BS EN 14877:2013

BSI Standards Publication

Synthetic surfaces for outdoor sports areas — Specification

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National foreword

This British Standard is the UK implementation of EN 14877:2013. It supersedes BS EN 14877:2006 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/57, Surfaces for sports areas.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Synthetic surfaces for outdoor sports areas - Specification

Revêtements synthétiques pour terrains de sport en plein air - Spécification

Kunststoffflächen auf Sportanlagen im Freien - Anforderungen

This European Standard was approved by CEN on 25 July 2013.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14877:2013) has been prepared by Technical Committee CEN/TC 217 “Surfaces for sports areas”, the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14877:2006.

Compared with EN 14877:2006, the text has been clarified and editorial errors have been corrected.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the requirements for synthetic (polymeric) surfaces (installed *in situ* and prefabricated) for outdoor sports facilities. It covers synthetic surfaces for the following applications:

— athletics, track and field;

— tennis;

— multi-sports.

The European Standard has two parts. The first describes the requirements for the testing of products in the laboratory to ensure they are capable of providing the required levels of sports performance and player/surface interaction required for their intended use and that they are manufactured from materials of acceptable quality. The second section describes the requirements for installed surfaces to ensure that the sports performance and player/surface interaction properties are suitable for the intended use.

When independent third party testing of synthetic sports surfaces is required to assess compliance with this standard, it is recommended the laboratory is certified to EN ISO/IEC 17025 for the relevant test methods specified in this standard.

NOTE 1 Examples of types of surface and their fields of application are given in Annex A.

NOTE 2 'Multi-sports' will be defined by appropriate national provisions.

NOTE 3 Minimum requirements for the thickness of the synthetic sports surface are specified which means that this European Standard is not applicable to certain coatings used for sports surfaces.

This European Standard is not designed to cover the performance requirements of top-level athletics facilities; these should follow the requirements of the International Association of Athletics Federations (IAAF).

NOTE 4 This European Standard does not include requirements for synthetic turf surfaces; these are specified in EN 15330–1.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1969, *Surfaces for sports areas — Determination of thickness of synthetic sports surfaces*

EN 12230, *Surfaces for sports areas — Determination of tensile properties of synthetic sports surfaces*

EN 12235, *Surfaces for sports areas — Determination of vertical ball behaviour*

EN 12616, *Surfaces for sports areas — Determination of water infiltration rate*

EN 13036-4, *Road and airfield surface characteristics — Test methods — Part 4: Method for measurement of slip/skid resistance of a surface: The pendulum test*

EN 13036-7, *Road and airfield surface characteristics — Test methods — Part 7: Irregularity measurement of pavement courses : the straightedge test*

EN 13744, *Surfaces for sports areas — Procedure for accelerated ageing by immersion in hot water*

EN 13817, *Surfaces for sports areas — Procedure for accelerated ageing by exposure to hot air*

EN 13865, *Surfaces for sports areas — Determination of angled ball behaviour - Tennis*

EN 14808, *Surfaces for sports areas — Determination of shock absorption*

EN 14809, *Surfaces for sports areas — Determination of vertical deformation*

EN 14810, *Surfaces for sports areas — Determination of spike resistance*

EN 14836, *Synthetic surfaces for outdoor sports areas — Exposure to artificial weathering*

EN ISO 5470-1, *Rubber- or plastics-coated fabrics — Determination of abrasion resistance — Part 1: Taber abrader (ISO 5470-1)*

EN ISO 20105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour (ISO 105-A02)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
multi-sports facilities
facilities where more than one sport is played on the surface

Note 1 to entry: These facilities normally enable sports such as handball, basketball, volleyball and small-sided football to be played, and they can also be used for physical education and many other sporting activities.

4 Laboratory test requirements

4.1 Synthetic surfaces intended for athletic facilities shall satisfy the requirements of Table 1.

4.2 Synthetic surfaces intended for tennis facilities shall satisfy the requirements of Table 2.

4.3 Synthetic surfaces intended for multi-sports facilities shall satisfy the requirements of Table 3. If multi-sports areas are to include athletics activities involving the use of athletics running spikes, the synthetic surfacing shall also satisfy the requirements of Table 1, 1.2.5 – Spike Resistance.

4.4 Wet test specimens shall be prepared using the procedure detailed in Annex B.

4.5 Shock Absorption and Vertical Deformation measurements shall be made in three positions each at least 100 mm apart and the mean result calculated.

4.6 Slip Resistance shall be measured in at least two directions at 90° to each other.

Table 1 — Laboratory test requirements for synthetic surfaces intended for athletics facilities

<table>
<tr><th></th><th>Property</th><th>Test method</th><th colspan="2">Test Condition</th><th colspan="2">Requirement</th></tr>
<tr><td>1.1</td><td colspan="6">Sports performance</td></tr>
<tr><td rowspan="2">1.1.1</td><td rowspan="2">Friction</td><td rowspan="2">EN 13036–4 (CEN rubber)</td><td rowspan="2">(23 ± 2) °C</td><td>Dry</td><td colspan="2">80 to 110</td></tr>
<tr><td>Wet</td><td colspan="2">55 to 110</td></tr>
<tr><td rowspan="4">1.1.2</td><td rowspan="4">Shock Absorption</td><td rowspan="4">EN 14808</td><td>(10 ± 2) °C
(23 ± 2) °C
(40 ± 2) °C</td><td>Dry</td><td>Force Reduction</td><td>Classification</td></tr>
<tr><td colspan="2" rowspan="3">After accelerated ageing by exposure to hot air in accordance with EN 13817, and immediately followed by immersion in hot water in accordance with EN 13744. The Shock Absorption to be measured between 24 h and 36 h following removal at a laboratory temperature of (23 ± 2) °C.</td><td>25 % to 34 %</td><td>SA 25 to 34</td></tr>
<tr><td>35 % to 50 %</td><td>SA 35 to 50</td></tr>
<tr><td colspan="2">The performance of the surface shall be classified by the lowest result obtained under any of the test conditions.</td></tr>
<tr><td>1.1.3</td><td>Vertical Deformation</td><td>EN 14809</td><td>(10 ± 2) °C
(23 ± 2)°C
(40 ± 2) °C</td><td>Dry</td><td colspan="2">≤ 3 mm</td></tr>
<tr><td>1.2</td><td colspan="6">Material characteristics</td></tr>
<tr><td>1.2.1</td><td>Water permeability</td><td>EN 12616</td><td>(23 ± 2) °C</td><td>—</td><td colspan="2">≥ 150 mm/h</td></tr>
<tr><td rowspan="2">1.2.2</td><td rowspan="2">Resistance to wear</td><td rowspan="2">EN ISO 5470-1 using H18 abrasive wheels and a (1 ± 0,001) kg load at 60 hz/min</td><td>(23 ± 2) °C</td><td>Unaged</td><td colspan="2" rowspan="2">Mass loss between 500 and 1 500 cycles shall be less than 4,0 g.</td></tr>
<tr><td colspan="2">After artificial weathering in accordance with EN 14836.</td></tr>
<tr><td>1.2.3</td><td>Colour loss</td><td>EN ISO 20105-A02</td><td colspan="2">After artificial weathering in accordance with EN 14836.</td><td colspan="2">Colour fastness shall be no less than grey scale 3.</td></tr>
</table>

1.2.4	Tensile properties	EN 12230	Unaged	Tensile strength	≥ 0,4 MPa
			After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744. The maximum tensile strength to be measured between 24 h and 36 h following removal at a laboratory temperature of (23 ± 2) °C.	Tensile strength	≥ 0,4 MPa
				Elongation at break	≥ 40 %
1.2.5	Spike Resistance	EN 14810	Following spike abrasion.	The change in tensile strength and elongation at break compared to a new sample, when tested in accordance with EN 12230, shall not differ by more than 20 % of the unaged values and shall not be less than the values detailed in 1.2.4.	
			After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744.		
1.2.6	Absolute Thickness	EN 1969 (method A)	(23 ± 2) °C	≥ 10 mm	

Table 2 — Laboratory test requirements for synthetic surfaces intended for tennis facilities

<table>
<tr><th></th><th>Property</th><th>Test method</th><th colspan="2">Test Condition</th><th colspan="2">Requirement</th></tr>
<tr><td>2.1</td><td colspan="6">Sports performance</td></tr>
<tr><td rowspan="2">2.1.1</td><td rowspan="2">Friction</td><td rowspan="2">EN 13036–4 (CEN rubber)</td><td rowspan="2">(23 ± 2) °C</td><td>Dry</td><td colspan="2">80 to 110</td></tr>
<tr><td>Wet</td><td colspan="2">55 to 110</td></tr>
<tr><td rowspan="5">2.1.2</td><td rowspan="5">Shock Absorption</td><td rowspan="5">EN 14808</td><td>(23 ± 2) °C</td><td>Dry</td><td>Force Reduction</td><td>Classification</td></tr>
<tr><td rowspan="4" colspan="2">After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744. The Shock Absorption to be measured between 24 h and 36 h following removal at a laboratory temperature of (23 ± 2) °C.</td><td>11 % to 19 %</td><td>SA 11 to 19</td></tr>
<tr><td>20 % to 30 %</td><td>SA 20 to 30</td></tr>
<tr><td>≥ 31 %</td><td>SA 31+</td></tr>
<tr><td colspan="2">The performance of the surface shall be classified by the lowest result obtained under any of the test conditions.</td></tr>
<tr><td>2.1.3</td><td>Vertical Deformation</td><td>EN 14809</td><td>(23 ± 2) °C</td><td>Dry</td><td colspan="2">≤ 3 mm</td></tr>
<tr><td>2.1.4</td><td>Vertical ball rebound</td><td>EN 12235 using a tennis ball</td><td>(23 ± 2) °C</td><td>Dry</td><td colspan="2">≥ 85 % (≥ 1,19 m)</td></tr>
<tr><td rowspan="6">2.1.5</td><td rowspan="6">Angle ball behaviour (surface pace)</td><td rowspan="6">EN 13865</td><td rowspan="6">(23 ± 2) °C</td><td rowspan="6">Dry</td><td>Tennis coefficient</td><td>Classification</td></tr>
<tr><td>≤ 29</td><td>Slow</td></tr>
<tr><td>30 to 34</td><td>Medium slow</td></tr>
<tr><td>35 to 40</td><td>Medium</td></tr>
<tr><td>41 to 45</td><td>Medium fast</td></tr>
<tr><td>≥ 45</td><td>Fast</td></tr>
</table>

2.2	**Material characteristics**					
2.2.1	Water permeability	EN 12616	(23 ± 2) °C	—	≥ 150 mm/h	
2.2.2	Resistance to wear	EN ISO 5470-1 using H18 abrasive wheels and a (1 ± 0,001) kg load at 60 hz/min	(23 ± 2) °C	Unaged at (23 ± 2) °C	Mass loss between (500 and 1 500) cycles shall be less than 4,0 g.	
			After artificial weathering in accordance with EN 14836.			
2.2.3	Colour loss	EN ISO 20105-A02	After artificial weathering in accordance with EN 14836.		Colour fastness shall be no less than grey scale 3.	
2.2.4	Tensile properties	EN 12230	Unaged at (23 ± 2) °C		Tensile strength	≥ 0,4 MPa
			After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744. Tensile strength to be measured between 24 h and 36 h following removal at a laboratory temperature of (23 ± 2) °C.		Elongation at break	≥ 40 %
2.2.5	Absolute Thickness	EN 1969 (method A)	(23 ± 2) °C		≥ 7 mm	

Table 3 — Synthetic surfaces intended for multi-sports facilities

	Property	Test method	Test Condition		Requirement	
3.1	**Sports performance**					
3.1.1	Friction	EN 13036–4 (CEN rubber)	(23 ± 2) °C	Dry	80 to 110	
				Wet	55 to 110	
3.1.2	Shock Absorption	EN 14808	(23 ± 2) °C	Dry	Force Reduction	Classification
					25 % to 34 %	SA 25 to 34
			After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744. Shock Absorption to be measured between 24 and 36 h following removal at a laboratory temperature of (23 ± 2) °C.		35 % to 44 %	SA 35 to 44
					45 % to 70 %	SA 45 to 70
					The performance of the surface shall be classified by the lowest result obtained under any of the test conditions.	
3.1.3	Vertical Deformation	EN 14809	(23 ± 2) °C	Dry	≤ 6 mm	
3.1.4	Vertical ball rebound	EN 12235 using a basketball	(23 ± 2) °C	Dry	≥ 85 % (≥ 0,89 m)	
3.2	Material characteristics					
3.2.1	Water permeability	EN 12616	(23 ± 2) °C	—	≥ 150 mm/h	
3.2.2	Resistance to wear	EN ISO 5470-1 using H18 abrasive wheels and a (1 ± 0,001) kg load at 60 hz/min	(23 ± 2) °C	Unaged	Mass loss between 500 and 1 500 cycles shall be less than 4,0 g	
			After artificial weathering in accordance with EN 14836			
3.2.3	Colour loss	EN ISO 20105-A02	After artificial weathering in accordance with EN 14836		Colour fastness shall be no less than grey scale 3	

3.2.4	Tensile properties	EN 12230	Unaged at (23 ± 2) °C	Tensile strength	≥ 0,4 MPa
			After accelerated ageing by exposure to hot air in accordance with EN 13817, immediately followed by immersion in hot water in accordance with EN 13744. Maximum tensile strength to be measured between 24 h and 36 h following removal at a laboratory temperature of (23 ± 2) °C.		
				Elongation at break	≥ 40 %
3.2.5	Absolute Thickness	EN 1969 (method A)	(23 ± 2) °C	≥ 7 mm	

4.7 Test report

The test report shall contain the following information:

a) number and date of this European Standard, i.e. EN 14877:2013;

b) manufacturer's or supplier's product name or product code;

c) complete description of the surface tested, together with the supporting layers, and in-fill used;

d) results of the tests relevant to the type of surface being tested; and

e) statement of compliance or failure for each property measured;

f) details of any properties not measured that are applicable for the type of surface tested.

5 Facility tests

5.1 General

Following installation, synthetic sports surfacing shall satisfy the requirements of 5.2, 5.3 or 5.4 as appropriate for the intended sports applications.

Wet test areas shall be prepared using the procedure detailed in Annex B, as required.

The performance of synthetic surfacing will change as the surface is used and ages due to weathering, etc. The degree of change permitted during the life of a synthetic sports surface shall be agreed between the surface manufacturer/supplier and the facility owner/operator. Where no agreement is detailed, it may be assumed the performance requirements of this standard continue to apply.

5.2 Athletics

When tested within the temperature range 10 °C to 40 °C using the methods detailed below, athletics facilities shall satisfy the performance requirements of Table 4.

Table 4 — Performance requirements for athletics facilities

Property	Test method		Specified range	
Thickness	EN 1969		≥ 10 mm [a, b]	
Shock absorption	EN 14808		SA 25 to 34 SA 35 to 50 As appropriate for selected surface	
			All test positions shall also be within ± 5 % Force Reduction of the mean value calculated from all test positions.	
Vertical Deformation	EN 14809		≤ 3 mm	
Slip resistance	EN 13036–4 (CEN rubber)		Dry surface	80 to 110
			Wet surface	55 to 110
			All test positions shall also be within ± 5 points of the mean value calculated from all test positions.	
Surface regularity	EN 13036–7	4 m straight edge	Target requirement	≤ 6 mm
			Maximum size of any permitted deviations	8 mm
			Maximum number of permitted deviations > 6 mm ≤ 8 mm	4
		0,3 m straight edge	Requirement	≤ 2 mm
			Maximum size of any permitted deviations	0
			Maximum number of permitted deviations	0

[a] The absolute thickness of the installed surface should nowhere differ by more than 3 mm from the thickness at which a type approval test was carried out.

[b] Areas used for long/triple jump run up, pole vault, javelin, high jump take-off areas, water jump landing areas should be of increased thickness or reinforced construction.

At least one measurement shall be made for every 500 m^2 of normal thickness synthetic surface, with a minimum of twelve (12) measurements over the facility. The test positions shall be as follows:

1) at the discretion of the test laboratory in any lane around the first radius;

2) in the centre of lane 2 at the 130 m mark on the back straight;

3) in the centre of lane 5 at the 160 m mark on the back straight;

4) at the position of lowest thickness on the back straight;

5) at the discretion of the test laboratory in any lane around the final radius;

6) in the centre of lane 1 at the 320 m mark on the main straight;

7) in the centre of lane 4 at the 350 m mark on the main straight;

8) in the centre of the outer lane at the 390 m mark on the main straight;

9) at the position of lowest thickness on the main straight;

10) at the discretion of the test laboratory at any position (except the high-jump take-off point) over the semi-circular area; where there are two semi-circular areas, a test shall be performed on each of them;

11) at the discretion of the test laboratory at any position (except the reinforced areas) on each of the runways (long jump/triple jump, pole vault, javelin) and in the steeplechase lane.

5.3 Tennis

When tested within the temperature range 10 °C to 40 °C using the methods detailed below, tennis facilities shall satisfy the performance requirements of Table 5.

Table 5 — Performance requirements for tennis facilities

<table>
<tr><th>Property</th><th colspan="2">Test method</th><th colspan="2">Specified range</th></tr>
<tr><td>Thickness</td><td colspan="2">EN 1969</td><td colspan="2">≥ 7 mm [a]</td></tr>
<tr><td rowspan="2">Shock absorption</td><td colspan="2" rowspan="2">EN 14808</td><td colspan="2">SA 11 to 19
SA 20 to 30
SA ≥ 31+
As appropriate for the selected surface</td></tr>
<tr><td colspan="2">All test positions shall also be within ± 5 % Force Reduction of the mean value calculated from all test positions.</td></tr>
<tr><td>Vertical Deformation</td><td colspan="2">EN 14809</td><td colspan="2">≤ 3 mm</td></tr>
<tr><td rowspan="3">Slip resistance</td><td colspan="2" rowspan="3">EN 13036–4 (CEN rubber)</td><td>Dry</td><td>80 to 110</td></tr>
<tr><td>Wet</td><td>55 to 110</td></tr>
<tr><td colspan="2">All test positions shall also be within ± 5 points of the mean value calculated from all test positions.</td></tr>
<tr><td>Vertical tennis ball rebound</td><td colspan="2">EN 12235</td><td colspan="2">≥ 85 % (≥ 1,19 m)</td></tr>
<tr><td rowspan="2">Angle ball rebound (dry)</td><td colspan="2" rowspan="2">EN 13865</td><td colspan="2">Slow ≤ 29
Medium Slow 30 to 34
Medium 35 to 39
Medium Fast 40 to 44
Fast ≥ 45
As appropriate for selected surface</td></tr>
<tr><td colspan="2">All test positions shall also be within ± 5 of the mean value calculated from all test positions.</td></tr>
<tr><td rowspan="6">Surface regularity</td><td rowspan="6">EN 13036–7</td><td rowspan="3">3 m straight edge</td><td>Target requirement</td><td>≤ 6 mm</td></tr>
<tr><td>Maximum size of any permitted deviations</td><td>8 mm</td></tr>
<tr><td>Maximum number of permitted deviations > 6 mm ≤ 8 mm</td><td>4</td></tr>
<tr><td rowspan="3">0,3 m straight edge</td><td>Requirement</td><td>≤ 2 mm</td></tr>
<tr><td>Maximum size of any permitted deviations</td><td>0</td></tr>
<tr><td>Maximum number of permitted deviations</td><td>0</td></tr>
<tr><td colspan="5">[a] The absolute thickness of the installed surface should not differ by more than 3 mm from the thickness at which a type approval test was carried out.</td></tr>
</table>

Tennis courts should be tested in the positions shown in Figure 1. Angle ball and vertical rebound is not measured in position 4. If blocks of multiple courts are being assessed, it is not normally necessary to test each court. Typically one court in three should be tested, that court being selected by agreement between all interested parties.

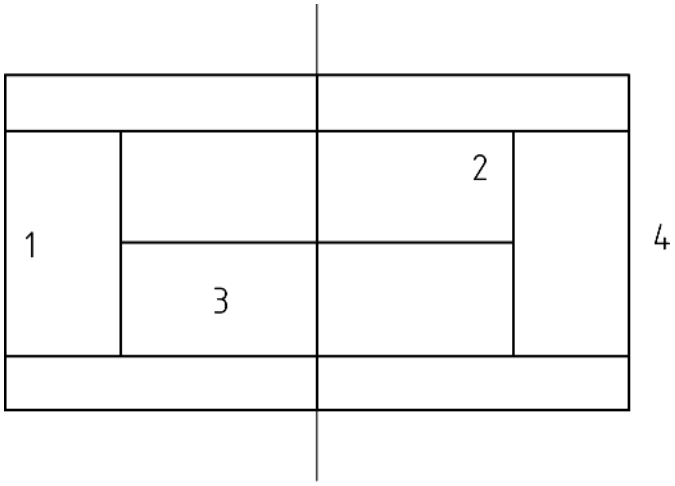


Figure 1 — Tennis court tests positions

5.4 Multi-sports

When tested within the temperature range 10 °C to 40 °C using the methods detailed below, multi-sports facilities shall satisfy the performance requirements of Table 6.

Table 6 — Performance requirements for multi-sports facilities

Property	Test method		Specified range	
Thickness	EN 1969		≥ 7 mm [a]	
Shock absorption	EN 14808		SA 25 to SA 34 SA 35 to 44 SA 45 to 70 As appropriate for selected surface	
			All test positions shall also be within ± 5 % Force Reduction of the mean value calculated from all test positions.	
Vertical Deformation	EN 14809		≤ 6 mm	
Slip resistance	EN 13036–4 (CEN rubber)		Dry	80 to 110
			Wet	55 to 110
			All test positions shall also be within ± 5 points of the mean value calculated from all test positions.	
Vertical basketball rebound	EN 12235		≥ 85 % (≥ 0,89 m)	
Surface regularity	EN 13036–4	3 m straight edge	Target requirement	≤ 6 mm
			Maximum size of any permitted deviations	8 mm
			Maximum number of permitted deviations > 6 mm ≤ 8 mm	4
		0,3 m straight edge	Requirement	≤ 2 mm
			Maximum size of any permitted deviations	0
			Maximum number of permitted deviations	0

[a] The thickness of the installed surface should not differ by more than 3 mm from the thickness at which a type approval test was carried out.

At least five measurements shall be made for every 1 000 m^2 of synthetic surface. Test locations shall be selected to represent areas of high, medium and low use.

5.5 Test report

The test report shall contain the following information:

a) number and date of this European Standard, i.e. EN 14877:2013;

b) manufacturer's or supplier's product name or product code;

c) complete description of the surface tested;

d) the name and location of the facility tested;

e) the surface condition (dry or wet), and the maximum and minimum ambient and surface temperatures at the time of test;

f) the date of installation;

g) results of the tests relevant to the type of surface being tested;

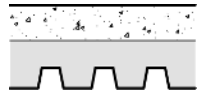
h) statement of compliance or failure for each property measured;

i) details of any properties not measured that are applicable for the type of surface tested.

Annex A
(informative)

Examples of surfacing and fields of application

Table A.1 — Examples of surfacing and fields of application

	Permeable construction			Non-permeable construction			
	A	B	C	D	E	F	G
Design	 Figure A.1	 Figure A.2	 Figure A.3	 Figure A.4	 Figure A.5	 Figure A.6	 Figure A.7
Designation	texture coated surfacing	porous coated surfacing	porous surfacing one-layer	cast coated surfacing	cast surfacing multi-layer (solid synthetic surfacing)	cast surfacing (solid synthetic surfacing)	calendared vulcanized, prefabricated sheets
Surface	granular texture	granules flat		strewn-in granules with visible tips			embossed texture
Top layer (coloured)	rubber granules and elastomer, sprayed	rubber granules and elastomer, trowelled *in situ* or prefabricated		elastomer cast and rubber granules strewn-in			calendared co-vulcanized, differentiated layers of rubber compound
Base layer	rubber granules/fibres and elastomer, poured out *in situ* or prefabricated		—	rubber granules/fibres and elastomer, poured-out *in situ* or prefabricated	rubber granules and elastomer, cast	—	a top layer
Typical areas of application	athletics tracks and run up tracks, multi-sports	multi-use areas, tennis courts and running/run-up tracks (school sports and combined facilities)	multi-sports	athletics tracks, run-up tracks			athletics tracks, run-up tracks, tennis courts

Annex B
(normative)

Preparation of wet test pieces

Wet test pieces shall be prepared by evenly applying a volume of water that thoroughly soaks the test piece (if in doubt, this should be equal to the volume of the test piece). Following wetting, the test piece shall be allowed to drain for 15 min and the test carried out immediately after.

Bibliography

[1] EN 15330-1, *Surfaces for sports areas — Synthetic turf and needle-punched surfaces primarily designed for outdoor use — Part 1: Specification for synthetic turf*

[2] EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

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