FIFA LABORATORY TEST REPORT

TM Football Turf I 2015
01.01.2015

Product	ECO-NEXT TTC FLASH 52 13 8 FGN E LGN
FIFA Licensee	Safitex Turf S.r.l
Test Institute	Labosport Italia S.r.l.

Test Number	144242
External Test Number	24-0862IT
Date of Test	03.02.2025
Test Result	Passed
Quality Level	FIFA Quality/Quality PRO
Test Type	Initial

Licensee

Main Address

Name	Safitex Turf S.r.l
Address	Via Ugo Foscolo 33, 24024 Gandino (BG)
ZIP / City	24024 / Gandino BG
Website	
Contact Email	export@safitex.it
Contact Phone	

Test institute

Main Address

Name	Labosport Italia S.r.l.
Address	Via Achille Grandi, 70
ZIP / City	20862 / Arcore (MB)
Website	www.labosport.com
Contact Email	labosport@labosport.it
Contact Phone	+39/ 039 896 26 84

Approval

Test Institute Director	Roberto Armeni
Signature	
Date	16.04.2025

Test Institute Engineer	Gabriele Greco
Signature	
Date	16.04.2025

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		ECO-NEXT TTC FLASH 52 13 8 TRO GREEN
Product ID		SAF.025
Synthetic Turf System		ECO-NEXT TTC FLASH 52 13 8 TRO GREEN
Performance infill		GommAmica® Powerfill ECO
Stabilising infill		SAND UP
Shock-pad or elastic layer		ProGame 5012 XC-Cut Plus
Sub-base composition		Rigid engineered Base
2 - Test Details | Test Institute		
Date(s) of test		03.02.2025
Report created by		Gabriele Greco
Laboratory Test report number		24-0862IT

Name	Comment	Result
Test Institute Project number		24-0862IT
3 – Product Declaration (Manufacturer)		
Manufacturer		Safitex Turf S.r.l.
Tuft pattern		Zig-Zag
Yarn manufacturer | yarn 1		TenCate Grass Components
Detailed tuft decitex (Dtex) [g/10000m]		13500 (6750 + 6750)
Product name, code | yarn 1		TenCate MonoSlide® XQ® 1800/1 F FG
Pile yarn profile | yarn 1		Monofilament sect.S
Pile thickness (µ m) | yarn 1		345.0
Pile colour (RAL) | value 1 | yarn 1		6025
Pile colour (RAL) | value 2 | yarn 1		-
Pile colour (RAL) | value 3 | yarn 1		-
Pile width (mm) | yarn 1		1.25
Number of tufts/m2 | yarn 1	ISO1773	8600.00
Pile length (mm) | yarn 1	ISO 2549	50.00
Pile weight (g/m2) | yarn 1	ISO 8543	590.00
Pile yarn characterization | yarn 1		Polyethylene
Pile yarn dtex | yarn 1		6750
Yarn manufacturer | yarn 2		TenCate Grass Components
Product name, code | yarn 2		TenCate MonoSlide® XQ® 1800/1 F LG
Pile yarn profile | yarn 2		Monofilament sect.S
Pile thickness (µ m) | yarn 2		345.0
Pile colour (RAL) | value 1 | yarn 2		6010
Pile colour (RAL) | value 2 | yarn 2		-
Pile colour (RAL) | value 3 | yarn 2		-
Pile width (mm) | yarn 2		1.25

Name	Comment	Result
Number of tufts/m2 | yarn 2	ISO1773	8600.00
Pile length (mm) | yarn 2	ISO 2549	50.00
Pile weight (g/m2) | yarn 2	ISO 8543	590.00
Pile yarn characterization | yarn 2		Polyethylene
Pile yarn dtex | yarn 2		6750.0
Yarn manufacturer | yarn 3		-
Product name, code | yarn 3		-
Pile yarn profile | yarn 3		-
Pile thickness (µm) | 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
Primary backing | Product name, code		K06***3276719
Primary backing | Manufacturer		Tencate Grass Europe
Re-enforcement scrim | Product name, code		-
Re-enforcement scrim | Manufacturer		-
Secondary backing | Product name, code		ECONEXT

Name	Comment	Result
Secondary backing | Manufacturer		-
Secondary backing | Dry application rate (g/m2)		300.0
Carpet | Minimum tuft withdrawal force (N)		40
Carpet | Carpet mass per unit area [g/m2]		1800.0
Method of jointing		Bonded
Bonded joints | Adhesive brand name		Safitex Glue Adesiver B-Component
Bonded joints | Adhesive manufacturer		Chimiver Panseri Spa
Bonded joints | Application rate (g/m)		500
Bonded joints | Jointing film brand name		Seaming Tape F
Bonded joints | Jointing film manufacturer		Caplast Kunstoffverarbeitung GmbH
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		GommAmica® Powerfill ECO
Performance Infill | Manufacturer		Elastrade Srl
Performance Infill | Material grading		0,8 - 2,5 mm
Performance Infill | Particle shape	prEN 14955	A2
Performance Infill | Particle size range	EN 933-Part 1	0,8 - 2,5 mm

Name	Comment	Result
Performance Infill | Bulk density (g/cm3)	EN 1097-3	0.480
Performance Infill | Application rate (kg/m2)		9.0
Stabilising Infill | Product name, code		Sand Up
Stabilising Infill | Manufacturer		Sabbie di Parma srl
Stabilising Infill | Material type		Silica Sand
Stabilising Infill | Material grading		0,4 - 1,25 mm
Stabilising Infill | Particle shape	prEN 14955	B2
Stabilising Infill | Particle size range	EN 933-Part 1	0,4 - 1,25 mm
Stabilising Infill | Bulk density (g/cm3)	EN 1097-3	1.44
Stabilising Infill | Application rate (kg/m2)		25.0
Shockpad, E-layer | Product name, code		ProGame 5012 XC-Cut Plus
Shockpad, E-layer | Manufacturer		Trocellen Gmbh
Shockpad, E-layer | Composition		Reticulated PE foam coupled with geofabric
Shockpad, E-layer | Bulk density (g/cm3)		0.00
Shockpad, E-layer| Thickness	EN 1969	12.0
Shockpad, E-layer | Shock absorption (%)	FIFA 4a	42.0
Shockpad, E-layer | Deformation	FIFA 5a	7.5
Shockpad, E-layer | Tensile strength (MPa)		0.00
Shockpad, E-layer | Mass per unit area (kg/m2)		0.7
Other, detail		Bulk density and Tensile strength, not declared. Mass per unit area: 0,680 kg/m2.
3 – Test Results | Player / Surface Interaction		

Name	Comment	Result
Rotational Resistance | Initial | Dry (Quality)	27 - 48 Nm	35
Rotational Resistance | Initial | Dry (Pro)	32 - 43 Nm	35
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	40
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	43
Rotational Resistance | after simulated wear | 6'000 cycles (20*)	27 - 48 Nm	0
3 – Test Results | Product identification field product		
Performance infill | Theremographic analysis | Elastomer [%] - Product Declaration		58.2
Performance infill | Theremographic analysis | Inorganic [%] - Product Declaration		35.8
Performance infill | Theremographic analysis | Organic [%] - Product Declaration		64.2
4 – Product Identification		
Artificial Turf | Carpet mass per unit area [g/m2]		1689
Artificial Turf | Tufts per unit area [m2]		8127

Name	Comment	Result
Artificial Turf | Pile lenght above backing [mm]		52.0
Artificial Turf | Pile weight [g/m2]		1157
Detailed tuft decitex (Dtex) [g/10000m]		12086
Artificial Turf | Water permeability of carpet [mm/h]		24000
Artificial Turf | Free pile height		10
Performance infill | Particle size range [mm]		1,0 - 2,5 mm
Performance infill | Particle shape		A2
Performance infill | Bulk density [g/cm3]		0.480
Performance infill | Infill depth [mm]		19
Performance infill | Thermographic analysis | organic [%]		64
Performance infill | Theremographic analysis | inorganic [%]		36
Stabilising infill | Particle size range [mm]		0,4 - 1,0 mm
Stabilising infill | Particle shape		B2
Stabilising infill | Bulk density [g/cm3]		1.44
Shock pad / E-layer | Shock absorption [%]	if part of supplied system	40.0
Shock pad / E-layer | Deformation	if part of supplied system	8.4
Shock pad / E-layer | Thickness	if part of supplied system	12.3
Other, detail		Due to different DSC devices and potential difference in the test method used, the shape and peak temperatures of

Name	Comment	Result
		the DSC analysis may differ from the FIFA requirement.
5 – Test Results | Ball / Surface interaction		
Vertical Ball Rebound | Initial | Dry (Quality)	0.6 - 1m	0.67
Vertical Ball Rebound | Initial | Dry (Pro)	0.6 - 0.85m	0.67
Vertical Ball Rebound | Initial | Wet (Quality)	0.6 - 1m	0.63
Vertical Ball Rebound | Initial | Wet (Pro)	0.6 - 0.85m	0.63
Vertical Ball Rebound | after simulated wear | 3'000 cycles (5*)	0.6 - 0.85m	0.79
Vertical Ball Rebound | after simulated wear | 6'000 cycles (5*)	0.6 - 1m	0.84
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 %	55
Angle Ball Rebound | Wet	45 - 80 %	70
Reduced Ball Roll | Initial | Dry (Quality)	4 - 10 m	6.6
Reduced Ball Roll | Initial | Dry (Pro)	4 - 8 m	6.6
Reduced Ball Roll | after simulated wear | 3'000 cycles (5*) | Dry	4 - 8 m	7.4
Reduced Ball Roll | after simulated wear | 3'000 cycles (5*) | Wet	4 - 8 m	7.8
Reduced Ball Roll | after simulated wear | 3'000 cycles (20*) | Dry	4 - 8 m	0.0

Name	Comment	Result
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	8.0
Reduced Ball Roll | after simulated wear | 6'000 cycles (5*) | Wet	4 - 12 m	9.1
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 %	66.4
Shock absorption | Initial | Dry (Pro)	62 - 68 %	66.4
Shock absorption | Initial | Wet (Quality)	57 - 68 %	65.4
Shock absorption | Initial | Wet (Pro)	62 - 68 %	65.4
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 %	57.7
Shock absorption | after simulated wear | 6'000 cycles (20*)	57 - 68 %	0.0
Shock absorption | 50°C	57 - 68 %	65.00
Shock absorption | -5°C (optional)	57 - 68 %	63.20
Other, detail		-
5 – Test Results | Player / Surface interaction		

Name	Comment	Result
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	10.0
Deformation | Initial | Wet (Pro)	4 - 10 mm	10.0
Deformation | after simulated wear | 3'000 cycles (5*)	4 - 10 mm	7.9
Deformation | after simulated wear | 3'000 cycles (20*)	4 - 10 mm	0.0
Deformation | after simulated wear | 6'000 cycles (5*)	4 - 11 mm	6.3
Deformation | after simulated wear | 6'000 cycles (20*)	4 - 11 mm	0.0
Skin / surface friction | Dry	0.35 - 0.75 µ	0.60
Skin / surface friction | Dry | 3'000 cycles	0.35 - 0.75 µ	0.64
Skin / surface friction | Dry | 6'000 cycles	0.35 - 0.75 µ	0.68
Skin abrasion | Dry	± 30 %	21
Skin abrasion | Dry | 3'000 cycles	± 30 %	27
Skin abrasion | Dry | 6'000 cycles	± 30 %	29
6 – Environmental impact (arficial, light, water)		
Pile yarn 1 | Colour change | after artificial weathering	≥ Grey scale 3	3-4
Pile yarn 2 | Colour change | after artificial weathering	≥ Grey scale 3	3-4
Pile yarn 3 | Colour change | after artificial weathering	≥ Grey scale 3	-
Pile yarn 1 | Peak Breakage Force |		10.60

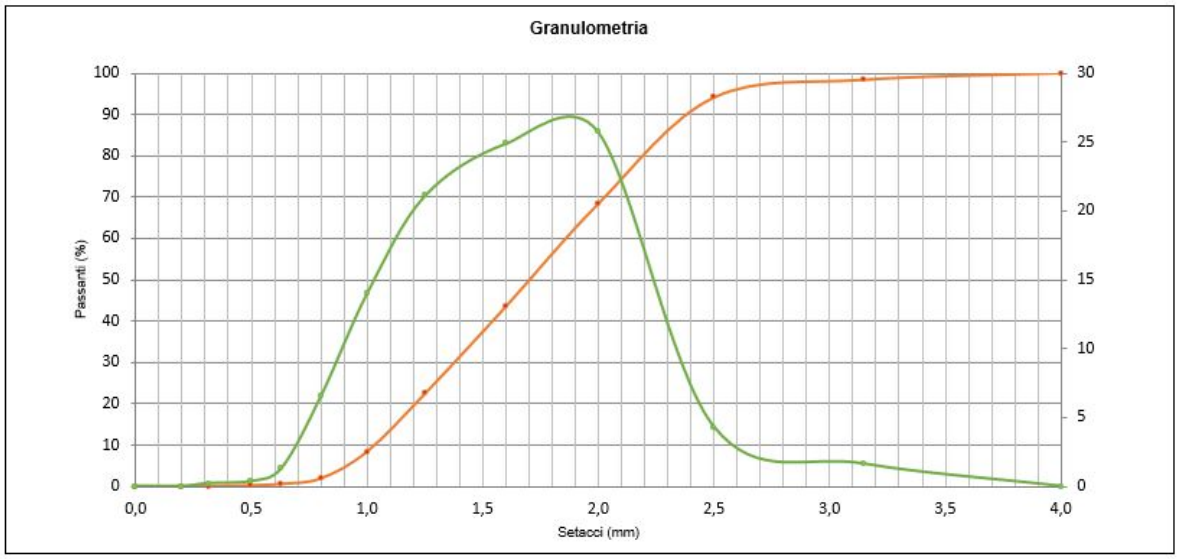
Name	Comment	Result
before artificial weathering		
Pile yarn 1 | Peak Breakage Force | after artificial weathering		8,7
Pile yarn 1 | Peak Breakage Force | Green Reference value before artificial weathering		10.60
Pile yarn 1 | Peak Breakage Force | Variation after weathering from Green Reference value	Change ≤ 25 %	18.00
Pile yarn 2 | Peak Breakage Force | before artificial weathering		10.10
Pile yarn 2 | Peak Breakage Force | after artificial weathering		9,9
Pile yarn 2| Peak Breakage Force | Green Reference value before artificial weathering		10.60
Pile yarn 2 | Peak Breakage Force | Variation after weathering from Green Reference value	Change ≤ 25 %	6.60
Pile yarn 3 | Peak Breakage Force | before artificial weathering		0.00
Pile yarn 3 | Peak Breakage Force | after artificial weathering		-
Pile yarn 3| Peak Breakage Force | Green Reference value before artificial weathering		0.00
Pile yarn 3 | Peak Breakage Force |	Change ≤ 25 %	0.00

Name	Comment	Result
Variation after weathering from Green Reference value		
Polymeric infill | Colour change | after artificial weathering	≥ Grey scale 3	3
Polymeric infill | Visual change in composition | after artificial weathering	No change	No change
Complete system | Water permeability	> 180 mm/h	10000
Stitched joints | Strength | un-aged	≥ 1000N/100mm	0
Stitched joints | Strength | water aged	≥ 1000N/100mm	0
Bonded joints | Strength | un-aged	≥ 75/100mm	163
Bonded joints | Strength | water aged	≥ 75/100mm	119
Carpet tuft | Withdrawal force | un-aged	≥ 40N	42
Carpet tuft | Withdrawal force | water aged	≥ 40N	40
Heat | Category	for information	Category 2-3
7 - Miscellaneous (shock pad, sub-base - if part of the system)		
Shock Pad / E-layer | tensile strength | un-aged	≥ 0.15 MPa	0.28
Sub-base | Composition		-
Sub-base | Particle size range		-
Sub-base | Particle shape		-
Sub-base | Thickness		-
Sub-base | Compaction & test method		-
Other, detail		-
Turf | Product Report Details		

Name	Comment	Result
Shockpad, E-layer | Type Category		Prefabricated Shockpad
Performance Infill | Material type Category		End of Life Tires Infill (ELT)
Splash | Characteristics Category		≥ 1.5%

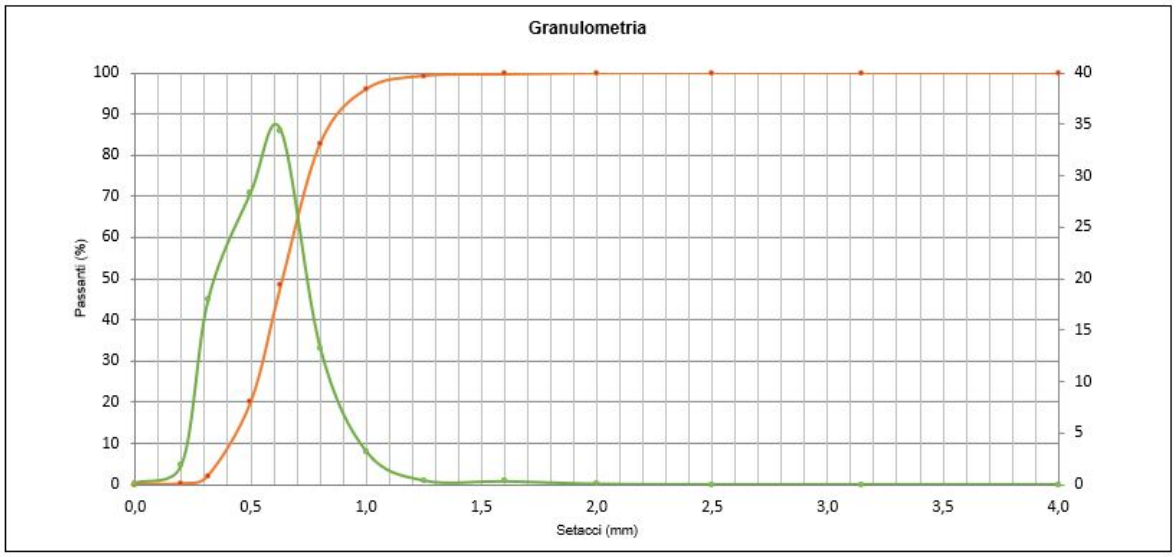
2 – Test Images

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	7	14	21	25	26	4	2	0
Passanti (%)	0	0	0	0	1	2	8	22	43	68	94	98	100

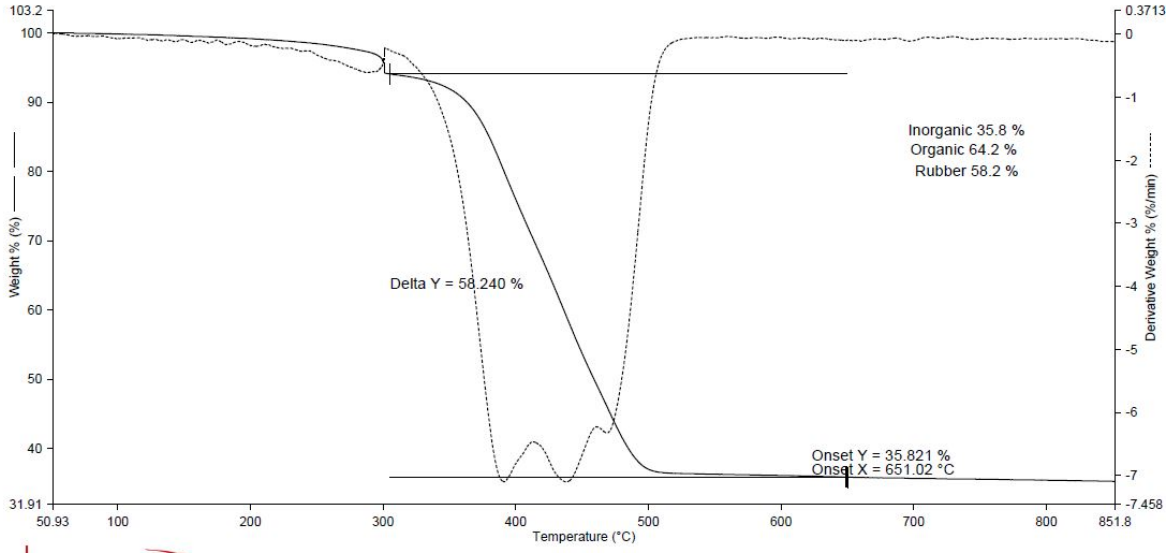
Stabilising infill particle grading curve



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 (%)	0	2	18	28	34	13	3	0	0	0	0	0	0
Passanti (%)	0	0	2	20	48	83	96	99	100	100	100	100	100

TGA of performance infill

Data Collected:	26/05/2020 16:13:40	OI200150: 20-0194 IT green - brown (1964-04).t6d	
Operator ID:	AKI	Weight % (%) : Steps: 1-6	
Sample ID:	OI200150	OI200150: 20-0194 IT green - brown (1964-04).t6d	
Sample Weight:	66.985 mg	Derivative Weight % (%/min) (Smoothed) : Steps: 1-6	
Initial Purge Gas:	Argon		
Comment:	PerkinElmer TGA4000 - Serial number 522A2092805 - calibration : alumel / perkalloy / iron		



LABOSPORT GROUP

27/05/2020 16:41:43

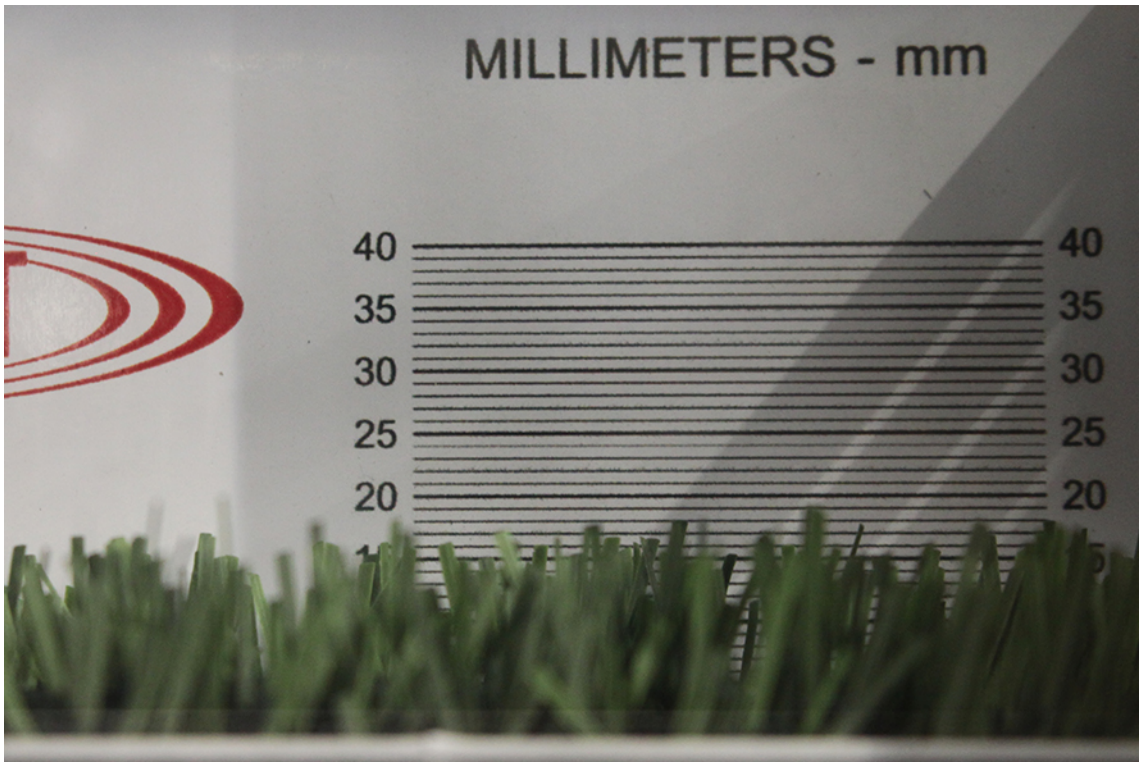
1) Hold for 1.0 min at 50.00°C	4) Heat from 300.00°C to 650.00°C at 15.00°C/min
2) Heat from 50.00°C to 300.00°C at 15.00°C/min	5) Heat from 650.00°C to 850.00°C at 25.00°C/min
3) Hold for 8.0 min at 300.00°C	6) Hold for 1.0 min at 850.00°C

Simulated wear - Before 1

Simulated wear - Before 2

Simulated wear - After 1

Simulated wear - After 2



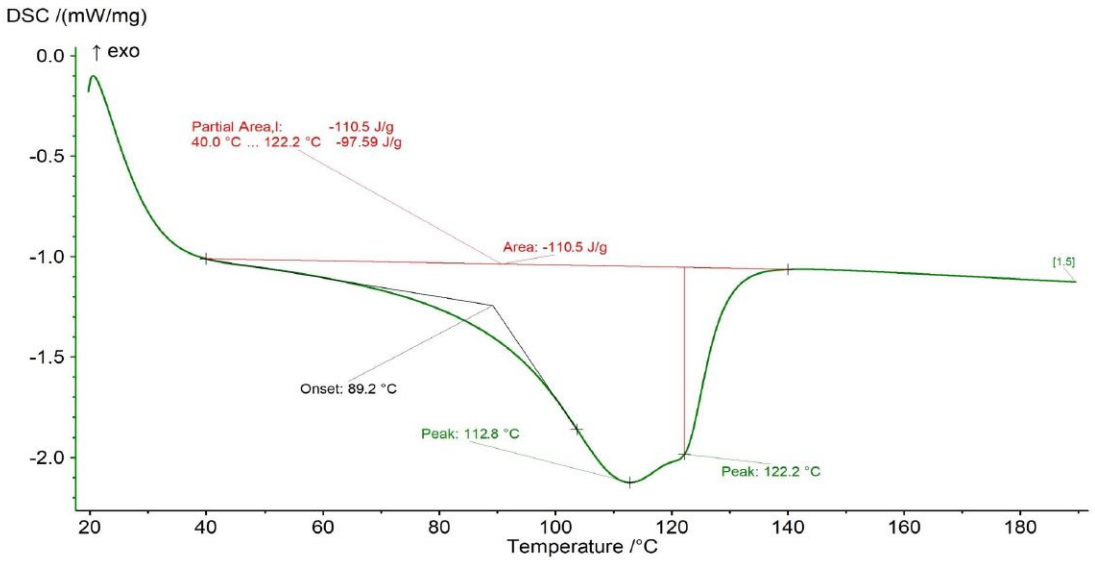
Simulated wear - After 3

Simulated wear - After 4

Yarn Characteristics DSC

LABOSPORT

Laboratory:	Labosport Italia Srl	**Identity:**	24-0862IT
Project:	24-0862IT	**Sample:**	DG
Operator:	Pietro	**Sample mass:**	6.58 mg
Date/Time:	06/12/2024 10:08:12	**Serial number**	DSC3500A-1254-L



TEST CYCLES:

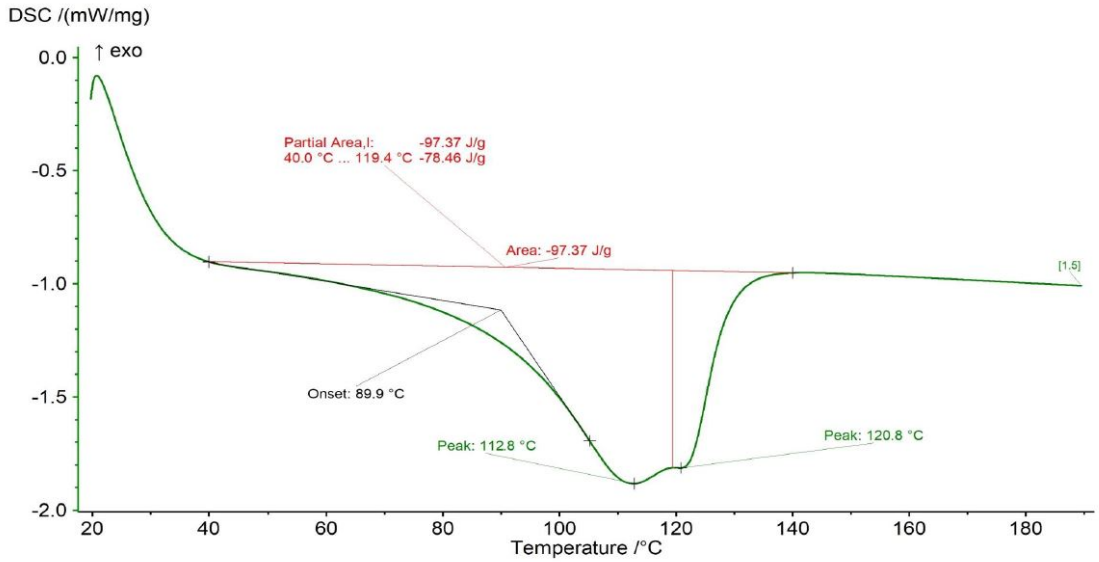
1) Heat from 20,0 °C to 190,0 °C at 20,0 °C/min
2) Hold for 5,0 min at 190,0 °C
3) Cool from 190 °C to 20,0 °C at 20,0 °C/min
4) Hold for 5,0 min at 20,0 °
5) Heat from 20,0 °C to 190,0 °C at 20,0 °C/min

NETZSCH DSC 3500 SERIES

Yarn Characteristics DSC - 2

LABOSPORT

Laboratory:	Labosport Italia Srl	**Identity:**	24-0862IT
Project:	24-0862IT	**Sample:**	LG
Operator:	Pietro	**Sample mass:**	6.51 mg
Date/Time:	06/12/2024 09:23:42	**Serial number**	DSC3500A-1254-L



TEST CYCLES:

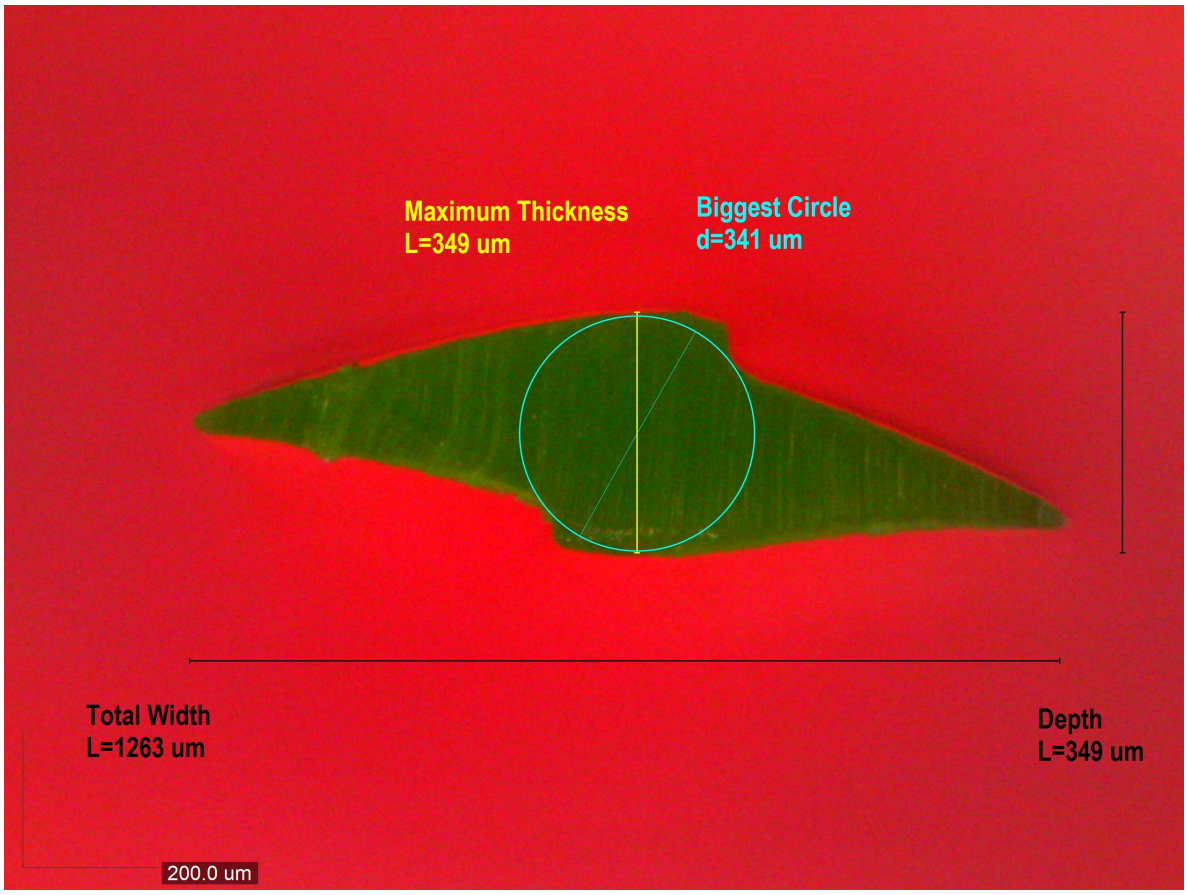
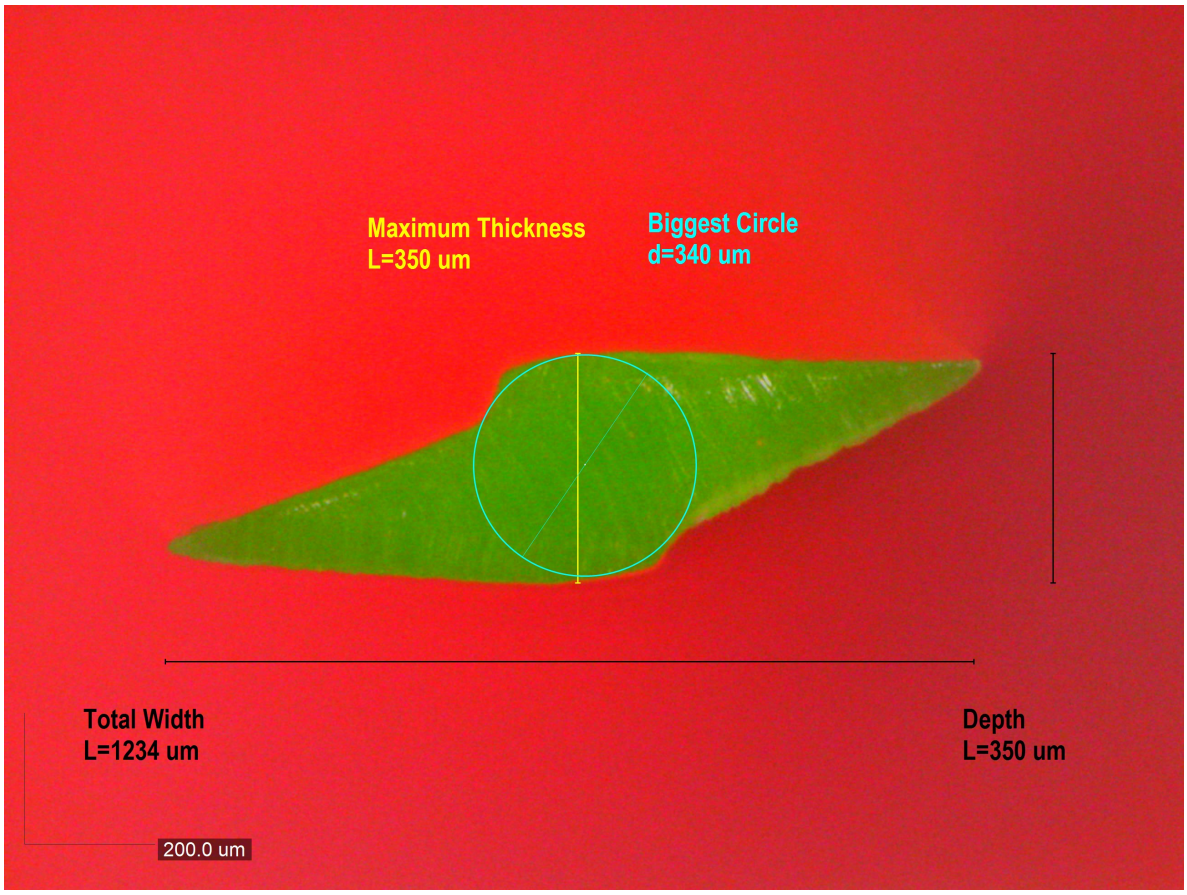
1) Heat from 20,0 °C to 190,0 °C at 20,0 °C/min
2) Hold for 5,0 min at 190,0 °C
3) Cool from 190 °C to 20,0 °C at 20,0 °C/min
4) Hold for 5,0 min at 20,0 °
5) Heat from 20,0 °C to 190,0 °C at 20,0 °C/min

NETZSCH DSC 3500 SERIES

Stabilising Infill - picture

Performance Infill - picture

Cross-section Yarn 1



Cross-section Yarn 2