



TEST REPORT

NF EN 14877 (10/2013) Standard

Synthetic surfaces for outdoor sports areas - Specification for tennis facilities

LAYKOLD MASTERS 5

POLYTAN GMBH



Accreditation N° 1-2113

Scope of accreditation available on www.cofrac.fr

Only certain services from this report are covered by the accreditation.

They are identified by the symbol *

LABORATORY TEST REPORT N° R160319-D1

LE MANS, le 22/08/2016

This report is composed of 5 pages and 3 annexes.

Except with prior authorization, it may not be used for commercial purposes unless it is reproduced in its entirety.

The results are valid only for the tested surface. Complete results available on request.

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1 ■ CLIENT DETAILS

Company : POLYTAN GmbH
Gewerbering 3
Postfach 40
86 666 BURGHEIM
DEUTSCHLAND

Date of order: 24/03/2016
Date of samples reception: 03/03/2016
Samples reference: 019007 (Tile)

2 ■ TEST PROGRAM

LABOSPORT France has been commissioned by **POLYTAN GmbH** to carry out laboratory tests on the multi-sports indoor sport floor **LAYKOLD MASTERS 5**.

Tests methods and technical requirements criteria considered in this report refer to the standard:

- NF EN 14877: Synthetic surfaces for outdoor sports areas - Specification for tennis facilities

This report is an English translation of the French report **R160319-C1**. Only the French version prevails.

Dimensions of the tested samples conform to the testing standards.

Samples were tested in accordance with the client's instructions (installation conditions, laying type).

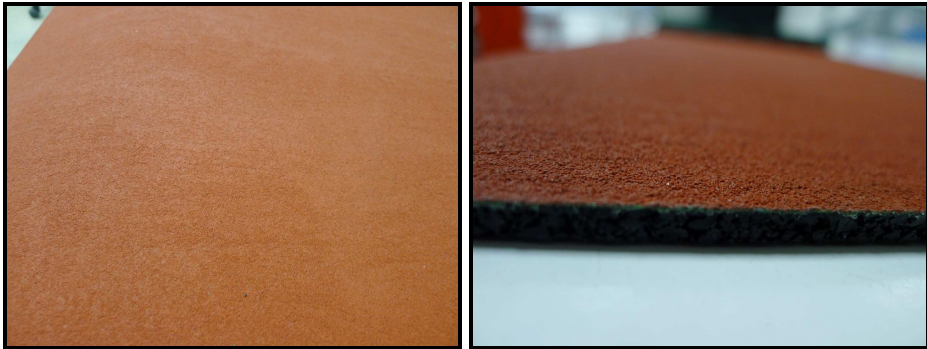
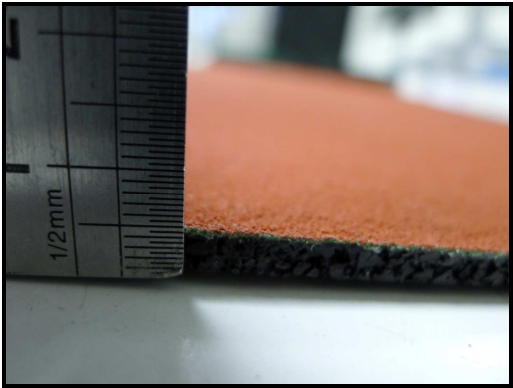
Tests are realized in laboratory where temperature and air humidity are controlled:

Temperature (°C)	23°C ± 2°C
Air humidity (%)	50 % ± 10%

Technical references (manufacturer declaration) considered in this report have been supplied by **POLYTAN GmbH** and refer to the following document:

- Technical Data Sheet of **LAYKOLD MASTERS 5** from 23/03/2016 (cf. annex 2 to 4)

3 ■ SAMPLES (client declaration)

Tennis		Internal Reference: 019007	Receipt date: 03/03/2016
Product name	LAYKOLD MASTERS 5		
Product type	Synthetic resin coated on a shockpad		
Application	Tennis facilities		
Pictures	 		
Description	<p>System with PU/Rubber/Acrylic materials filled on a shockpad</p> <p>System composed of 5 following different layers as:</p> <ol style="list-style-type: none"> 1- Laykold Masters adhesive 2- Laykold Masters 5 shockpad 3- Laykold Masters sealer 4- Laykold Masters filler 5- Laykold Masters Top coat (rouge) 		

 **Product identification**

	Manufacturer declaration	Labosport results	Units
Total thickness	5.0	4.6	mm
Mass per unit area	-	4.0	kg/m ²
Density	-	871	kg/m ³
Colour	Different colours	Red	-

4 ■ TEST RESULTS

Properties	Methods	Units	Conditions	Results	Requirements	Opinion
Friction	EN 13036-4	-	Dry, 23°C	*99	80 - 110	Pass
			Wet, 23°C	*65	55 - 110	Pass
Shock absorption	EN 14808	%	23°C	*14	≥11% Classification	SA 11 - 19
			After Ageing ⁽¹⁾	*12		
Vertical deformation	EN 14809	mm	23°C	*0.5	≤ 3.0	Pass
Vertical rebound	EN 12235	%	23°C	*98	≥ 85	Pass
Angular rebound	EN 13865	-	23°C	29	Classification	Slow (≤ 29)
Permeability	EN 12616	mm/h	New, 23°C	No applicable	≥ 150	No applicable
Resistance to wear	EN ISO 5470-1	g	New, 23°C	0.51	≤ 4.0 between 500 and 1500 cycles	Pass
			After UVA ageing ⁽²⁾	0.42		Pass
Tensile strength	EN 12230	MPa	New, 23°C	0.65	≥ 0.4	Pass
			After Ageing ⁽¹⁾	0.85		Pass
Elongation	EN 12230	%	New, 23°C	60	≥ 40	Pass
			After Ageing ⁽¹⁾	52		Pass
Color change	EN ISO 20105-A02	-	After UVA ageing ⁽²⁾	4-5	≥ 3	Pass

(1) After ageing: Hot air and hot water ageing

The hot air and hot water ageing is performed according to EN 13817 and EN 13744. After surface exposure, the following properties are measured again to check any potential change:

- ❖ Shock absorption
- ❖ Tensile strength
- ❖ Elongation

(2) UVA ageing

The UVA artificial ageing is performed according to EN 14836 standard. After surface exposure, the following properties are measured again to check any potential change:

- ❖ Resistance to wear
- ❖ Color change

5 ■ CONCLUSION

Results of the tests mentioned below, covered by the COFRAC accreditation, comply with the requirements of the EN 14877 standard (10/2013 - Synthetic surfaces for outdoor sports areas – Specification for tennis and multi-sports facilities) for tests mentioned below:

- Friction
- Shock absorption
- Vertical deformation
- Vertical ball rebound

Results of the tests mentioned below, not covered by the COFRAC accreditation, comply with the requirements of the EN 14877 standard (10/2013 - Synthetic surfaces for outdoor sports areas – Specification for tennis and multi-sports facilities) for tests mentioned below:

- Resistance to wear
- Tensile strength
- Elongation
- Color change

The results of shock absorption found on the tested sample indicate that the surface is classified as **SA 11-19**.

The results of angular rebound found on the tested sample indicate that the speed of the surface is classified as **Slow**.

The results uncertainty has not been taken into account to declare or not the product conformity to the requirements.

Le Mans, le 22/08/2016



APPROVAL
Benoit Bossuet
Synthetic Surfaces Technical Manager



WRITER
Steve Bazeille
Laboratory D^{pt} Manager

ANNEX 1 : ACCREDITATIONS FOR LABORATORY TESTS

Scope

The COFRAC accreditation delivered to LABOSPORT certifies that this laboratory is competent to undertake laboratory tests according to the following standards:

Standard	Title
NF EN 12235	Surfaces for sports areas - Determination of vertical ball behaviour
NF 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
NF EN 14808	Surfaces for sports areas - Determination of shock absorption
NF EN 14809	Surfaces for sports areas - Determination of vertical deformation

Description of COFRAC tests

Standard	Tests Equipment*	Principles
NF EN 12235	Acquisition system A05-00-00	A basketball ball is dropped vertically on the tested sample. The vertical ball rebound height is measured and the % relative to the drop height is calculated.
NF EN 13036-4	Device A02-00-00	The system is composed of a standard rubber "patin 57" slider assembled with a spring and fixed to the pendulum extremity. Dropping the pendulum arm from the horizontal position, the energy loss caused by the slider friction onto the surface is measured on a calibrated scale giving the oscillation arm amplitude decrease.
NF EN 14808	Acquisition system A04-00-00	A mass is allowed to fall onto a spring that rests, via a load cell and test foot on the test specimen, and the maximum force applied is recorded. The percentage reduction in this force relative to the maximum force measured on a concrete surface is reported as the 'Force Reduction'.
NF EN 14809	Acquisition system A04-00-00	A mass is allowed to fall onto a spring that rests, via a load cell and test foot, on the test specimen and the maximum and standard deformation of the surface is determined.

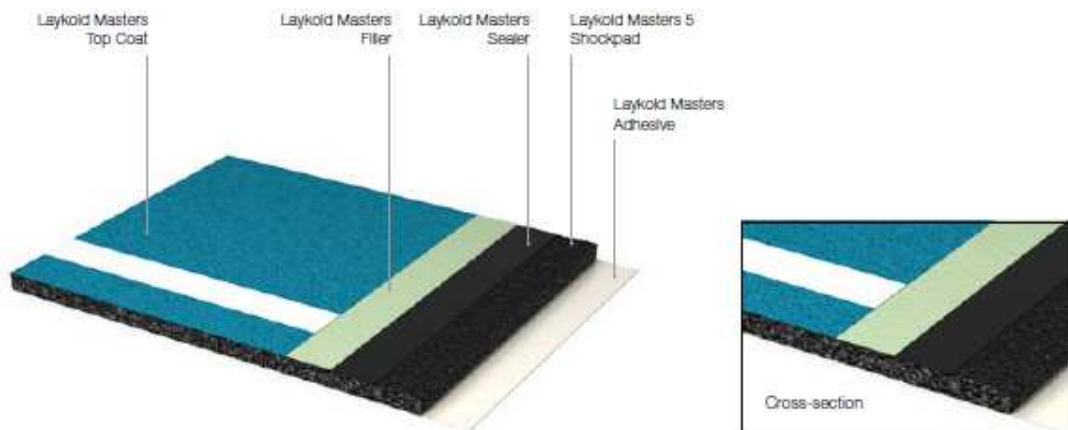
* = The delivery of a test report carrying "COFRAC-TEST" logo guarantees the connection of the equipment used during the test to the International Unit System (S.I).

TECHNICAL DATA SHEET

CUSHIONED SYSTEM EXCELLENT

Laykold Masters 5

★★★★★



TENNIS • MULTIPURPOSE / SCHOOL SPORTS

PRODUCT DESCRIPTION	Laykold Advantage Masters 5 is an all-weather tennis court surfacing system made of polyurethane, rubber and acrylic. The elastic layer provides enhanced player comfort. In addition, the acrylic topcoat ensure a consistent ball bounce, reliable footing and a high level of wear protection – good conditions for performance and competitive sport.
AREAS OF USE	<ul style="list-style-type: none"> • Tennis • Multifunctional sports surfaces
PROPERTIES	<ul style="list-style-type: none"> • Factory-textured topcoat • Enhanced player comfort due to elastic layer • Waterproof
SYSTEM STRUCTURE	<ul style="list-style-type: none"> • Adhesive, two-component polyurethane adhesive • Base layer, polyurethane bonded rubber granules, black – prefabricated • Sealer, single component latex emulsion • Performance layer, sand-filled acrylic latex emulsion • Upper layer, sand-filled acrylic emulsion



CUSHIONED SYSTEM EXCELLENT

Laykold Masters 5

★★★★★

PRODUCT VARIANTS	<ul style="list-style-type: none"> • Classified Court Pace Category 1 – Slow - Attainable by adding additional sand to the upper layer • Classified Court Pace Category 5 – Fast - Attainable by adding an additional, sand-free upper layer
ITF CLASSIFICATION	<ul style="list-style-type: none"> • Classified Court Pace Category 3 - Medium
TEST CERTIFICATES	<ul style="list-style-type: none"> • ITF • EN 14877

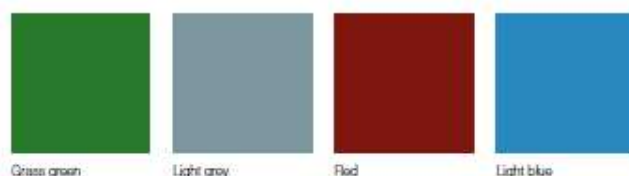
TECHNICAL SYSTEM PROPERTIES

REQUIREMENT	STANDARD	RESULT (AVERAGE) ¹
Thickness	EN 1989	5 mm
Shock absorption	EN 14808	14 %
Vertical deformation	EN 14809	0,5 mm
Vertical ball bounce behaviour	EN 12235	98 %
Angled ball bounce behaviour	EN 13865	29 (slow)
Friction	EN 13036-4	99 (dry) / 65 (wet)
Abrasion resistance	EN ISO 5470-1	0,52 g
Tensile strength (EN 12230)	EN 12230	0,65 Mpa / 60 %

¹ Data taken from test report. Construction-specific tolerances possible.

COLOURS

8 standard colours. Special colours available upon request.



This technical data sheet has been carefully compiled to the best of our knowledge. We assume no liability for printing errors, errors relating to standards or mistakes. Technical amendments may also be made as a result of continuous further development as well as changes to standards and public law documents. The content of this technical data sheet therefore cannot be considered instructions for use or a legally binding basis.

29.03.2016 2