



FIFA LABORATORY TEST REPORT

Manual 2015

Product name	Realturf Xtreme
Product type (Field/Lines)	Field
FIFA Licensee	Support in Sport Group Limited
FIFA accredited Test Institute	Labosport SAS
Laboratory Test report number	R161540.01-B3
Date of test	21.03.2017

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1 – Introduction / The Process of certification

In order to be certified, football turf fields must reach the performance and quality criteria established to be as close as possible to playing characteristics of natural grass. To this end, each field must undergo four steps as outlined below:

- a thorough composition and resilience test of the product in the laboratory (step 1)
- the installation of the product as declared, applying the outlined procedures (step 2)
- a test of the final installation for the relevant characteristics of the field as a whole system (step 3)
- if successful, certification FIFA QUALITY or FIFA QUALITY PRO field (step 4)

After expiration of the certificate, the field can be retested (step 3/4)



Fig. 1.2 Approval process steps and the related documents / parties

Legend:



This process is part of the FIFA Quality Programme for Football Turf in order to

- replicate the playing qualities of good quality natural grass,
- create a playing environment that does not increase the risk of injury to players
- achieve adequate durability (providing it is properly maintained)

For more details on FIFA Quality Programme for Football Turf see www.fifa.com/quality.

This document covers the complete step 1, FIFA LABORATORY TESTS REPORT. Consider:

- Tests are performed on a representative sample of the manufacturer's sample delivered to the FIFA accredited test institutes
- The test report is only valid if reproduced in its entirety
- The results are only valid for the complete Football Turf (related product) as stated in 2.1
- The related product is eligible for undergoing a field test on a final installation.

IMPORTANT:

To reach FIFA QUALITY PRO (or QUALITY) field certification, as next steps

- the installation has to comply with the related Product Declaration / Method Statement (step 2)
- a successfully passed subsequent FIELD TEST (step 3/4)

This FIFA LABORATORY TEST REPORT may only be used in relationship to Football Turf fields that are going to be submitted for certification under the FIFA Quality Programme of Football Turf. Any other use of this report is a violation of the report's copy right which is held by FIFA and breaches the terms of the FIFA Quality Programme of Football Turf licensing agreement.

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2 – Test Object, Participants

2.1 Test Numbers

Report Identification	Laboratory Test report number	R161540.01-B3
	Test Institute Project number	16-1540.01

2.2 Test Objects



Product Name	Realturf Xtreme
Product Identification code	Realturf Xtreme
Name of the synthetic turf system	Realturf Xtreme
Performance infill	SBR
Stabilising infill	Quartz Sand
Shock-pad or elastic layer (if applicable)	
Sub-base composition	Rigid engineered Base

2.3 Participants, Addresses

Applicant

- FIFA preferred producer
- Licensee



Name	Support in Sport Group Limited			
Address	Support in Sport Group Limited, Maryport, Cumbria			
Contact	Phone	+44/19008 12786	email	

FIFA accredited Test Institute

Name	Labosport SAS			
Address	Labosport SAS, LE MANS			
Contact	Phone	+33 (0)2 43 47 08 40	email	contact@labosport.com

3 – Test Conclusion, Product Approval

The presented Football Turf surface satisfies the FIFA LABORATORY TEST requirements of

FIFA QUALITY	Passed	«passed» or «failed»
FIFA QUALITY PRO		«passed» or «failed»
IMPORTANT: A successfully passed test of the final installation (FIFA FIELD TEST) is mandatory to obtain FIFA QUALITY / QUALITY PRO Certification!		

Report originated by	Name	Steeve BAZEILLE	
	Position	Lab Manager	
	Date	21.03.2017	
Report approved by	Name	Aurélien LE BLAN	
	Position	Executive Director	
	Date	21.03.2017	

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4 – Product Information / Specifications

4.1 Overview – a typical product composition

The basic structure and composition of artificial turf varies. To reach the goal of defined quality and specific functional performances, a set of the relevant parameters for the products / materials used was defined.

Materials / products typically used are as follows:

TYPICAL ASSEMBLING PROCESS

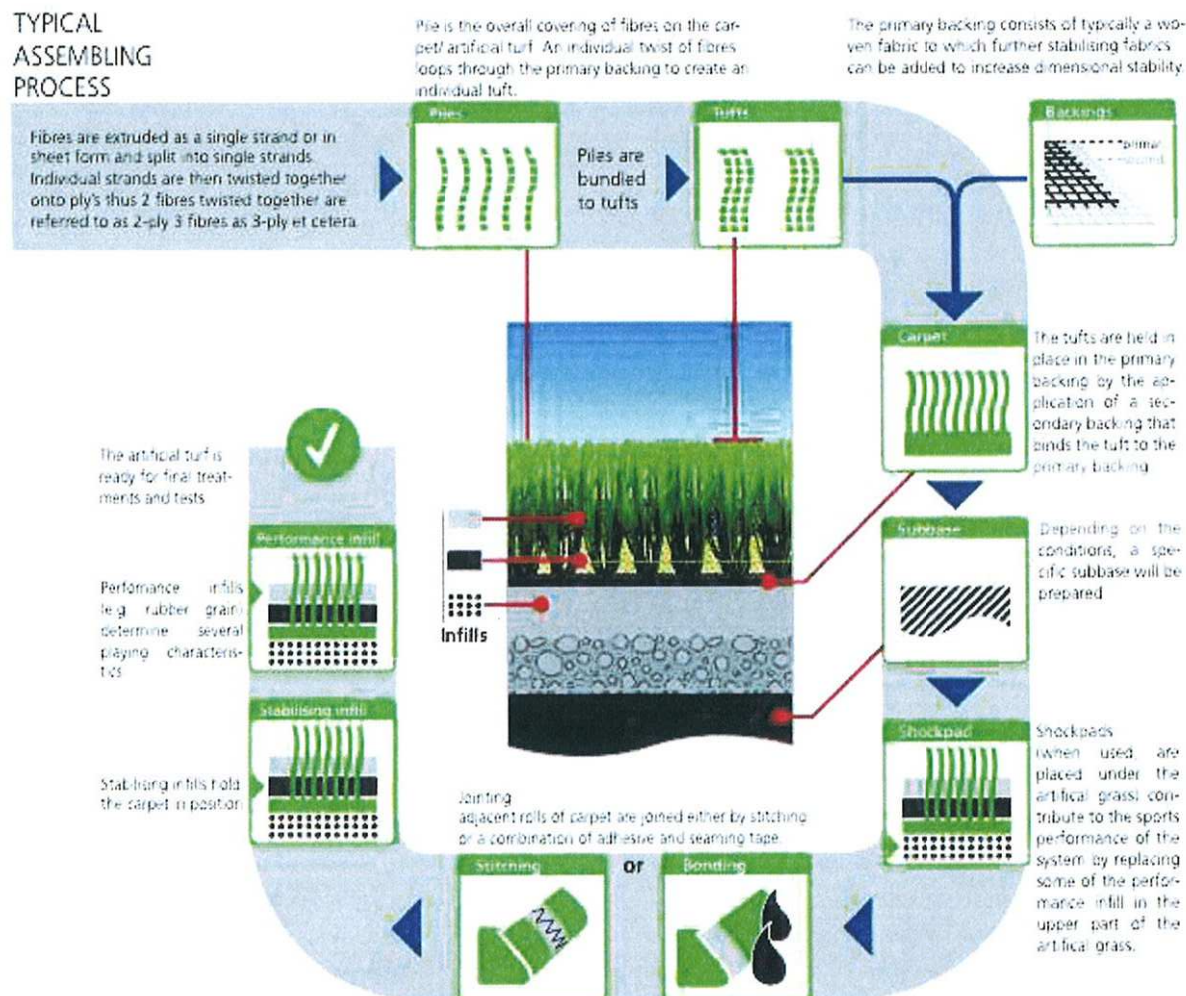


Fig. 1.3 Products / materials used to build up artificial turf

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4 – Product Information / Specifications



4.2 Artificial turf (1/2)

Manufacturer		Support In Sport Group Limited			
Tuft pattern		Straight			
Pile yarns		Yarn A	Yarn B	Yarn C	Standard Test Method
Yarn Manufacturer		Consan	Consan		
Product name, code		Consan-SJ7182000	Consan-SJ7702000		
Pile yarn profile		See details below	See details below	See details below	–
Pile thickness [μ m]		400	400		–
Pile colour [RAL]	1	6 025	6 013		–
	2				–
	3				–
Pile width [mm]		1.17	1.17		–
No of tufts/m²		8 820	8 820		ISO1773
Pile length [mm]		60	60		ISO 2549
Pile weight [g/m²]		801	801		ISO 8543
Pile yarn characterization		PE	PE		–
Pile yarn dtex		6 500 / 3	6500 / 3		–

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4 – Product Information / Specifications

4.2 Artificial turf (2/2)

	Primary backing	Product name / code	Double PP cloth
		Manufacturer	Jinda Fabric Co., Ltd.,
	Re- enforcement scrim	Product name / code	Mesh fabric
		Manufacturer	Sweet Fabric Co., Ltd.
	Secondary backing	Product name / code	SBR Latex
		Manufacturer	DOW
		Dry application rate [g/m ²]	1250
	Carpet	Minimum tuft withdrawal force [N]	30
		Carpet mass per unit area [g/m ²]	3062
	Method of jointing		
	Bonded joints	Adhesive brand name	Mapei
		Adhesive manufacturer	Mapei construction materials co., LTD
		Application rate [g/lm]	400
		Jointing film brand name	Fule
		Jointing film manufacturer	Fule adhesive Co., LTD
	Stitched seams	Tread brand name/product code	
		Tread manufacturer	
		Stitch rate [stitch per lm]	

4.3 Performance infill

	Specifications		Standard Test Method
	Product name / code	Genan Fine	
	Manufacturer	Genan GMBH	
	Material type	SBR	
	Material grading	0.8-2.0mm	
	Particle shape	Irregular	prEN 14955
	Particle size range	0.8-2.0mm	EN 933-Part 1
	Bulk density [g/cm ³]	0.41	EN 1097-3
	Application rate [kg/m ²]	17	

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4 – Product Information / Specifications

4.4 Stabilising infill



	Specifications	Standard Test Method
Product name / code	MI 0.4/0.9	
Manufacturer	Sibelco	
Material type	Silica Sand	
Material grading	0.5-1.0mm	
Particle shape	Irregular	prEN 14955
Particle size [range]	0.5-1.0mm	EN 933-Part 1
Bulk density [g/cm³]	1.50	EN 1097-3
Application rate [kg/m²]	20	

4.5 Shockpad / elastic layer*



	Specifications	Standard Test Method
Product name / code		
Manufacturer		
Type		
Composition**		
Bulk density [g/cm³]		
Thickness		EN 1979
Shock absorption [%]		FIFA 4a
Deformation		FIFA 5a
Tensile strength [N]		
Mass per unit area [kg/m²]		

* if part of system supplied

** type, rubber granule grading, binder content, etc

Football Turf Laboratory Test Report

4 – Product Information / Specification

4.6 Maintenance requirements (recommendations)

Equipment / material		Remarks
Tractor Unit		Purpose - the power unit that pulls the maintenance tools over the field
Drag	Brush	A maintenance attachment that re-distributes the infill and brings the fibres into a more upright position
	Mat	A maintenance tool used to re-distribute infill
Ball roll ramp		A testing device used to assess the speed of a football over the surface

Maintenance logbook		Is used to record all the maintenance activities that take place on the Football Turf Surface
Top up infill materials		to top up penalty spot and corner areas
...		For further maintenance requirements, please consult the manufacturer's recommendations for your specific system



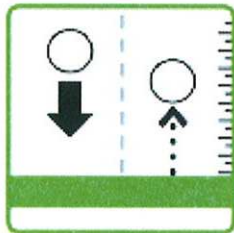
FIFA Licensee's comments / hints

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5 – Detailed Laboratory Test Results

5.1 Overview – ball and player to surface interactions

How is the field to play? By means of the following 8 parameters, this question can be answered very well. Furthermore, some values allow conclusions regarding maintenance in order to keep the field in top shape.

Parameter	Comments / hints	Parameter	Comments / hints
1- Vertical ball rebound 	<p>The higher the value the higher the ball will rebound. The ball should not bounce too high or too low.</p> <p>Ball / surface interaction</p>	5- Shock absorption 	<p>Shock absorbercy is an indicatic of how hard the field feels to th player. A value that is too lo indicates a hard field and cau: damage to player's joints too so and the surface is energy sappir resulting in increases in fatigu and over-use injuries.</p> <p>Player / surface interaction</p>
2- Angled ball rebound 	<p>Angled ball rebound is a combination of the hardness of the field and the resistance from the fibres to the ball and thus a high reading can come from a hard surface, or a low grip surface or a combination of both</p> <p>Ball / surface interaction</p>	6- Deformation 	<p>A surface that deforms too much will result in overstretching of ligaments particularly the around the ankle.</p> <p>Player / surface interaction</p>
3- Ball roll 	<p>The higher the value the faster the ball will run over the surface. The ball should not be too fast or too slow.</p> <p>Ball / surface interaction</p>		
4- Rotational resistance 	<p>This simulates the player's ability to alter direction, too high a value and stress can occur across knee ligaments, too low and the player will not be able to grip the surface and may slip causing ligament damage.</p> <p>Player / surface interaction</p>		

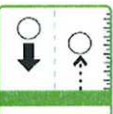
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5 – Detailed Test Results

5.2 Product identification

		Property		Test result
	Artificial Turf	Carpet mass per unit area [g/m ²]		2 902
		Tufts per unit area [m ²]		8 978
		Pile length above backing [mm]		61.2
		Pile weight [g/m ²]		1 641
		Water permeability of carpet [mm/h]		1 213
		Free pile height		15 mm
		Yarn cross section and thickness		See Annex
	Performance infill	Particle size range		0.8 - 2.0 mm
		Particle shape		Angular - A2
		Bulk density [g/cm ³]		0.39
		Infill depth		35 mm
		Thermographic analysis	% organic	64
			% inorganic	36
	Stabilising infill	Particle size range		0.5 - 1.0 mm
		Particle shape		Rounded C1
		Bulk density [g/cm ³]		1.56
	Shockpad / elastic layer (if part of system supplied)	Shock absorption [%]		
		Deformation		
		Thickness		

5.3 Ball / surface interaction

				FIFA Approval requirements		P = passed F = failed	
Property	Condition		Test Results	QUALITY	PRO	QUALITY	PRO
	Vertical ball rebound	Initial, un-aged	Dry	0.83	0.6 – 1m	Passed	
			Wet			Passed	
		After simulated wear	3'020 cycles		0.6 – 0.85 m		
			6'020 cycles	0.99		Passed	
	Angled ball rebound	Dry		52	45 – 80%	Passed	
		Wet		69		Passed	

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	Reduced Ball roll	Initial, un-aged	Dry	7.5	4 – 10m	4 – 8m	Passed		
		After simulated wear 3'020 cycles	Dry						
			Wet						
		After simulated wear 6'020 cycles	Dry	6.9	4 – 12m		Passed		
			Wet	7.2			Passed		

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5 – Detailed Test Results

5.4 Player / surface interaction

				FIFA Approval requirements		P = passed F = failed	
Property	Condition		Test Results	QUALITY	QUALITY PRO	QUALITY	PRO
 Shock absorption	Initial, Un-aged	Dry	65.1	57 – 68%	62 – 68%	Passed	
		Wet	63.9			Passed	
	After simulated wear	3'020 cycles					
		6'020 cycles	58.7			Passed	
	50°C		63.7	57 – 68%	62 – 68%	Passed	
	– 5°C ⁽¹⁾		67.3			Passed	
 Deformation	Initial	Dry	10.0	6 – 11mm	6 – 10mm	Passed	
		Wet	10.0			Passed	
	After simulated wear	3'020 cycles					
		6'020 cycles	8.0	6 – 11mm		Passed	
 Rotational resistance	Initial	Dry	36	27–48Nm	32–43Nm	Passed	
		Wet	35			Passed	
	After simulated wear	3'020 cycles					
		6'020 cycles	43	27–48Nm		Passed	
 Skin / surface friction	Dry		0.69	0.35 – 0.75 μ	0.35 – 0.75 μ	Passed	
	Dry		28	± 30 %	± 30 %	Passed	

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5 – Detailed Test Results

5.5 Environmental impact (artificial, light, water)

						FIFA Requirements P= passed F= failed		
Property		Aspect		Condition	Test result		P/F	
	Pile yarns	Colour change	1	After artificial weathering	4-5	≥ Grey scale 3	Passed	
			2		3		Passed	
			3					
		Yarn tensile strength	1		25	Change ≤ 50%	Passed	
			2		15		Passed	
			3					
	Polymeric infill	Colour change				4	≥ Grey scale 3	Passed
		Visual change in composition				No change	No change	Passed
	Complete system	Water permeability		N/A	578	>180 mm/h	Passed	
	Stitched joints	Strength	Un-aged		≥ 1000N/100mm			
			Water aged					
	Bonded joints	Strength	Un-aged	127	≥ 75N/100mm	Passed		
			Water aged	90		Passed		
	Carpet tuft	Withdrawal force	Un-aged	57	≥ 30N	Passed		
			Water aged	60		Passed		
	Heat	category			2-3	Information		
	Splash	Splash characteristic			> 1.5%	Information		

5.6 Miscellaneous

 Shockpad Elastic layer	Tensile strength	Un-aged		≥ 0.15 MPa	
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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

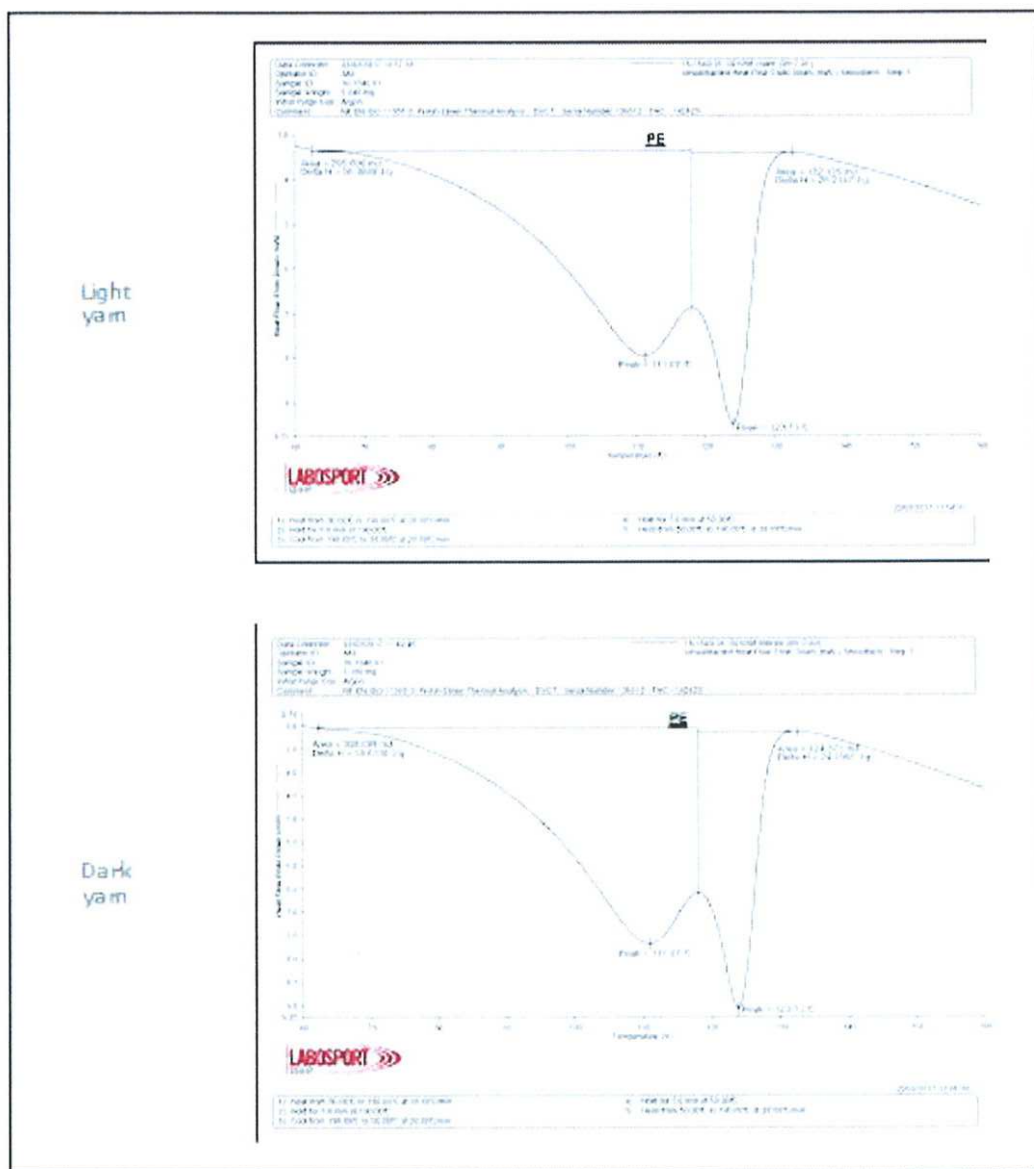
- 5.7.1 DSC (Differential Scanning Colorimetry) scans of pile yarn
- 5.7.2 Performance infill particle grading curve / Stabilising infill particle grading curve
- 5.7.3 TGA (Thermo Gravimetric Analysis) of performance infill
- 5.7.4 Composition of unbound sub-base (if tested as part of system) Sub-base particle grading curve
- 5.7.5 Simulated wear, photos before / after

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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

5.7.1 DSC Differential Scanning Colorimetry scans of pile yarn



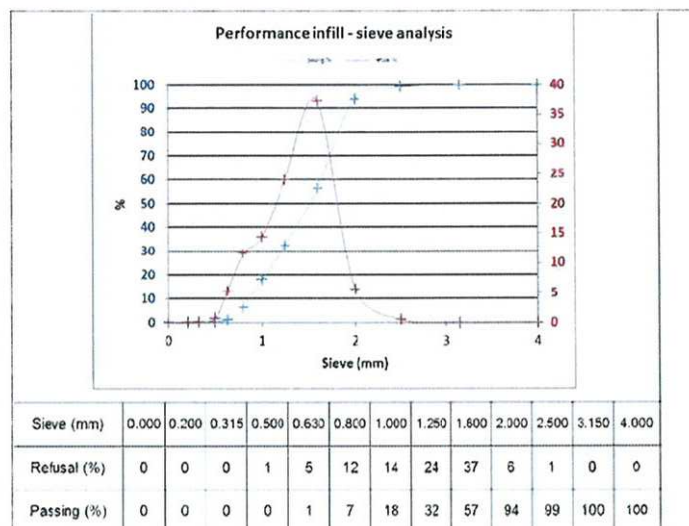
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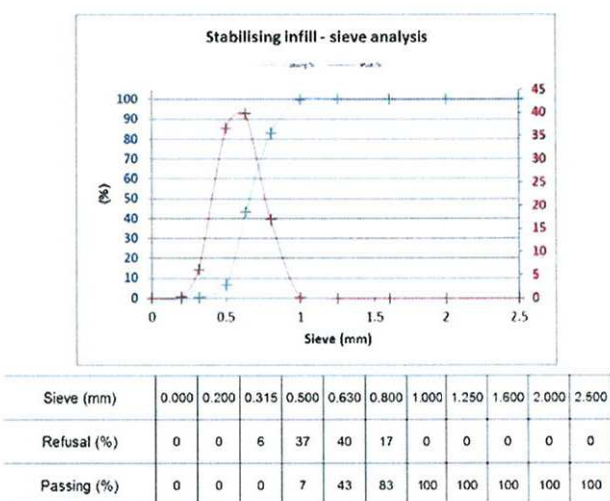
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5.7 Explanatory graphs / pictures

5.7.2 a) Performance infill particle grading curve



5.7.2 b) Stabilising infill particle grading curve



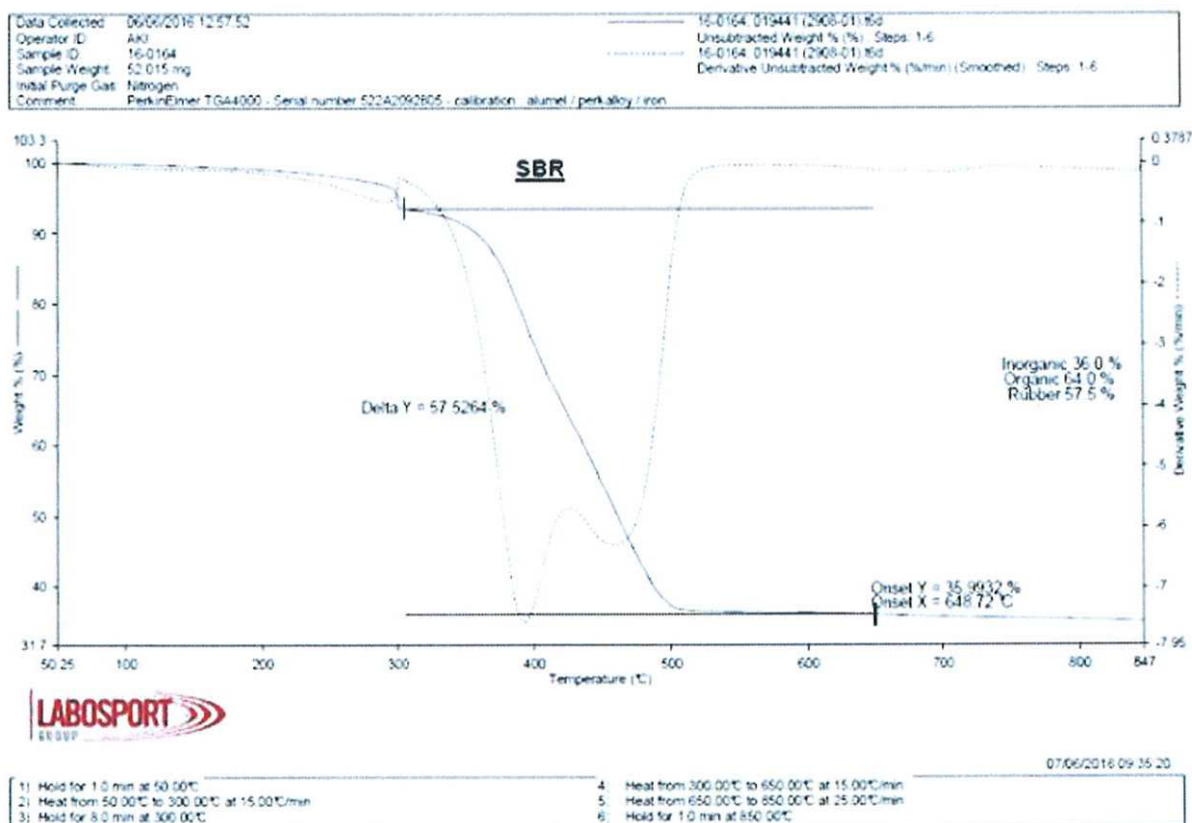
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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

5.7.3 TGA of performance infill



Comments:

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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

5.7.4 Sub base (if tested as part of system)

	Composition	
	Particle size range	
	Particle shape	
	Thickness	
	Compaction & test method	

Sub-base particle grading curve

Comments:

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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

5.7.5 Simulated wear (photos before / after wear)

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Before wear	After wear
	
	

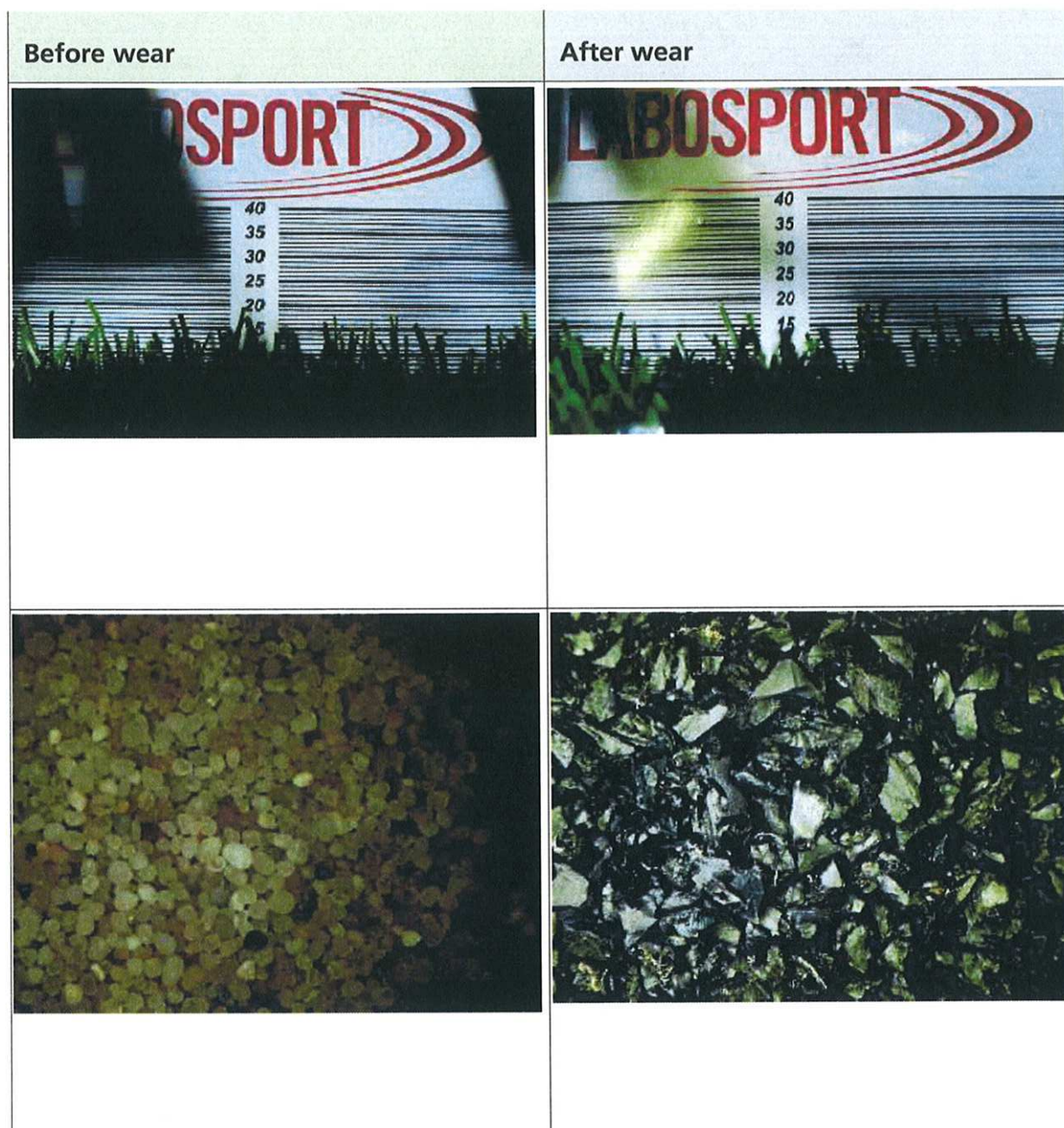
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5.7 Explanatory graphs / pictures

5.7.5 Simulated wear (photos before / after wear)

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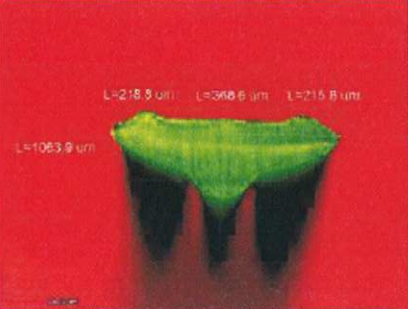
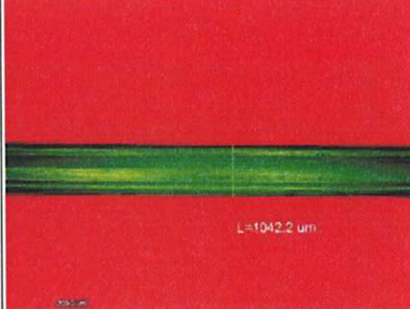
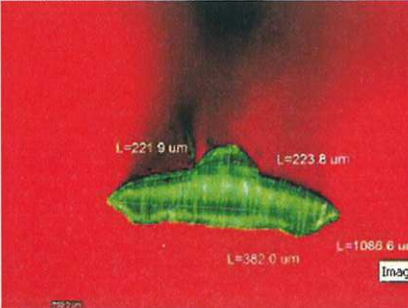
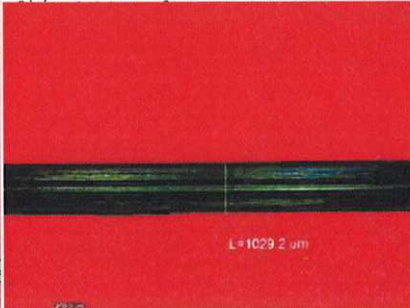
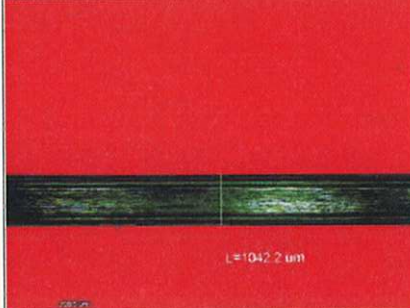


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5 – Detailed Test Results

5.7 Explanatory graphs / pictures

5.7.5 Yarn characteristics

		
		
Cross-section Yarn 3	Side A Yarn 3	Side B Yarn 3

Details of dimension measurements

LG: 369µm - 1.04mm / DG: 382µm - 1.04mm