

Laboratory Report AL-0605

An assessment of the sports floor

Jogging Track System 18mm Thick

(12.3mm SBR base layer with 0.4mm intermediate sealer and 5.2mm EPDM cushion layer with 0.1mm aliphatic top coat)

Summary:

Following instructions from Bin Sabt Sports & Leisure, a programme of testing has been carried out on their *Jogging Track System*. The product was tested to the requirements of EN 14877:2013 "*Synthetic surfaces for outdoor sports areas - Specification*".

This report describes the method of test employed and details the results obtained.

Reported by:



Susana Ruiz de Castroviejo
Operations Manager



Martyna 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

Instructions were received from Bin Sabt Sports & Leisure to carry out a programme of testing on their sports surfacing *Jogging Track System*. The product was tested to the requirements of EN 14877:2013: "*Synthetic surfaces for outdoor sports areas – Specification*".

This standard lays down different requirements for surfaces intended for Athletics, Multisports and Tennis and the performance of the product was compared with the requirements for Athletics.

Samples were received from:

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

The results obtained relate only to the sample provided.

2 SAMPLE DETAILS

One sample of *Jogging Track System*, measuring 500 x 500mm, was supplied for test. The sample was received on 29th June 2016.

Jogging Track Sample is a non-permeable sports surfacing constructed in four layers with a measured overall thickness approximately of 17.3mm. The base layer is formed from resin-bound black rubber crumb, approximately 12.3mm thick. Above that, there is a layer of PU sealer and a layer of fine red, resin-bound EPDM crumb, approximately 5.2mm thick (EPDM granules which have 'sunk' into base layer are not considered). The surface is coated with a non-slip lacquer, approximately 0.1mm thick.



Top surface



Side view

3 TEST PROCEDURES

The following tests methods were carried out:

- 3.1 Force Reduction** is determined using the method described in EN 14808:2005. This test measures the degree by which the surface reduces the impact force which occurs when an athlete lands on it. The test was devised to simulate the forces observed when a runner's heel strikes the ground. 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** is determined using the method described in EN 14809:2005. In this test, the amount by which the floor deflects under impact load is measured directly. 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 Tensile Properties** : The Tensile Strength and Elongation at Break were determined according to the method described in EN 12230:2003 and shall be not less than 0.4MPa and 40% respectively. To assess the environmental resistance of the product under test, the same test carried out on a specimen in the as-received condition is repeated after artificial weathering in accordance with EN 14836:2005.
- 3.4 Weight per Unit Area***: The samples submitted for test are weighed using a '0.5 grade' electronic load-cell. The weight per unit area of each sample is calculated and the average value reported.
- 3.5 Thickness**: Absolute thickness was determined as described in EN 1969:2000, Method A (destructive test method) where a core of the sample was taken and its thickness measured with a dial gauge before and after abrading the top layer with a grade 60 abrasive paper.
- 3.6 Colour*** is assessed by reference to the Methuen Atlas of Colour.
- 3.7 Friction** is determined using the method described in EN 13036-4:2011, using the CEN rubber and in both dry and wet conditions. This test uses a pendulum carrying at its end a spring-loaded slider, which makes contact with the surface over a set distance. The angle through which the pendulum swings after it has made contact with the surface to test depends on the friction between the slider and the floor. The standard specifies that a value between 55 and 110 units should be obtained under either wet or dry conditions and no individual test result shall differ from the mean by more than four units.

4 RESULTS

4.1 GENERALLY

EN 14877:2013 sets out different performance requirements for outdoor sports facilities intended for three different applications: Athletics, Tennis and Multi-sports. The product was assessed against the requirements for athletics use.

4.2 Shock Absorption

The requirements for shock absorption depend on the application and the results obtained place the product in one or other Type for each application, thus:

Athletics ⁽¹⁾	
SA25 - SA34	SA35 - SA50
25 - 34	35 - 50

(1) : For athletics use, the lowest value measured at any of the three test temperatures determines the Type

Results :

Temperature	Unit	Accuracy	Result
@ 10°C	%	± 1	46
@ 23°C	%	± 1	46
@ 40°C	%	± 1	47

4.3 Vertical Deformation

Results				Requirements
	Units	Accuracy	Result	Athletics(1)
@ 10°C	mm	± 1	2.7	≤ 3
@ 23°C	mm	± 1	2.9	
@ 40°C	mm	± 1	3.0	

(1) : For athletics use, the determining result is lowest value measured at any of the three test temperatures

4.5 Tensile Properties

	Units	Accuracy (±)	Result	Requirements Athletics
Tensile Strength	MPa	0.02	0.41	≥0.4
Elongation@ Break	%	5	42	≥40

4.7 Thickness:

	Units	Accuracy	Result	Requirements Athletics
Absolute thickness	mm	± 0.01	17.3	≥ 10

4.8 Colour *

Colour : 9E8 , Cuba - No requirements set

4.9 Friction

	Units	Accuracy (±)	Result	Requirement
				Athletics
Dry	μ	3	81	80 - 110
Wet	μ	3	57	55 - 110

5 CONCLUSIONS

When tested according to EN 14877:2013 “*Synthetic surfaces for outdoor sports areas - Specification*” the product *Jogging Track System 18mm thick (12.3mm SBR base layer with 0.4mm intermediate sealer and 5.2mm EPDM cushion layer with 0.1mm aliphatic top coat)* conformed to the requirements for athletics use with regard to its:

- Shock Absorption (Type SA35-SA50)
- Vertical Deformation
- Tensile Properties
- Thickness
- Friction

END OF TEXT

APPENDIX A – TEST CERTIFICATE

TEST CERTIFICATE

THIS IS TO CERTIFY THAT THE PRODUCT

Jogging Track System 18mm thick (12.3mm SBR base layer with 0.4mm intermediate sealer and 5.2mm EPDM cushion layer with 0.1mm aliphatic top coat)

supplied by:

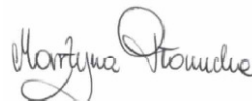
Bin Sabt Sport & Leisure

has been tested in accordance with EN 14877 : 2013 "Synthetics surfaces for outdoor sports areas – Specification" and met all the following requirements relative to a surface for athletics use:

Shock Absorption (Type SA35-SA50)
Vertical Deformation
Tensile Properties
Thickness
Friction



.....
Susana Ruiz de Castroviejo
Operations Manager



.....
M. Płowucha
Laboratory Technician



Date of this report: 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-0605 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 européennes de football (UEFA) for the testing of products to their specification.