FIFA LABORATORY TEST REPORT

Test manual 2015
01.01.2015

Product	Atlas Grass XQ
FIFA Licensee	Nurteks Hali San.ve Tic. A.S.
Test Institute	Labosport Italia S.r.l.

Test Number	100127
External Test Number	19-0905IT
Date of Test	15.01.2020
Test Result	Passed
Quality Level	FIFA Quality & Quality PRO
Test Type	Initial

Licensee

Main Address

Name	Nurteks Hali San.ve Tic. A.S.
Address	Nurteks Hali San.ve Tic. A.S. Yesilköy Mah. Atatürk Cad. EGS Bloklari No:12 B2 Blok Kat:4
ZIP / City	34149 / ISTANBUL
Website	
Contact Email	sales@nurteks.com.tr
Contact Phone	

Test institute

Main Address

Name	Labosport Italia S.r.l.
Address	Labosport Italia S.r.l. Via Monza, 80
ZIP / City	23870 / CERNUSCO LOMBARDONE
Website	www.labosport.com
Contact Email	labosport@labosport.it
Contact Phone	+39/ 039 896 26 84

Approval

Test Institute Director	Roberto Armeni
Signature	
Date	04.03.2020

Test Institute Engineer	Matteo Giorgini
Signature	
Date	04.03.2020

1 – Test Results

Name	Comment	Result
3 – Test Results | Product identification field product		
Performance infill | Theremographic analysis | Elastomer [%] - Product Declaration		34.6
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		ATLAS GRASS XQ
Product ID		-
Synthetic Turf System		ATLAS GRASS XQ
Performance infill		EPDM
Stabilising infill		SILICA
Shock-pad or elastic layer		-
Sub-base composition		Rigid engineered Base
2 - Test Details | Test Institute		
Date(s) of test		15.01.2020
Report created by		Matteo Giorgini
Laboratory Test report number		19-0905IT
Test Institute Project number		19-0905IT
3 – Product Declaration (Manufacturer)		
Manufacturer		NURTEKS HALI SAN. VE TİC. AŞ
Tuft pattern		STRAIGHT
Yarn manufacturer | yarn 1		TenCate Thiolon B.V.
Product name, code | yarn 1		MS XQ 1750/1 MF

Name	Comment	Result
		P Field Green, S106
Pile yarn profile | yarn 1		See test report details
Pile thickness (µ m) | yarn 1		300.0
Pile colour (RAL) | value 1 | yarn 1		RAL 130 40 30
Pile colour (RAL) | value 2 | yarn 1		-
Pile colour (RAL) | value 3 | yarn 1		-
Pile width (mm) | yarn 1		1.40
Number of tufts/m2 | yarn 1	ISO1773	9000.00
Pile length (mm) | yarn 1	ISO 2549	58.00
Pile weight (g/m2) | yarn 1	ISO 8543	675.00
Pile yarn characterization | yarn 1		PE
Pile yarn dtex | yarn 1		6000
Yarn manufacturer | yarn 2		TenCate Thiolon B.V.
Product name, code | yarn 2		MS XQ 1750/1 MF P Olive Green, S103
Pile yarn profile | yarn 2		See test report details
Pile thickness (µ m) | yarn 2		300.0
Pile colour (RAL) | value 1 | yarn 2		RAL 110 40 30
Pile colour (RAL) | value 2 | yarn 2		-
Pile colour (RAL) | value 3 | yarn 2		-
Pile width (mm) | yarn 2		1.40
Number of tufts/m2 | yarn 2	ISO1773	9000.00
Pile length (mm) | yarn 2	ISO 2549	58.00
Pile weight (g/m2) | yarn 2	ISO 8543	675.00
Pile yarn characterization | yarn 2		PE
Pile yarn dtex | yarn 2		6000.0
Yarn manufacturer | yarn 3		-
Product name, code | yarn 3		-
Pile yarn profile | yarn 3		-
Pile thickness (µ m) | yarn 3		0.0
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		0.00
Number of tufts/m2 | yarn 3	ISO1773	0.00
Pile length (mm) | yarn 3	ISO 2549	0.00
Pile weight (g/m2) | yarn 3	ISO 8543	0.00
Pile yarn characterization | yarn 3		-
Pile yarn dtex | yarn 3		0.0

Name	Comment	Result
Primary backing | Product name, code		H18 Tencate
Primary backing | Manufacturer		Tencate
Re-enforcement scrim | Product name, code		-
Re-enforcement scrim | Manufacturer		-
Secondary backing | Product name, code		SBR LATEX
Secondary backing | Manufacturer		Styron
Secondary backing | Dry application rate (g/m2)		1100.0
Carpet | Minimum tuft withdrawel force (N)		40
Carpet | Carpet mass per unit area (g/m2)		2770.0
Method of jointing		Bonded joints
Bonded joints | Adhesive brand name		AYKA FLOOR
Bonded joints | Adhesive manufacturer		AYKA FLOOR
Bonded joints | Application rate (g/m)		200
Bonded joints | Jointing film brand name		HELMETIN
Bonded joints | Jointing film manufacturer		SERTA TEKSTİL
Stitched seams | Tread brand name/product code		-
Stitched seams | Tread manufacturer		-
Stitched seams | Stitch rate (stitch per lm)		0.000
Performance Infill | Product name, code		NRT EPDM RUBBER
Performance Infill | Manufacturer		NURTEKS
Performance Infill | Material type		EPDM
Performance Infill | Material grading		1,6-3,35
Performance Infill | Particle shape	prEN 14955	A2-B3
Performance Infill | Particle size range	EN 933-Part 1	1,6-3,35
Performance Infill | Bulk density (g/cm3)	EN 1097-3	0.460
Performance Infill | Application rate (kg/m2)		17.0
Stabilising Infill | Product name, code		SILICA SAND
Stabilising Infill | Manufacturer		EMEK AND FARES KUM

Name	Comment	Result
Stabilising Infill | Material type		SILICA
Stabilising Infill | Material grading		0,315-0,8
Stabilising Infill | Particle shape	prEN 14955	Round high sphericity – C1
Stabilising Infill | Particle size range	EN 933-Part 1	0,315-0,8
Stabilising Infill | Bulk density (g/cm3)	EN 1097-3	1.50
Stabilising Infill | Application rate (kg/m2)		15.0
Shockpad, E-layer | Product name, code		-
Shockpad, E-layer | Manufacturer		-
Shockpad, E-layer | Type		-
Shockpad, E-layer | Composition		-
Shockpad, E-layer | Bulk density (g/cm3)		0.00
Shockpad, E-layer| Thickness	EN 1969	0.0
Shockpad, E-layer | Shock absorption (%)	FIFA 4a	0.0
Shockpad, E-layer | Deformation	FIFA 5a	0.0
Shockpad, E-layer | Tensile strength (MPa)		0.00
Shockpad, E-layer | Mass per unit area (kg/m2)		0.0
Other, detail		-
3 – Test Results | Player / Surface Interaction		
Rotational Resistance | Initial | Dry (Quality)	27 - 48 Nm	39
Rotational Resistance | Initial | Dry (Pro)	32 - 43 Nm	39
Rotational Resistance | Initial | Wet (Quality)	27 - 48 Nm	37
Rotational Resistance | Initial | Wet (Pro)	32 - 43 Nm	37
Rotational Resistance | after simulated wear | 3'000 cycles (5*)	32 - 43 Nm	36
Rotational Resistance | after simulated wear | 3'000 cycles (20*)	32 - 43 Nm	0
Rotational Resistance | after simulated wear | 6'000 cycles (5*)	27 - 48 Nm	39
Rotational Resistance | after simulated wear | 6'000 cycles (20*)	27 - 48 Nm	0
3 – Test Results | Product identification field product		
Performance infill | Theremographic analysis | Inorganic [%] - Product Declaration		50.4

Name	Comment	Result
Performance infill | Theremographic analysis | Organic [%] - Product Declaration		49.6
4 – Product Identification		
Artificial Turf | Carpet mass per unit area [g/m2]		3012
Artificial Turf | Tufts per unit area [m2]		9063
Artificial Turf | Pile lenght above backing [mm]		58.0
Artificial Turf | Pile weight [g/m2]		1404
Artificial Turf | Water permeability of carpet [mm/h]		3130
Artificial Turf | Free pile height		15
Performance infill | Particle size range [mm]		1.25 - 4.0
Performance infill | Particle shape		A2-B3
Performance infill | Bulk density [g/cm3]		0.460
Performance infill | Infill depth [mm]		36
Performance infill | Thermographic analysis | organic [%]		51
Performance infill | Theremographic analysis | inorganic [%]		49
Stabilising infill | Particle size range [mm]		0.2 - 0.63
Stabilising infill | Particle shape		C1
Stabilising infill | Bulk density [g/cm3]		1.32
Shock pad / E-layer | Shock absorption [%]	if part of supplied system	0.0
Shock pad / E-layer | Deformation	if part of supplied system	0.0
Shock pad / E-layer | Thickness	if part of supplied system	0.0
Other, detail		-
5 – Test Results | Ball / Surface interaction		
Vertical Ball Rebound | Initial | Dry (Quality)	0.6 - 1m	0.83
Vertical Ball Rebound | Initial | Dry (Pro)	0.6 - 0.85m	0.83
Vertical Ball Rebound | Initial | Wet (Quality)	0.6 - 1m	0.79
Vertical Ball Rebound | Initial | Wet (Pro)	0.6 - 0.85m	0.79
Vertical Ball Rebound | after simulated wear | 3'000 cycles (5*)	0.6 - 0.85m	0.85

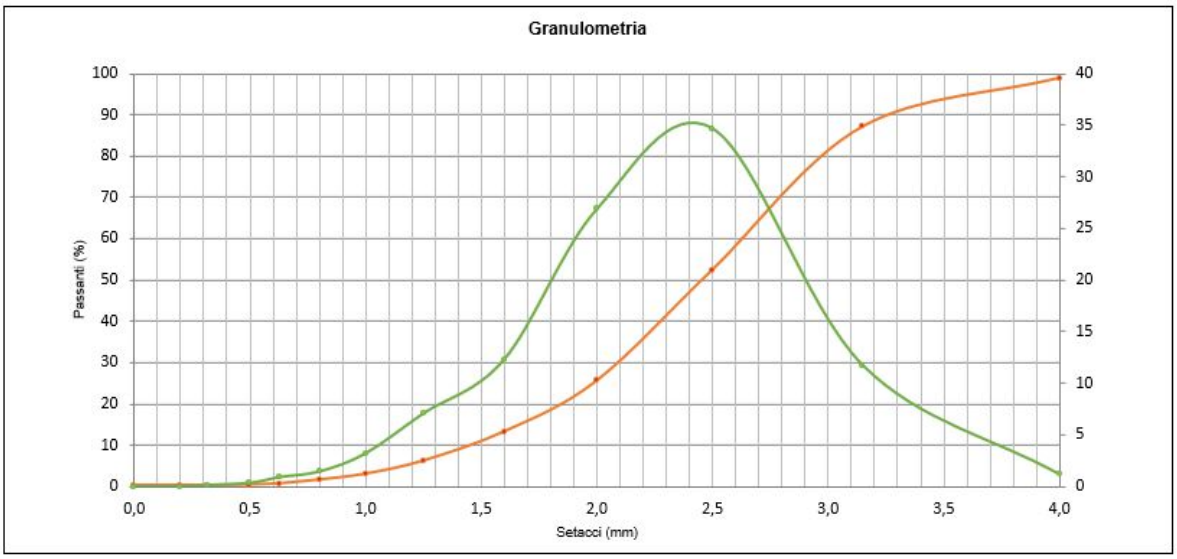
Name	Comment	Result
Vertical Ball Rebound | after simulated wear | 6'000 cycles (5*)	0.6 - 1m	0.92
Vertical Ball Rebound | after simulated wear | 3'000 cycles (20*)	0.6 - 0.85m	0.00
Vertical Ball Rebound | after simulated wear | 6'000 cycles (20*)	0.6 - 1m	0.00
Angle Ball Rebound | Dry	45 - 80 %	50
Angle Ball Rebound | Wet	45 - 80 %	63
Reduced Ball Roll | Initial | Dry (Quality)	4 - 10 m	7.2
Reduced Ball Roll | Initial | Dry (Pro)	4 - 8 m	7.2
Reduced Ball Roll | after simulated wear | 3'000 cycles (5*) | Dry	4 - 8 m	7.6
Reduced Ball Roll | after simulated wear | 3'000 cycles (5*) | Wet	4 - 8 m	7.9
Reduced Ball Roll | after simulated wear | 3'000 cycles (20*) | Dry	4 - 8 m	0.0
Reduced Ball Roll | after simulated wear | 3'000 cycles (20*) | Wet	4 - 8 m	0.0
Reduced Ball Roll | after simulated wear | 6'000 cycles (5*) | Dry	4 - 12 m	8.3
Reduced Ball Roll | after simulated wear | 6'000 cycles (5*) | Wet	4 - 12 m	8.5
Reduced Ball Roll | after simulated wear | 6'000 cycles (20*)| Dry	4 - 12 m	0.0
Reduced Ball Roll | after simulated wear | 6'000 cycles (20*)| Wet	4 - 12 m	0.0
Shock absorption | Initial | Dry (Quality)	57 - 68 %	66.0
Shock absorption | Initial | Dry (Pro)	62 - 68 %	66.0
Shock absorption | Initial | Wet (Quality)	57 - 68 %	64.5
Shock absorption | Initial | Wet (Pro)	62 - 68 %	64.5
Shock absorption | after simulated wear | 3'000 cycles (5*)	62 - 68 %	62.2
Shock absorption | after simulated wear | 3'000 cycles (20*)	62 - 68 %	0.0
Shock absorption | after simulated wear | 6'000 cycles (5*)	57 - 68 %	57.8

Name	Comment	Result
Shock absorption | after simulated wear | 6'000 cycles (20*)	57 - 68 %	0.0
Shock absorption | 50°C	57 - 68 %	67.70
Shock absorption | -5°C	57 - 68 %	67.20
Other, detail		-
5 – Test Results | Player / Surface interaction		
Deformation | Initial | Dry (Quality)	4 - 11 mm	10.0
Deformation | Initial | Dry (Pro)	4 - 10 mm	10.0
Deformation | Initial | Wet (Quality)	4 - 11 mm	10.0
Deformation | Initial | Wet (Pro)	4 - 10 mm	10.0
Deformation | after simulated wear | 3'000 cycles (5*)	4 - 10 mm	9.0
Deformation | after simulated wear | 3'000 cycles (20*)	4 - 10 mm	0.0
Deformation | after simulated wear | 6'000 cycles (5*)	4 - 11 mm	8.0
Deformation | after simulated wear | 6'000 cycles (20*)	4 - 11 mm	0.0
Skin / surface friction | Dry	0.35 - 0.75 µ	0.45
Skin / surface friction | Dry | 3'000 cycles	0.35 - 0.75 µ	0.54
Skin / surface friction | Dry | 6'000 cycles	0.35 - 0.75 µ	0.61
Skin abrasion | Dry	± 30 %	7
Skin abrasion | Dry | 3'000 cycles	± 30 %	20
Skin abrasion | Dry | 6'000 cycles	± 30 %	23
6 – Environmental impact (arficial, light, water)		
Pile yarn 1 | Colour change | after artificial weathering	≥ Grey scale 3	4-5
Pile yarn 2 | Colour change | after artificial weathering	≥ Grey scale 3	4-5
Pile yarn 3 | Colour change | after artificial weathering	≥ Grey scale 3	-
Pile yarn 1 | Yarn tensile strength | after artificial weathering	Change ≤ 50 %	0
Pile yarn 2 | Yarn tensile strength | after artificial weathering	Change ≤ 50 %	17.4
Pile yarn 3 | Yarn tensile strength | after artificial weathering	Change ≤ 50 %	-
Polymeric infill | Colour change | after artificial weathering	≥ Grey scale 3	5
Polymeric infill | Visual change in composition | after artificial weathering	No change	No change
Complete system | Water permeability	> 180 mm/h	638
Stitched joints | Strength | un-aged	≥ 1000N/100mm	0
Stitched joints | Strength | water aged	≥ 1000N/100mm	0

Name	Comment	Result
Bonded joints | Strength | un-aged	≥ 75/100mm	100
Bonded joints | Strength | water aged	≥ 75/100mm	93
Carpet tuft | Withdrawal force | un-aged	≥ 30N	48
Carpet tuft | Withdrawal force | water aged	≥ 30N	44
Heat | Category	for information	Category 3
Splash | Characteristics	for information	> 1.50%
7 - Miscellaneous (shock pad, sub-base - if part of the system)		
Shock Pad / E-layer | tensile strength | un-aged	≥ 0.15 MPa	0.00
Sub-base | Composition		-
Sub-base | Particle size range		-
Sub-base | Particle shape		-
Sub-base | Thickness		-
Sub-base | Compaction & test method		-
Other, detail		-

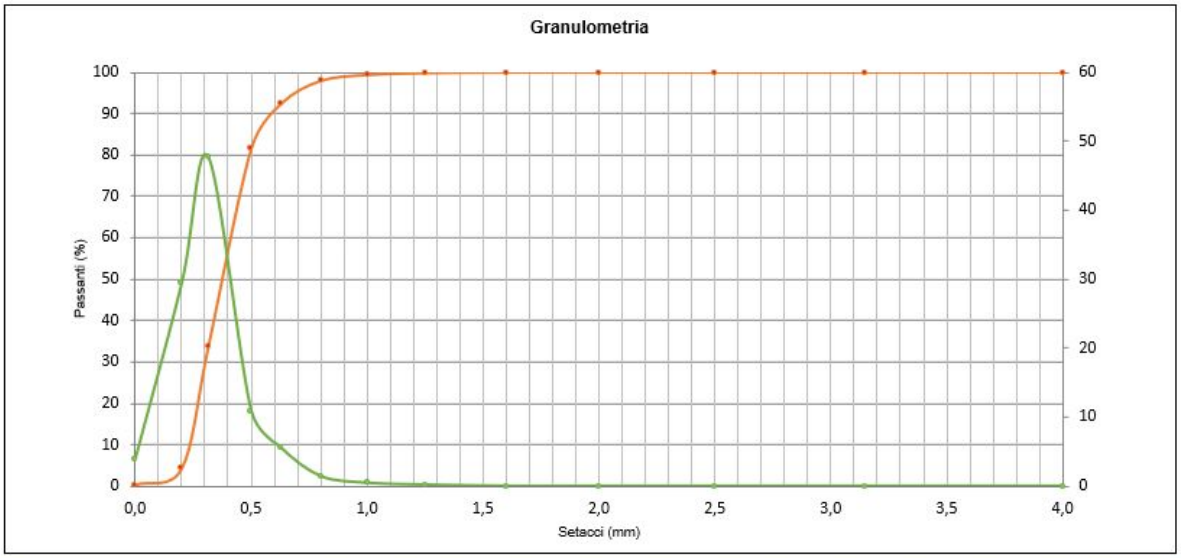
2 – Test Images

Performance infill particle grading curve



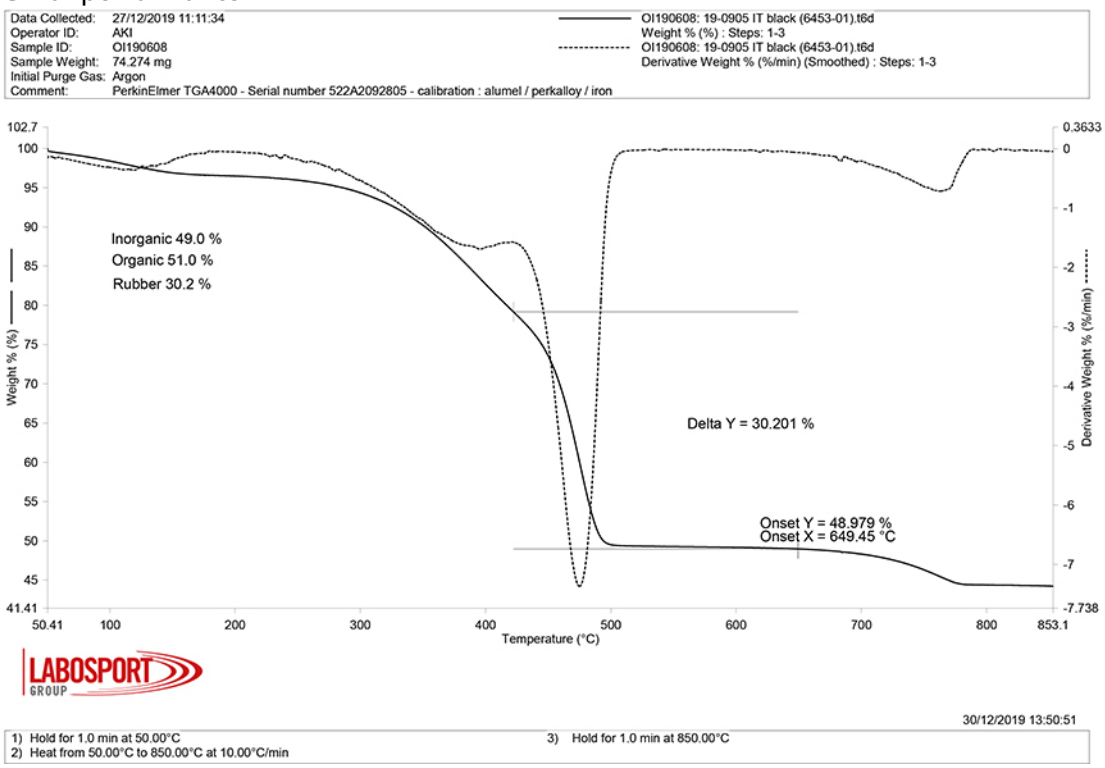
Setacci (mm)	0	0,2	0,315	0,5	0,63	0,8	1,0	1,25	1,6	2,0	2,5	3,15	4,0
Rifiutati (%)	0	0	0	0	1	1	3	7	12	27	35	12	1
Passanti (%)	0	0	0	0	1	2	3	6	13	26	52	87	99

Stabilising infill particle grading curve



Setacci (mm)	0	0,2	0,315	0,5	0,63	0,8	1,0	1,25	1,6	2,0	2,5	3,15	4,0
Rifiutati (%)	4	29	48	11	5	1	0	0	0	0	0	0	0
Passanti (%)	0	4	34	82	92	98	99	100	100	100	100	100	100

TGA of performance infill



Simulated wear - Before 1

Simulated wear - Before 2

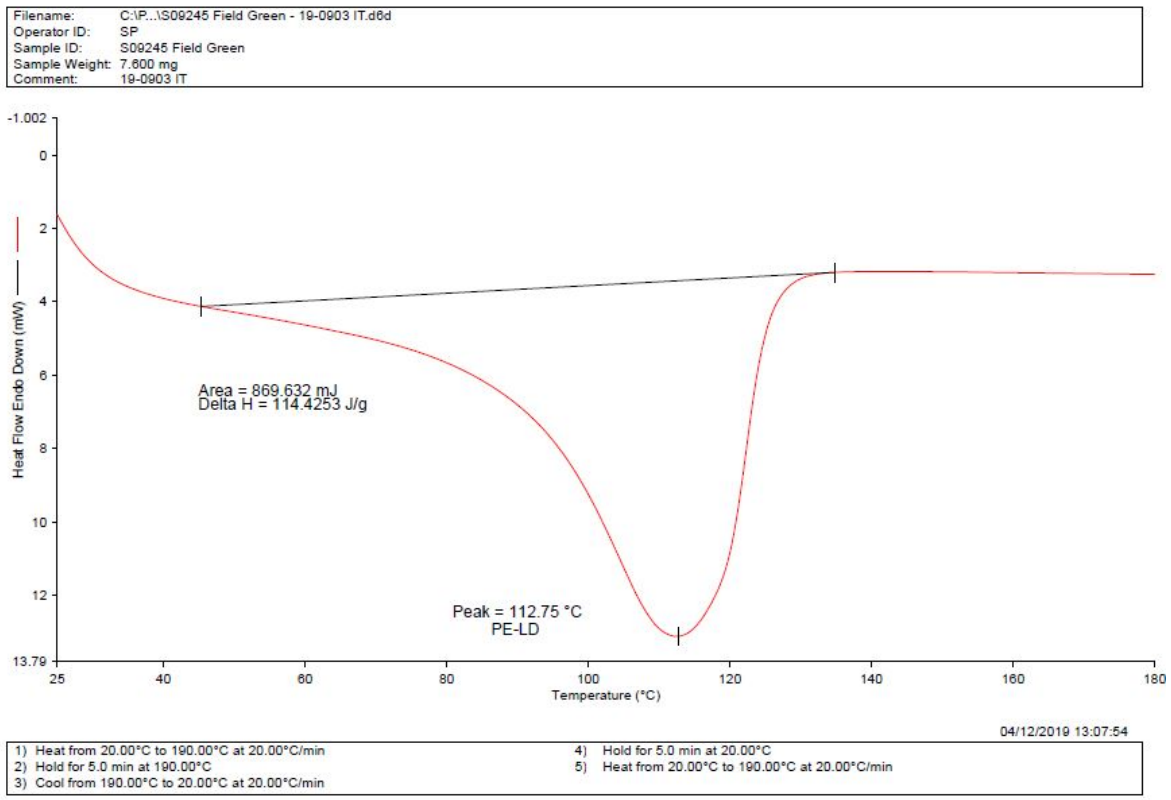
Simulated wear - After 1

Simulated wear - After 2

Simulated wear - After 3

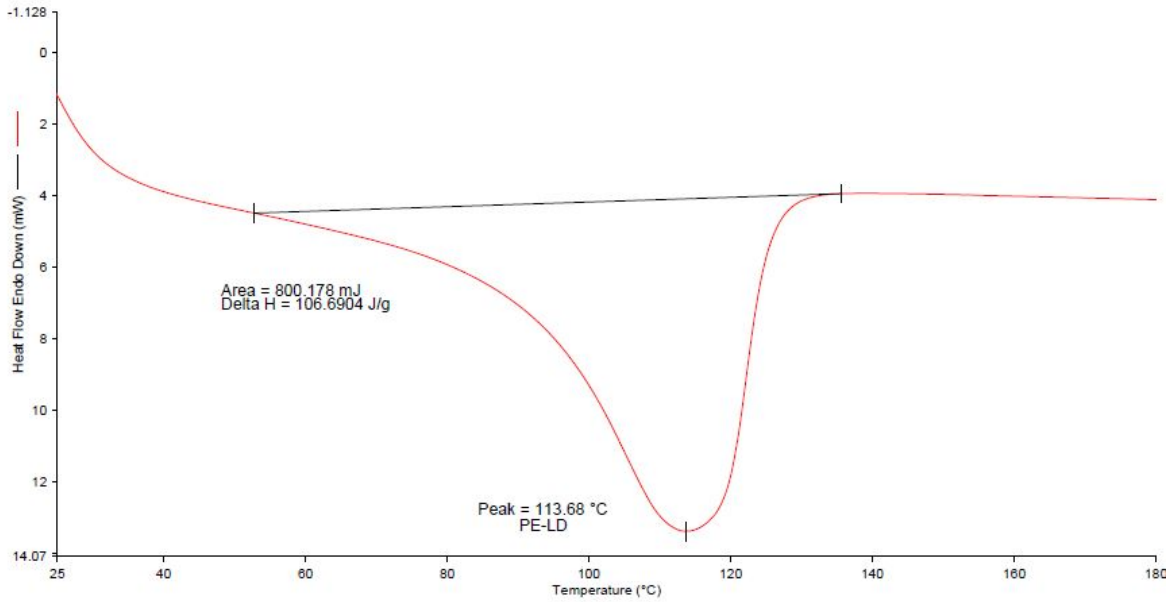
Simulated wear - After 4

Yarn Characteristics DSC



Yarn Characteristics DSC - 2

Filename: C:\P...\S09244 Olive Green - 19-0903 IT.d6d
Operator ID: SP
Sample ID: S09244 Olive Green
Sample Weight: 7.500 mg
Comment: 19-0903 IT



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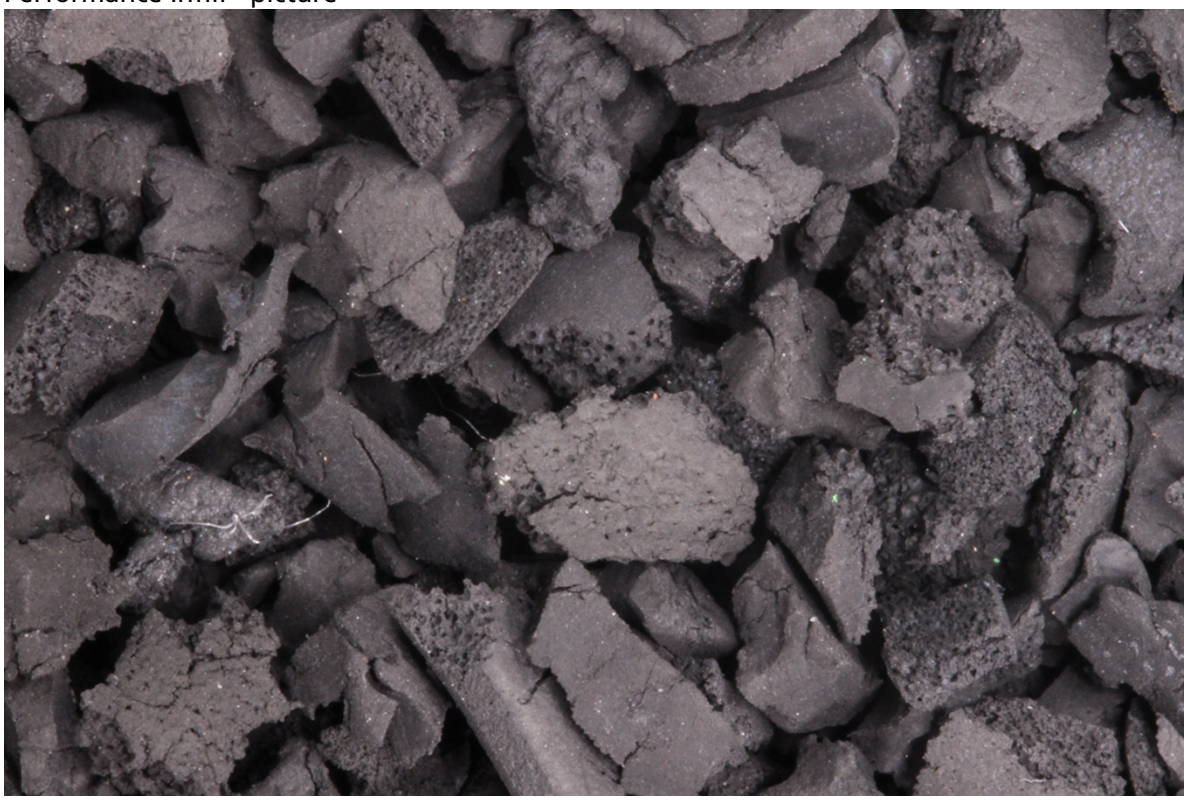
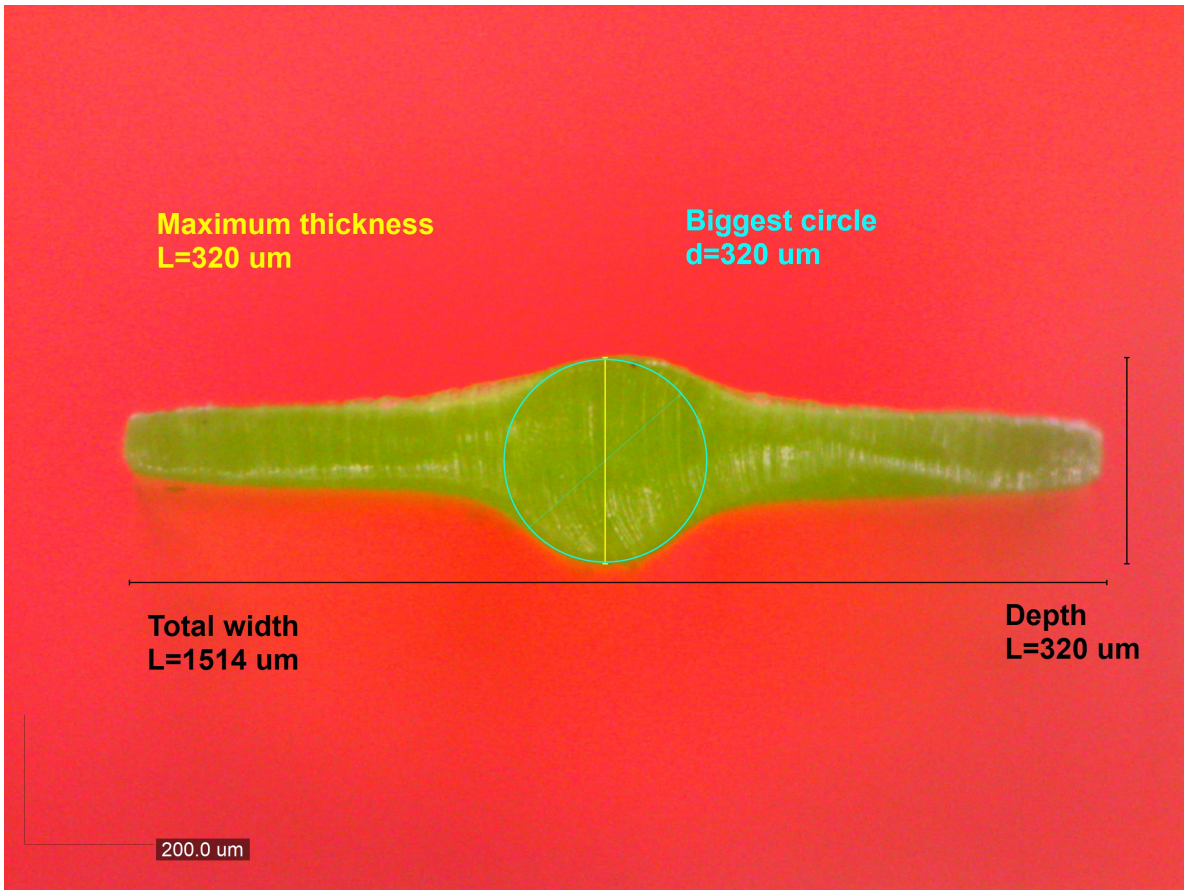
1) Heat from 20.00°C to 190.00°C at 20.00°C/min
2) Hold for 5.0 min at 190.00°C
3) Cool from 190.00°C to 20.00°C at 20.00°C/min
4) Hold for 5.0 min at 20.00°C
5) Heat from 20.00°C to 190.00°C at 20.00°C/min

Stabilising Infill - picture

Performance Infill - picture



Cross-section Yarn 1



Cross-section Yarn 2