FIFA QUALITY CONCEPT

Handbook of Requirements for Football Turf

March 2006 Edition

Contents

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1 Introduction

The development of artificial grass surfaces (designated 'Football Turf' by FIFA) that replicate the playing qualities of good quality natural grass has led to the rapid acceptance of the surfaces by the football world and an ever increasing expansion of the market. Manufacturers are now producing surfaces which have been found to provide an ideal solutions to those parts of the world where climate or resources makes the provision of good quality natural grass pitches difficult or impossible. Likewise the development of Football Turfs has provided a potential solution to facility operators wishing to maximise the use of their facilities through community use and those struggling with stadium microclimates that make the maintenance and growth of natural grass difficult

To ensure these new forms of playing surface replicate the playing qualities of good quality natural grass; provide a playing environment that will not increase the risk of injury to players; are of adequate durability (providing they are adequately maintained) FIFA developed its FIFA Quality Concept for Artificial Turf. Launched in 2001 the Quality Concept is a rigorous test programme for Football Turf that assesses the ball surface interaction, player surface interaction and durability of products and allows successful manufacturers to enter into a licensing programme for the use of the prestigious FIFA RECOMMENDED marks.

Following the decision of the International Football Association Board in July 2004 to introduce artificial surfaces into the Laws of The Game the FIFA Quality Concept has been further developed by introducing two categories of performance. FIFA Recommended Two Star is the higher category and has been established to ensure fields meeting it replicate the playing qualities of the best quality natural turf pitches. This category is intended for professional clubs and national federation team wishing to play competitive matches subject to the relevant competition rules allowing the use of artificial surfaces)or undertake training on Football Turfs. The FIFA Recommended One Star category has slightly wider bands of acceptability and is primarily aimed at organisations wishing to provide facilities for training and community use, although fields meeting this category of performance may also be used for competitive play (subject to the relevant competition rules).

2 Field certification

The FIFA Quality Concept is the certification of a particular field that has been found to fully meet the requirements of the Quality Concept. It is not the approval of products. To gain such certification a FIFA licensee needs to undertake two phases of testing and operate a programme of factory quality control (as detailed in Annex H) that shall be open to third party third party attestation as considered appropriate by FIFA Marketing and TV.

The phases of testing are described below and the process is illustrated in the flowcharts on the following pages.

2.1 Laboratory type approval testing

- A potential Licensee (Manufacturer) or existing Licensee will submit the appropriate samples and the Laboratory Test Form for type approval to a FIFA Approved Laboratory (Laboratory Testing).

- The FIFA Approved Laboratory will undertake all the statutory tests laid out in the FQC Handbook. If the sample submitted has fulfilled all the requirements a Test Report will be submitted to FIFA Marketing & TV confirming that the potential Licensee's product has met the requirements of the FQC Laboratory Test Procedure.

- The (potential) Licensee will be informed by FIFA Marketing & TV that the Licensee's Product has met the requirements of the FQC Laboratory Test Procedure and the Licensee can progress with the installation of fields for potential certification (subject to completion of the license the contract between FIFA and the Licensee).

2.2 Initial field assessment

- Following construction of a field the Licensee will arrange for it to be tested by a FIFA Approved Laboratory.

- The field shall be fully tested in accordance with the procedures specified in Table 3.

- Samples of the artificial grass and any infill used to construct the field shall be taken from site by the Test Laboratory and tested using the procedures detailed Table 4 to ensure they are of the same specification as those submitted for the initial laboratory type approval (subject to the tolerances specified in Table 4).

- The results of the field and quality control tests will be entered onto a Field Test Report by the Test Laboratory which shall be sent to FIFA Marketing & TV. Assuming the field satisfies all aspects of the FIFA Quality Concept FIFA Marketing & TV will grant the appropriate FQC star rating to the Licensee.

2.3 Period of field certification

2.3.1 FIFA Recommended Two Star

FIFA Recommended Two Star certification is valid for twelve months or until the Football Turf is replaced, whichever.

2.3.2 FIFA Recommended One Star

FIFA Recommended One Star certification is valid for three years or until the Football Turf is replaced, whichever comes first.

2.4 Field retesting

Retesting of a field may be requested by the licensee or the field owner/operator.

Testing shall be undertaken by a FIFA Approved Laboratory (Field testing)

Retesting may be undertaken up to three months in advance of a field's renewal date without the subsequent renewal date changing.

Retesting shall be undertaken in accordance with, and the field shall fully comply with, Table 3. In addition the Test Laboratory shall make checks as detailed in Table 5 to verify the Football Turf has not be changed or materially altered.

The results of the field retests will be entered onto a Field Retest Report by the Test Laboratory which shall be sent to FIFA Marketing & TV. Assuming the field satisfies all aspects of the FIFA Quality Concept FIFA Marketing & TV will grant the appropriate FQC star rating to the Licensee.

2.4.1 FIFA Recommended Two Star

If a field is found to fully comply with Tables 3 and 5 it is recertified for a further 12 months.

If a field fails to satisfy the FIFA Recommended Two Star category but is found to satisfy the requirements of the FIFA Recommended One Star category it is re-designated accordingly for the remainder of the three year period.

If a field fails to satisfy even the FIFA Recommended One Star requirements it loses its FIFA Recommended designation.

In cases where a field has been resurfaced it shall be is tested as a new installation in accordance with Tables 3 and 4.

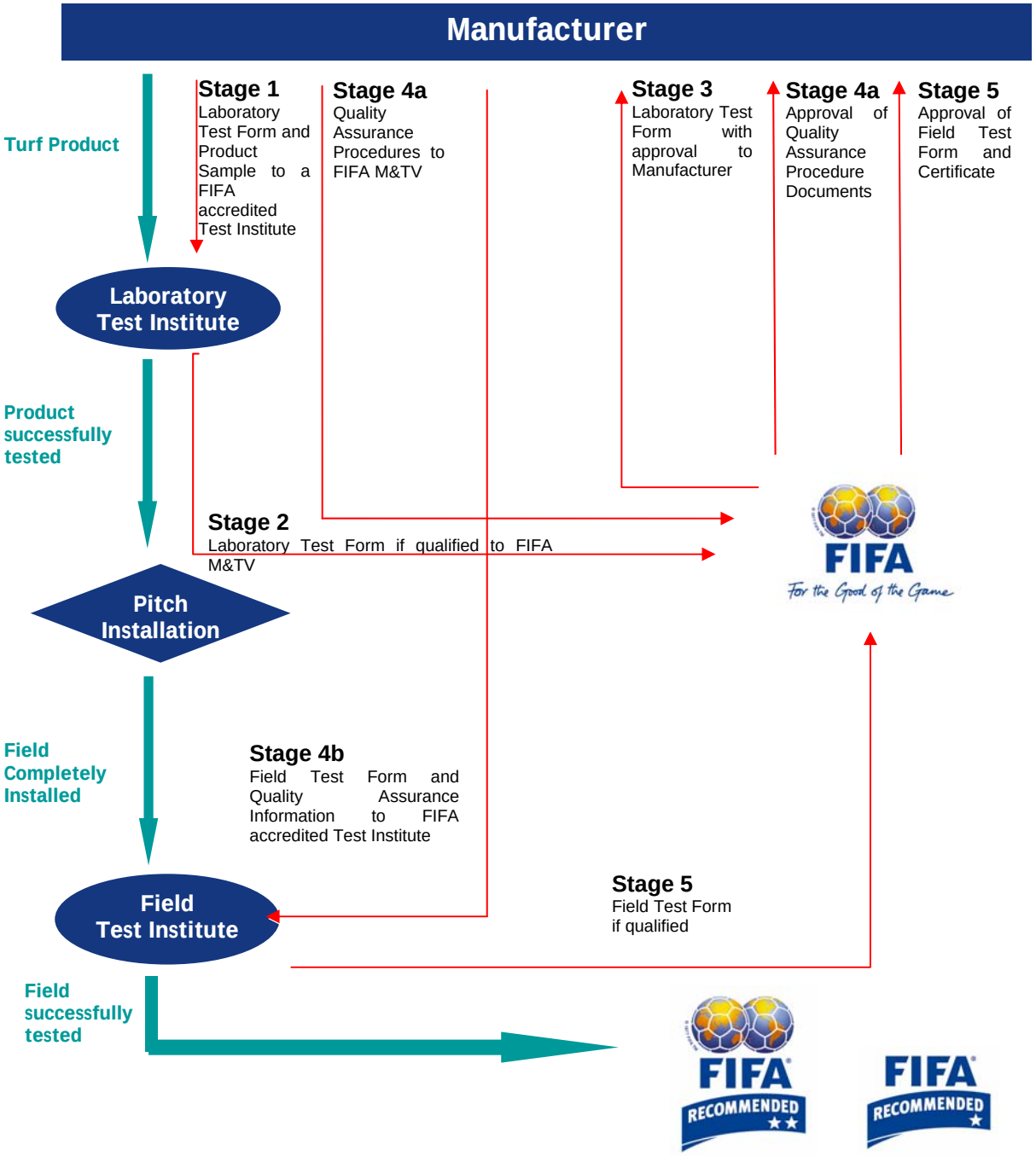
2.4.2 FIFA Recommended One Star

If a field is found to fully comply with Tables 3 and 5 it is recertified for a further three years.

In cases where the Football Turf has not been changed the field is re-tested in accordance with the field test requirements of Table 3. If the field is found to still comply it is re-registered for a further three years.

If a field fails to satisfy the FIFA Recommended One Star requirements it loses its FIFA Recommended Designation.

In cases where a field has been resurfaced it shall be is tested as a new installation in accordance with Tables 3 and 4.


Manufacturer
Turf Product
Stage 1
Laboratory Test Form and Product Sample to a FIFA accredited Test Institute
Stage 4a
Quality Assurance Procedures to FIFA M&TV
Stage 3
Laboratory Test Form with approval to Manufacturer
Stage 4a
Approval of Quality Assurance Procedure Documents
Stage 5
Approval of Field Test Form and Certificate
Laboratory Test Institute
Product successfully tested
Stage 2
Laboratory Test Form if qualified to FIFA M&TV
FIFA
For the Good of the Game
Pitch Installation
Field Completely Installed
Stage 4b
Field Test Form and Quality Assurance Information to FIFA accredited Test Institute
Stage 5
Field Test Form if qualified
Field Test Institute
Field successfully tested
FIFA RECOMMENDED
FIFA RECOMMENDED

2.5 FIFA Approved Laboratories

Listed below are the selected test institutes which are entitled to perform the tests according to the requirements for FIFA Quality Concept.

Organisations accredited to undertake laboratory and field tests

ISA-Sport
(Instituut voor Sportaccommodaties)
Papendallaan 31
P.O. Box 302
NL-6800 AH Arnhem
THE NETHERLANDS

Contact: Franklin Versteeg
Telephone: +(31) 26 483 4625
Fax: +(31) 26 483 4651
E-Mail: franklin.versteeg@isa-sport.com

Labosport
Technoparc du circuit des 24 heures
Chemin aux Boeufs
F-72100 Le Mans
FRANCE

Contact: Dominique Boisnard
Telephone: +(33) 2 43 47 08 40
Fax: +(33) 2 43 47 08 28
E-Mail :bureau.labosport @wanadoo.fr
Web : www.labosport.com

Organisations accredited to undertake field tests

Acousto-Scan Pty. Ltd.
2-4 Bedford St.
Surry Hills
NSW 2010
AUSTRALIA

Contact: John Dunlop
Telephone: +(61) 2 9699 4092
Fax: +(61) 2 9699 4091
E-Mail: jdunlop@acoustoscan.com.au

IBV
(Instituto De Biomecánica De Valencia)
Universidad Politécnica de Valencia
Edificio 9C
Camino de Vera s/n
E-46022 Valencia
SPAIN

Contact: Juan Vicente Durá Gil
Telephone: +(34) 96 136 60 32
Fax: +(34) 96 136 60 33
E-Mail: jvdura@ibv.upv.es

IST Consulting GMBH
Hauptstr. 34/GH Krone
8264 Eschenz
SWITZERLAND
Telephone: +(41) 52 740 3005
Fax: +(41) 52 740 3009

Contact Hans.J.Kolitzus
E-Mail hjkolitzus@bluewin.ch
Web www.isss.de/ist-ch

Norges byggforskningsinstitutt
Forskningsinstitutt 3b
P.O. Box 123 Blindern
No-0314 Oslo
NORWAY
Telephone: +(47) 22 96 55 55
Fax: + (47) 22 69 94 38

Contact: Morten Gabrielsen
E-Mail: morten.gabrielsen@byggforsk.no
Web www.byggforsk.no

Organisations accredited to undertake field tests (continued)

Sports Labs Ltd
12b Nasmyth Court
Houston Industrial Estate
Livingston
SCOTLAND
Telephone: +(44) (0) 845 602 6354
Fax: + (44) (0) 845 602 6356

Contact: Eric O'Donnell
E-Mail: info@sportslabs.co.uk
Web: www.sportslabs.co.uk

3 Test methods

The test methods used to assess Football Turfs and installed fields are described in either the FIFA Handbook of Test Methods for Football Turf (identified by the prefix FIFA), International Standards (identified ISO) or European Standards (identified EN). Where a test method is given a dated reference, subsequent amendments to or revisions of the method will apply to this Handbook of Requirements only when incorporated into it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

4 Laboratory test requirements

When tested in the laboratory for initial type approval the Football Turf shall fully satisfy the requirements of Table 1 using the methods of test specified.

The components of the Football Turf shall be identified using the test methods specified in Table 2 and the results compared to the data supplied by the licensees (Section 3 of the FQC Laboratory Report Form). The differences between the product identification tests and licensee's data shall be no greater than the tolerances specified in Table 2.

Table 1 – Laboratory test requirements

Property	Test Method	Test conditions			Requirements	
		Preparation	Temperature	Condition	FIFA Recommended Two Star	FIFA Recommended One Star[3]
Vertical ball rebound	FIFA 01 & FIFA 10	Pre-conditioning	23ºC	Dry	0.60m - 0.85m	0.60m - 1.0m
				Wet		-
		Simulated Wear	23ºC	Dry		0.60m - 1.0m
Angle ball rebound	FIFA 02	Pre-conditioning	23ºC	Dry	45% - 60%	45% -70%
				Wet	45% - 80%	-
Ball roll	FIFA 03	Pre-conditioning	23ºC	Dry	4m - 8m	4m - 10m
				Wet		-
Shock Absorption	FIFA 04 & FIFA 10	Pre-conditioning	23ºC	Dry	60% - 70%	55% - 70%
				Wet		-
		Simulated Wear		Dry		55% - 70%
		Pre-conditioning	40ºC	Dry		-
	FIFA 04 1st impact	-	-5ºC	Frozen	60% - 70%(1)	-

Property	Test Method	Test conditions			Requirements	
		Preparation	Temperature	Condition	FIFA Recommended Two Star	FIFA Recommended One Star[3]
Vertical Deformation	FIFA 05 & FIFA 10	Pre-conditioning	23ºC	Dry	4mm - 8mm	4mm - 9mm
		Pre-conditioning	23ºC	Wet		-
		Simulated Wear		Dry		4mm - 9mm
Rotational Resistance	FIFA 06 & FIFA 10	Pre-conditioning	23ºC	Dry	30Nm - 45Nm	25Nm - 50Nm
				Wet		-
		Simulated Wear	23ºC	Dry		25Nm - 50Nm
Linear Friction - Stud Deceleration Value	FIFA 07	Pre-conditioning	23ºC	Dry	3.0g - 5.5 g	3.0g - 6.0 g
				Wet		-
Linear Friction - Stud Slide Value		Pre-conditioning	23ºC	Dry	130 - 210	120 – 220
				Wet		-

Property	Test Method	Test conditions			Requirement	
		Preparation	Temperature	Condition	FIFA Recommended Two Star	FIFA Recommended One Star[3]
Skin / surface friction	FIFA 08	Pre-conditioning	23ºC	Dry	0.35 - 0.75	-
Skin abrasion	FIFA 09	Pre-conditioning	23ºC	Dry	± 30%	-

Artificial Weathering (FIFA 11/06-02)

Component	Property & test method		Requirement	
			FIFA Recommended Two Star	FIFA Recommended One Star
Artificial turf	Colour change	EN ISO 20105-A02	≥ Grey scale 3	
Pile yarn (s)	Tensile strength	EN 13864	Percentage change from unaged to be no more than 50%	
Polymeric infill	Colour change	EN ISO 20105-A02	≥ Grey scale 3	
Joint strength: stitched seams	Joint strength - unaged	EN 12228 Method 1	1000N/100mm	
	Joint strength - after immersion in hot water	EN 13744 & EN 12228 Method 1		
Joint strength: Bonded seams	Joint strength - unaged	EN 12228 Method 2	25N/100mm	
	Joint strength - after immersion in hot water	EN 13744 & EN 12228 Method 2		

Property	Test Method	Condition	Requirement	
			FIFA Recommended Two Star	FIFA Recommended One Star
Tensile strength of shockpads and e-layers (if supplied as part of system)	EN 12230	Unaged	0.15Mpa	-
Water permeability[2]	EN 12616	Unaged	> 180mm/h	> 180mm/h

1 Surfaces that fail the shock absorption test at -5°C may only be installed on pitches that have an under pitch heating system or in locations that do not experience temperatures below 0°C.

2 Not applicable to surfaces designed specifically for indoor use

3 FIFA only requires FIFA Recommended One Star products to be tested under dry conditions. When FIFA Recommended One Star fields are tested, however, they will be expected to perform under the prevailing climatic conditions at the time of test (dry or wet). Manufacturers my therefore wish to have their products tested in the laboratory under both conditions.

Table 2 – Product identification tests

Component	Characteristic	Test method	Permitted variation between laboratory component and manufacture's declaration
Artificial turf	Mass per unit area	ISO 8543	≤ ± 10%
	Tufts per unit area	ISO 1763	≤ ± 10%
	Tuft withdrawal force	ISO 4919	≥ 90% of manufacturer's declaration
	Pile length	ISO 2549	≤ ± 5%
	Pile weight	ISO 8543	≤ ± 10%
Pile yarn(s)	Pile yarn characterisation	DSC	Same polymer
Infill	Layer thickness	EN 1969	± 15%
Performance infill (if supplied as part of system)	Particle size	EN 933 - Part 1	≤ ± 20%
	Particle shape	prEN 14955	Similar shape
	Bulk density	EN 13041	≤ ± 15%
	% organic	Thermo-gravimetric analysis (for information)	-
	% inorganic*		-

Component	Characteristic	Test method	Permitted variation between laboratory component and manufacture's declaration
Performance infill (if supplied as part of system)	Residual compression & change in appearance	FIFA 12/05-01	-
Stabilising infill (if supplied as part of system)	Particle size	EN 933 - Part 1	$\leq \pm$ 20%
	Particle shape	prEN 14955	Similar shape
	Bulk density	EN 13041	$\leq \pm$ 15%
Shockpads / e-layers (if supplied as part of system)	Shock Absorption	EN 14808	$\leq \pm$ 5% Force Reduction
	Thickness	EN 1969	$\geq$ 90% of manufacturer's declaration
Unbound sub-bases (if tested as part of system)	Composition	-	Same composition
	Particle size range (attach particle size grading to test report)	EN 933 - Part 1	$\leq \pm$ 20%
	Particle shape	prEN 14955	Similar shape

5 Field Test Requirements

5.1 Field tests procedures

When tested a field (pitch) shall fully satisfy the requirements of Table 3 in any position on the field using the methods of test specified. The field shall be tested in the six positions specified in the FIFA Handbook of Test Methods for Football Turf. Field tests should not be made on joints or inlaid lines, other than ball roll that will cross them.

Metrological conditions during the field tests shall be as specified in the FIFA Handbook of Test Methods for Football Turf.

5.2 Visual inspection

During the field test programme the Test Laboratory shall make a visual inspection of the field to ensure there are no significant defects they consider to be hazardous to players. In particular there shall be no:

- failed or excessively open joints (greater than 3mm),
- no looped piles
- excessively uneven distribution of infill
- irrigation sprinklers within the playing area

Checks will also be made to ensure line markings are straight (as appropriate).

If unacceptable joints, looped piles, non-straight lines or any other defect considered hazardous to play are found they shall be reported to the Licensee who shall rectify the defects to the satisfaction of the Test Laboratory prior to the Test Laboratory issuing the Field Test Report to FIFA.

Important note: The visual inspection undertaken by the Test Laboratory does not constitute a formal site audit and does not remove the legal responsibility of the installation company and or the facility operator to ensure the field is safe and fit for use. Neither FIFA Marketing and TV AG or its approved test laboratories accept any liability for any defects or other issues that subsequently result in a injury to a player or other users.

5.3 Material identification – first field test

In order to ensure the components of Football Turf installed on a field are the same as those previously tested in the laboratory the first field test shall include the identification tests detailed in Table 4. The maximum variation between the installed materials and the manufacturer's declaration, as detailed on the FIFA Quality Concept Laboratory Report, shall be as specified in Table 4.

5.4 Material identification – field retests

To check that the Football Turf installed on a field has not been materially altered from that tested previously any retest shall include the identification tests detailed in Table 5 and the Football Turf shall comply with the requirements of Table 5.

Table 3 – Field Test Requirements

Characteristic	Test Method	Requirement			
		FIFA Recommended Two Star		FIFA Recommended One Star	
Vertical ball rebound	FIFA 01	60cm - 85cm		60cm - 100cm	
Angle ball rebound	FIFA 02	Dry field	45% - 60%	Dry field	45% -70%
		Wet field	45% - 80%	Wet field	45% -80%
Ball roll	FIFA 03	Initial assessment	4m - 8m	4m – 10m	
		Re-tests after 12 months	4m – 10m		
Shock Absorption	FIFA 04	60% - 70%		55% - 70%	
Vertical Deformation	FIFA 05	4mm – 8mm		4mm – 9mm	
Rotational Resistance	FIFA 06	30Nm - 45Nm		25Nm – 50Nm	
Linear Friction – Stud Deceleration Value	FIFA 07	3.0g - 5.5 g		3.0g - 6.0 g	
Linear Friction - Stud Slide Value	FIFA 08	130 – 210		120 – 220	
Water permeability [1]	EN 12616	> 180mm/h		> 180mm/h	
Surface regularity of playing surface	EN 13036 3m straightedge	<10mm		<10mm	
Slope	Surveyors level	$\leq$ 2% in any plane		$\leq$ 2% in any plane	

Table 4 - Material identification and consistency – first site test

Component	Characteristic	Test method	Permitted variation between manufacture's declaration and installed materials
Artificial turf	Mass per unit area	ISO 8543	≤ ± 10%
	Tufts per unit area	ISO 1763	≤ ± 10%
	Tuft withdrawal force	ISO 4919	≥ 90% of manufacturer's declaration
	Pile length	ISO 2549	≤ ± 5%
	Pile weight	ISO 8543	≤ ± 10%
Pile yarn(s)	Pile yarn characterisation	DSC	Same polymer
Performance infill (if supplied as part of system)	Particle size	EN 933 - Part 1	≤ ± 20%
	Particle shape	prEN 14955	Similar shape
	Bulk density	EN 13041	≤ ± 15%
Stabilising infill (if supplied as part of system)	Particle size	EN 933 - Part 1	≤ ± 20%
	Particle shape	prEN 14955	Similar shape

Component	Characteristic	Test method	Permitted variation between manufacture's declaration and installed materials
Stabilising infill (if supplied as part of system)	Bulk density	EN 13041	≤ ± 15%
Shockpads / e-layers (if supplied as part of system)	Shock Absorption	EN 14808	≤ ± 5% Force Reduction
	Thickness	EN 1969	≥ 90% of manufacturer's declaration

1 Outdoor pitches only. Compliance with this requirement may also be wavered by FIFA for fields located in arid parts of the world. Such wavers will be granted on a case by case basis and permission should be sought from FIFA Marketing and TV at the design stage of a field's construction.

Table 5 - Material identification and consistency – site retests

Component	Characteristic	Requirement	Sampling procedure
Artificial grass [1]	Pile height (above primary backing)	≤ ± 5% of the value measured on the site sample tested during the initial site test	Measurements shall be made in four different areas of the filed not subjected to high areas of wear or usage. The number of tufts per m^2 shall be calculated by multiplying the number of stitches per 100mm by the stitch gauge.
	Number of stitches per 100mm	The number of tufts per m^2 shall not differ by more than ± 10% of the manufacturer's declaration	
	Stitch spacing (mm)		
Performance infill [2]	Particle grading	The largest sieve retaining at least 10% by mass of the infill shall be within the range detailed in the manufacturer's declaration forming Section 4 of the product's FIFA Laboratory Test Report.	A minimum sample of 250g shall be taken from the top portion of the performance infill (20mm) on each of the six tests positions detailed in the FIFA Handbook of Test Methods for Football Turf. The infill shall be graded in accordance with EN 933 Part 1 and the largest sieve retaining at least 10% by mass of the infill determined.

1 These measurements are made to check the carpet has not been replaced

2 This test is carried out to ensure that coarser infill material has not been installed on the field

6 Field dimensions and markings

6.1 Field dimensions

The field of play must be rectangular. The length of the touch line must be greater than the length of the goal line.

Length: minimum 90.0m, maximum 120.0m

Width: minimum 45.0m, maximum 90.0m

Run-offs shall be in accordance with national and or competition rules. In the absence of any such rules a minimum of 3m per boundary is recommended. Provision of adequate run-offs does not form part of the FIFA Quality Concept.

6.2 Field Markings

The field shall be field marked in accordance with Law 1 - The Field of Play as detailed in the Laws of the Game.

Note: If a FIFA certified field is to be used for competition the respective competition regulations must be met and checked by the responsible local authorities.

6.3 Additional field marking requirements for FIFA Quality Concept Two Star fields

In accordance with the decisions of the International Football Association Board:

No kind of commercial advertising, whether real or virtual, shall be permitted on the field of play and field equipment from the time the teams enter the field of play until they have left it at half time and from the time the teams re-enter the field of play until the end of the match. In particular no advertising material of any kind may be displayed on goals nets flag-posts or their flags (Decision 3)

The reproduction of, whether real or virtual of representative logos or emblems of FIFA, confederations, member associations leagues clubs or other bodies is forbidden on the field of play and field equipment (including goal nets and areas they enclose) during playing time, as described in Decision 3 (Decision 5)

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ANNEX A

Laboratory test report – Two Star Category

ANNEX B

Laboratory test report – FQC One Star Category

ANNEX C

Field test report – FQC Two Star Category

ANNEX D

Field test report - One Star Category

ANNEX E

Field test report – FQC Two Star Category Retest

ANNEX F

Field report – FQC One Star Category Retest

Annex G - General requirements

G1 Gloss

It is not acceptable to incorporate materials or constructions that will cause glare from the reflection of sunlight or artificial lighting to players.

G2 Bearing Capacity

The formation and sub-soil should have sufficient bearing capacity to support the playing surface and any machinery used to maintain the surface. The bearing capacity can be assessed using methods described by EN/TC 250/SC7. No responsibility shall be accepted for any damage caused to the surface by the use of equipment or structures (e.g. collapsible seating) that the surface was not intentionally designed for.

G3 Staining

Every effort should be employed to use non-staining materials where practicable.

G4 Toxicology

The manufacturer should be asked to supply to the purchaser an assurance that the sports surface together with its supporting layers, does not contain in its finished state any substance which is known to be toxic, mutagenic, teratogenic or carcinogenic when in contact with the skin. Furthermore that no such substances will be released as a vapour or dust during normal use.

G5 Environmental Compatibility

The manufacturer and purchaser shall make abide by all local relevant environmental legislation during the construction, material utilisation, operation and disposal of the surface and it's supporting layers.

G6 Climatic Conditions

The manufacturer and purchaser shall take into consideration the prevailing climatic conditions when designing the surface specification.

G7 Resistance to fire

When installing an artificial turf surface the manufacturer / supplier shall ensure the completed installation complies with all relevant building and fire safety regulations.

Annex H - Factory Quality Control Procedures

H.1 Introduction

This specifies a factory production control system for constituent components to ensure that they conform to the relevant requirements of this standard.

The performance of the factory production control system shall be assessed according to the principles used in this document.

Note: The overall quality of the surface remains the responsibility of the licensee.

H.2 Organization

H.2.1 Responsibility and authority

It will be necessary to produce a quality assurance line management diagram outlining the individuals responsible for quality. One individual shall be highlighted as the contact person in cases of quality disputes. These individuals should have the capability to:

- Initiate action to prevent the occurrence of product non-conformity;
- Identify, record and deal with any product quality deviations.

H.2.2 Management representative for factory production control

For every manufacturing plant the licensee must satisfy himself that an appropriately qualified person with appropriate authority will ensure that the requirements given in this document are implemented and maintained.

H.2.3 Management review

The factory production control system adopted to satisfy the requirements of this document shall be audited and reviewed at appropriate intervals to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained. It is assumed that for most manufacturers this would be covered within an ISO 9000 scheme.

H.3 Control procedures

The licensee shall establish and maintain a factory production control manual setting out the procedures by which the requirements for factory production control are satisfied for those products he directly produces. Furthermore they should establish similar procedures for all suppliers of products that are part of their systems.

H.4 Document and data control

Document and data control shall include those documents and data that are relevant to the requirements of this standard covering purchasing, processing, inspection of materials and the factory production control system documents.

A procedure concerning the management of documents and data shall be documented in the production control manual covering procedures and responsibilities for approval, issue,

distribution and administration of internal and external documentation and data; and the preparation, issue and recording of changes to documentation.

H.5 Sub-contract services

If any part of the operation is sub-contracted by the producer a means of control shall be established. The producer shall retain overall responsibility for all components sub-contracted.

H.6 Knowledge of the raw material

There shall be documentation detailing the nature of the constituent parts as specified in the licensees Technical Data Sheets.

It is the licensee's responsibility to ensure that if any dangerous substances are identified their content does not exceed the limits in force.

Note: See EU Council Directive 76/769/EEC.

H.7 Management of production

The factory production control system shall fulfil the following requirements:

- There shall be procedures to identify and control the materials.

Note: these can include procedures for maintaining and adjusting processing equipment, inspection or testing material sampled during processing, etc.

- There shall be procedures to identify and control any hazardous materials identified above to ensure that they do not exceed the limits.

- There shall be procedures to ensure that material is put into stock in a controlled manner and the storage conditions are appropriate for the materials being stored.

- Certain materials are known to deteriorate in storage. There shall be procedures to ensure that material taken from stock has not deteriorated in such a way that its conformity is compromised.

- The product shall be identifiable up to the point of sale as regards source and type.

H.8 Inspection and test

H.8.1 General

The licensee shall ensure that they have all the necessary facilities, equipment and trained personnel to carry out the required inspections and tests.

H.8.2 Equipment

The licensee shall be responsible for the control, calibration and maintenance of inspection, measuring and test equipment

Accuracy and frequency of calibration shall be in accordance with the appropriate standards.

Equipment shall be used in accordance with documented procedures.

Equipment shall be uniquely identified.

Calibration records shall be retained.

H.8.3 Frequency and location of inspection, sampling and tests

The production control document shall describe the frequency and nature of inspections.

H.8.4 Records

The results of factory production control shall be recorded including sampling locations, dates and times and product tested with any other relevant information.

Where the product inspected or tested does not satisfy the requirement laid down in the specification, or if there is an indication that it shall not do so, a note shall be made in the records of the steps taken to deal with the situation (e.g. carrying out of a new test and/or measures to correct the production process).

The records required by all the clauses of this standard shall be included.

The records shall be kept for at least the statutory period.

Note: "Statutory period" is the period of time records are required to be kept in accordance with regulations applying at the place of production.

H.9 Control of non-conforming product

Following an inspection or test that indicates that a product does not conform, the affected material shall be:

- Reprocessed; or
- Diverted to another application for which it is suitable; or
- Rejected and marked as non-conforming.

All cases of non-conformity shall be recorded by the producer, investigated and if necessary corrective action shall be taken.

Note: Corrective actions can include:

- Investigation of the cause of non-conformity including an examination of the testing procedure and making any necessary adjustments;

- Analysis of processes, operations, quality records, service reports and customer complaints to detect and eliminate potential causes of non-conformity;

- Initiating preventive actions to deal with problems to a level corresponding to the risks encountered;

- Applying controls to ensure that effective corrective actions are taken;

- Implementing and recording changes in procedures resulting from corrective action.

H.10 Handling, storage and conditioning in production areas

The manufacturer shall make the necessary arrangements to maintain the quality of the product during handling and storage. This is of particular importance to those materials that may deteriorate in storage.

H.11 Transport and packaging

The producer's factory production control system shall identify the extent of his responsibility in relation to storage and delivery.

Products should be packaged appropriately to prevent any damage of the materials in transit. Any precautions necessary to achieve this during handling and storage of the packaged goods shall be marked on the packaging or accompanying documents.

H.12 Training of personnel

The producer shall establish and maintain procedures for the training of all personnel involved in the factory production system. Appropriate records of training shall be maintained.

H.13 Minimum test frequencies for general properties

The manufacturer shall be asked to give details of the frequency which the products are tested for compliance with the product data sheet. If it is felt that these are inadequate then extra testing maybe requested and/or third party attestation.

H.14 Communication

Before any goods are to leave the factory for site installation the product quality assurance sheets should be signed and dispatched to a third party for attestation. These documents should state unequivocally the testing that has taken place and the frequency of testing.

The minimum testing that is acceptable is full compliance with the technical data sheet for that product. If the data sheet is deemed to be inadequate more testing can be requested to show compliance with the data sheet.

Only upon approval from the third party attestation should the goods be dispatched. This does not however pass the responsibility of quality assurance onto the third party. At all times the quality assurance of the product (including its constituent parts) and the installation is the sole responsibility of the licensee.

Third party attestation would usually be provided by the test laboratory undertaking the field test.

Site samples will be taken by third party's (FIFA accredited test laboratory or FIFA's appointed representatives) in accordance with the requirements of the FIFA Quality Concept for Artificial Turf. The above quality assurance measures are additional to the provisions outlined in the FIFA Quality Concept for Artificial Turf Manual.

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