥ 1000N/100mm Bonded joints Strength un-aged ≥ 75/100mm 109 Bonded joints Strength water aged ≥ 75/100mm 86 Carpet tuft! Witndrawal force un-aged ≥ 30N 44 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 -			
Stitched joints Strength ≥ 1000N/100mm 109 10		I —	
water aged 1000N/100mm Bonded joints Strength un-aged ≥ 75/100mm 109 Bonded joints Strength water aged ≥ 75/100mm 86 Carpet tuft! Withdrawal force un-aged ≥ 30N 44 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 -		1000N/100mm	
Bonded joints Strength	, , , , , , , , , , , , , , , , , , , ,	-	
un-aged Bonded joints Strength water aged Carpet tuft Withdrawal force un-aged Carpet tuft Withdrawal force un-aged Carpet tuft Withdrawal force water aged 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 Sub-base Composition Sub-base Particle size range Sub-base Particle shape Sub-base Thickness Sub-base Compaction & test method ≥ 75/100mm 86 44 44 44 230N 39 39 39 39 39 30N		1000N/100mm	
Bonded joints Strength ≥ 75/100mm 86 Carpet tuft With drawal force un-agerd 2 30N 44 Carpet tuft Withdrawal force un-agerd 2 30N 39 Heat Category for information		> 75/100mm	109
Water aged ≥ 75/100mm 86 Carpet tuft Withdrawal force un-aged ≥ 30N 44 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 -		2 7 37 10011111	103
Carpet : uft With drawal force un-aged ≥ 30N 39 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 &		> 75/100mm	86
force un-aged	wster aged	2/3/10011111	07/-/
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 -		Chila Lt L	70 107
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 - Sub-base Compaction & test method - Sub-base Compaction & test method - Sub-base Compaction & test method - Total Category - Sub-base Compaction & test method - Sub-base Compactio		2 3014	77
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 Sub-base Composition - Sub-base Particle size range - Sub-base Particle shape - Sub-base Thickness - Sub-base Compaction & -		> 30N	39
Heat Category information -	force water aged		33
Splash Characteristics for information -	Heat I Category	' - '	_
Splash Characteristics 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 -	Treat Category	information	
7 - Miscellaneous (shock pad, sub-base - if part of the system) Shock Pad / E-layer tensile strength un-aged Sub-base Composition - Sub-base Particle size range - Sub-base Particle shape - Sub-base Thickness - Sub-base Composition & test method - Thickness - Thickn	Splach Characteristics	' - '	
Shock Pad / E-layer tensile strength un-aged Sub-base Composition Sub-base Particle size range Sub-base Particle shape Sub-base Thickness Sub-base Compaction & test method	· · ·		_
strength un-aged Sub-base Composition Sub-base Particle size range Sub-base Particle shape Sub-base Thickness Sub-base Compaction & test method		pase - if part of the syst	em)
Sub-base Composition - Sub-base Particle size range - Sub-base Particle shape - Sub-base Thickness - Sub-base Compaction & test method -		> 0.15 MPa	
Sub-base Particle size range - Sub-base Particle shape - Sub-base Thickness - Sub-base Compaction & test method - Sub-base Compaction & Co	strength un-aged	2 0.13 Wii a	
range			-
range Sub-base Particle shape - Sub-base Thickness - Sub-base Compaction & test method -	Sub-base Particle size		
Sub-base Thickness - Sub-base Compaction & test method -	range		
Sub-base Compaction &	Sub-base Particle shape		-
test method -	Sub-base Thickness		-
test method -	Sub-base Compaction &		
Other, detail			-
	Other, detail		



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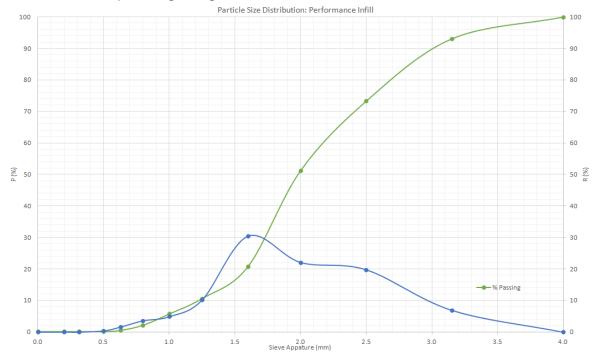


2 – Test Images DSC Diff. Scan. Colorimetry scans of pile yarn



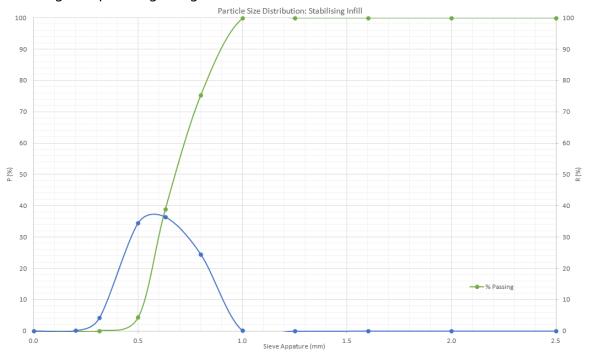


Performance infill particle grading curve



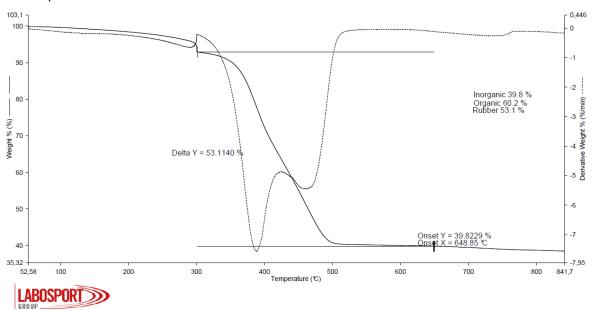


Stabilising infill particle grading curve



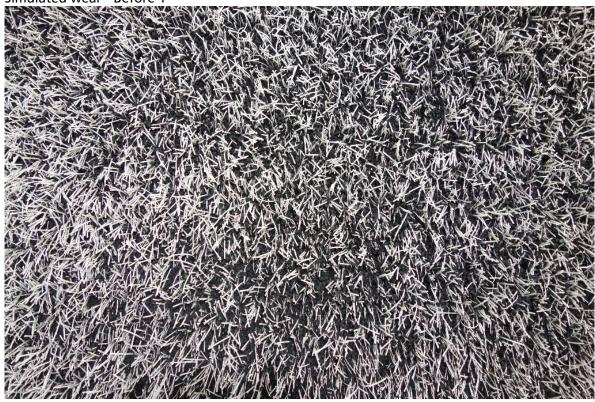


TGA of performance infill





Simulated wear - Before 1



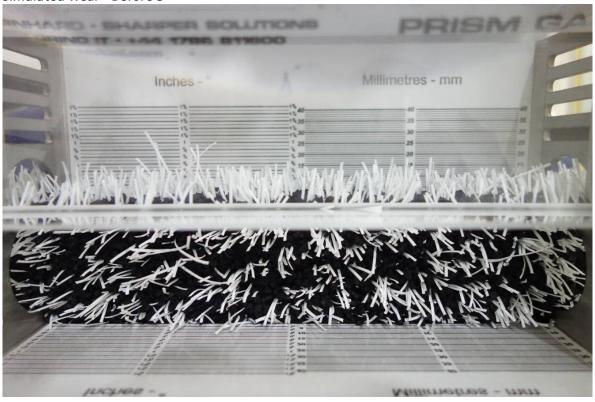


Simulated wear - Before 2



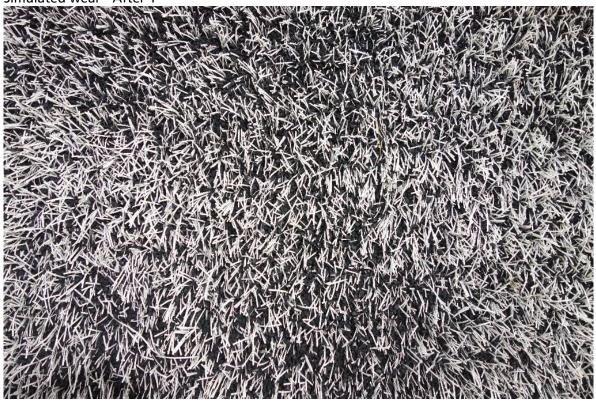


Simulated wear - Before 3





Simulated wear - After 1





Simulated wear - After 2

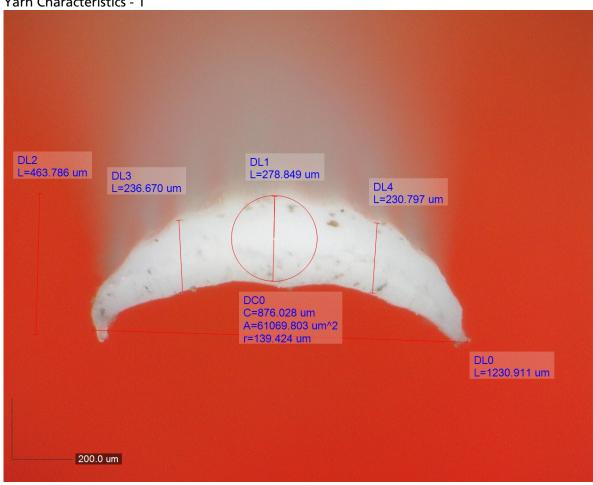








Yarn Characteristics - 1





Yarn Characteristics - 2

