

Laboratory Report AL-0604

An assessment of the sports floor

PU floor

(6mm SBR base layer and 2.47mm self-levelling PU layer)

Summary:

Following a request from Bin Sabt Sports & Leisure, selected tests have been carried out on the sports hall floor *PU Floor*. The floor was assessed following the tests detailed in EN 14904: 2006, the European Standard for “*Surfaces for sports areas – Indoor surfaces for multi-sports use*”.

This report describes the test methods, details the results obtained and compares them to the criteria set out in EN 14904: 2006.

Reported by:



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S. Ruiz de Castroviejo
Operations Manager



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M. Plowucha
Laboratory Technician

Date of this report:

23rd August 2016

Tests marked * are outside the scope of our accreditation under UKAS

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1 INTRODUCTION

At the instruction of Bin Sabt Sports & Leisure, selected tests have been carried out on their *PU Floor* sports hall flooring surfacing, following test procedures and criteria detailed in EN 14904:2006, the European Standard for “*Surfaces for sports areas – Indoor surfaces for multi-sports use*”.

The system was assessed for Shock Absorption, Vertical Deformation, Friction and Vertical Ball Behaviour.

The floor was tested in July 2016.

The sample was submitted by:

Bin Sabt Sports & Leisure
P O Box 53734
Dubai
United Arab Emirates

This report details the results obtained for the product ***PU Floor***.

2 SAMPLE DETAILS

The product is designed as a “point elastic floor” intended for indoor use only.

PU Floor sample was received on 28th June 2016. The sample measured approximately 1.5 x 1.5m in plan.

PU Floor is a surface formed of two layers of PU flooring with an overall measured thickness of 8.47 mm (6mm SBR base layer and 2.47mm self-levelling PU layer). Colour tested was Blue.



Top surface



Side view

A sports surface is defined as the top surface and any supporting layers that influence the sports performance or bio-mechanical response. If any of these elements are changed, the response, performance and classification of the surfacing may be different.

The test results obtained relate only to the sample provided for test.

The sample of flooring was assembled on a rigid concrete substrate for testing.

3 TEST PROCEDURES

The following test procedures were carried out:

3.1 Shock Absorption

The Shock Absorption was determined using the method described in EN14808:2005. This test measures the degree by which the floor reduces the impact force which occurs when an athlete lands on it. The apparatus consists of a 20 kg mass, which is allowed to fall onto a stiff spring resting on the floor. The force which results from the impact depends on the relative stiffness of the floor to that of the spring. The test is carried out on a concrete floor as well as on the floor under test and the result quoted is the amount by which the force measured on the test floor is lower than the force measured on concrete.

3.2 Vertical Deformation

The Vertical Deformation was determined using the method described in EN 14809:2005. In this test, the amount by which the floor deflects under impact load is measured. The test is similar in principle to the shock absorption test. However, a softer spring is used and the drop height is adjusted so that the peak force produced falls within a certain range.

3.3 Ball Rebound

The ball rebound was determined following the method described in EN12235:2013. A *MOLTEN Official FIBA GM7* basketball was dropped from a height of 1.8m (measured from the bottom of the ball) and an acoustic timing device used to measure the rebound height. From this, the percentage rebound height relative to the rebound of the same ball on concrete was calculated.

3.4 Friction

Measurements are made using the Transport and Road Research Laboratory *Portable Skid Resistance Tester*, as described and defined in the Specification.

3.5 Test Positions

The floor was tested at two positions.

3.6 As the surface described in this report is intended for indoor use, all tests were carried out under dry conditions only.

4 RESULTS

Performance tests:

Test	Units & Accuracy	1	2	Average	Requirements EN14904
Shock Absorption	% ±1	25	25	25	25-75 ±5% average
Vertical Ball Behaviour	% ±1	98	102	100	Min. 90 % ±3% average
Vertical Deformation	mm ±0.1	0.9	0.7	0.8	≤ 5.0
Friction	- ±3	110	109	110	80 – 110 ±4 average

Typical values of force reduction and vertical deformation for point-elastic sports floors are as follow (as shown in tables B1 and B2 in the standard):

Type	Force reduction (%)	Vertical deformation (mm)
1	≥ 25 <35	≤ 2.0
2	≥35 < 45	≤ 3.0
3	≥ 45	≤ 3.5

5 CONCLUSIONS

When tested to EN 14904:2006, the European Standard for “*Surfaces for sports areas – Indoor surfaces for multi-sports use*”, PU Floor (6mm SBR base layer and 2.47mm self-levelling PU layer) met the requirements for:

- Shock Absorption (Type 1)
- Vertical ball Behaviour
- Vertical Deformation (Type 1)
- Friction

END OF TEXT

APPENDIX A – TEST CERTIFICATE

TEST CERTIFICATE

THIS IS TO CERTIFY THAT THE SURFACING

PU Floor (6mm SBR base layer and 2.47mm self-levelling PU layer)

manufactured by:

Bin Sabt Sports & Leisure

has been tested in accordance with EN14904:2006 " Surfaces for sports areas – Indoor surfaces for multi-sports use" and satisfied the following requirements:

Shock Absorption (Type 1)
Vertical ball Behaviour
Vertical Deformation (Type 1)
Friction



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Date: 23rd August 2016

IMPORTANT: The performance of many sports and recreation surfacing products can be influenced by changes to their thickness, density and other properties and by the manner in which they are installed. Reference should always be made to the Laboratory Report relating to this Certificate, to ensure relevance to the intended situation. The Laboratory Report to which this Certificate relates is numbered:

AL-0604 dated 23rd August 2016

CST is a member of the International Association for Sports Surface Sciences (ISSS) and is the only U.K. laboratory formally accredited by the International Association of Athletics Federations (IAAF), the International Tennis Federation (ITF) and the Union des associations europeennes de football (UEFA) for the testing of products to their specification.