Entwicklungs- und Prueflabor Holztechnologie GmbH · Zellescher Weg 24 · 01217 Dresden · Germany

Kastamonu Entegre Ağaç Sanayi ve Ticaret A.Ş.
Mr. Taner ÇALIŞKAN
Hacı Sabancı O.S.B Cela
Bayar Bulvarı No: 21
Sarıçam / ADANA / 01250
TÜRKEI

Entwicklungs- und Prueflabor
Holztechnologie GmbH
Zellescher Weg 24
01217 Dresden · Germany

Phone: +49 351 4662 0
Fax: +49 351 4662 211
info@eph-dresden.de
www.eph-dresden.de

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MPET

Test Report
Order No. 2721111

Client:	Kastamonu Entegre Ağaç Sanayi ve Ticaret A.Ş. Hacı Sabancı O.S.B Cela Bayar Bulvarı No: 21 Sarıçam / ADANA / 01250 TURKEY
Date of order:	18/02/2021
Order:	Performance of selected tests on laminate floor coverings
Contractor:	EPH – Laboratory Surface Testing
Engineer in charge:	Dipl.-Ing. (FH) M. Peter

Dr.-Ing. Rico Emmler
Head of Laboratory Surface Testing

The test report contains 5 pages and 1 annex with 2 pages. Any duplication, even in part, requires written permission of EPH. These test results are exclusively related to the tested material.

1 Task

The accredited Entwicklungs- und Prueflabor Holztechnologie GmbH (EPH) was instructed by Kastamonu Entegre Ağaç Sanayi ve Ticaret A.Ş. in Sarıçam, ADANA / Turkey to carry out testing of selected properties on laminate floor coverings.

NOTE: All numerical values within this document are given with a comma as decimal.

2 Test material

For testing, the following samples were selected by the client and sent to the contractor with receipt at EPH laboratory on: 03/03/2021

Variant 1: Kastamonu Laminate Flooring 8 mm AC4 / AC5
Surface structure: AUTHENTIC
Dimenssion: 1295 mm x 193 mm x 8 mm

Variant 2: Kastamonu Laminate Flooring 12 mm AC4 / AC5
Surface structure: AUTHENTIC
Dimenssion: 1202 mm x 195 mm x 12 mm

3 Test performance

3.1 Test according to EN 14041:2004+AC:2005+AC:2006 (CE-labelling)

3.1.1 Determination of the sliding behaviour according to EN 13893:2002-11

For the test, a mass with a defined shape and sliders of rubber + leather (1 rubber, 2 leather) according to EN 13893:2002-11 (dry conditions) were used. The slider acts with a defined force on the sample surface and is drawn over the surface with a constant velocity. The force necessary to move the mass is measured along the whole distance. The sliding coefficient is the ratio of that force to the force acting vertically.
5 measurements each were carried out lengthwise and crosswise in the direction of the manufacturer. The first two measurements are not representative and are therefore not taken into account. The average value of the three measurements (measurement 3 - 5) must be calculated for each direction. The lower of the two mean values is to be given as the result.
The assessment of the sliding coefficient μ estimated according to EN 13893:2003 was done according to EN 14041:2004+AC:2005+AC:2006 (harmonised standard for resilient, textile and laminate floor coverings).

Performance of the test: 12/03/2021

3.1.2 Determination of the thermal resistance according to DIN EN 12667:2001-01

The thermal conductivity and thermal resistance were carried out according to EN 12667:2001-01.

The test materials were categorised as a material, which is rectangular layered to the heat flow. The determination of the thermal conductivity was carried out according to this categorisation. The heat flow was orthogonally orientated to the plane of the boards.

A two-plate device, type TLP 900 GX 2 and TLP 900 H was used for determination of the thermal conductivity.

The test specimens were arranged in three tiers (Variant 1) and two tiers (Variant 2) each other, due to the minimum thickness during the measurements. The mean density and thickness were determined on the test specimens by measuring the dimensions and the mass.

The test materials were conditioned at a temperature of 23 °C and a relative humidity of 50 % until the tests were started. After conditioning, the test pieces were placed into the test device immediately between silicone compensating mats.

One measurement were carried out at mean temperatures of 10 °C, of 20 °C and of 30 °C and at a difference of 10 K for each variant. The thermal resistance at a reference temperature of 10 °C was calculated from the measurement values.

Performance of the tests: 15/03/2021

3.2 Other test - Determination of the impact sound reduction according to EN ISO 10140-3:2010 + A1:2015-06/ EN ISO 717-2:2013-03

The impact sound insulation was determined at the acoustic laboratory of IHD according to EN ISO 10140-3:2010 + A1:2015-06. The test flooring was installed in the source room (upper floor) and excited by means of a tapping machine (type Norsonic) at not less than 5 different positions. The sound measurement was done in the receiving room (lower floor), whose volume is 76.9 m^3. Measurement technique from Bruel & Kjaer (system LAN-XI) and a rotating microphone were used.

Performance of the tests: 09/03/2021 – 10/03/2021

4 Results

4.1 Test according to EN 14041:2004+AC:2005+AC:2006 (CE-labelling)

4.2 Sliding behaviour according to EN 13893:2002-11

Variant	Estimated sliding coefficient μ according to EN 13893:2002-11 (1 rubber slider, 2 leather sliders)								Result	Classification according to EN 4041:2004+ AC:2005+AC:2006*
	Measurement in longitudinal direction				Measurement in transverse direction					
	3	4	5	Mean value	3	4	5	Mean value		
1	0,51	0,51	0,51	0,51	0,57	0,57	0,57	0,57	**0,51**	DS

* Requirement for class DS according to EN 14041:2004+AC:2005+AC:2006: $\mu \geq 0,3$

4.2 Thermal resistance according to EN 12667:2001-01

Variant	Measured thickness in mm	Measured density in kg/m³	Thermal conductivity $\lambda^{10}_{23/50}$ in W/(m*K)	Thermal resistance $R^{10}_{23/50}$ in (m²K)/W*
1	8,17	878	0,133	0,0614
2	12,12	915	0,151	0,0803

* The requirement of $R \leq 0,15$ (m²K)/W for floor heating suitability of materials which was fixed by the German Federal Association Radiant Panel Heating was meet by the tested floorings.

$\lambda^{10}_{23/50}$ Thermal conductivity at a mean temperature of 10 °C

$R^{10}_{23/50}$ Thermal resistance at a mean temperature of 10 °C for the individual layer of the test specimens

4.2 Other test - Impact sound reduction according to EN ISO 10140-3:2010 + A1:2015-06

Variant	Weighted normalised impact sound pressure level in dB of		Impact noise improvement ([ΔLw]=dB)
	ceiling without floor covering	ceiling with floor covering	
1	78	63	15
2	78	63	15

The impact sound reduction was determined in the laboratory.

There are no normalized values of this property for floor panels for loose laying.

The data sheet is annex 1 to this test report.

5 Evaluation

5.1 Tests according to EN 14041:2004+AC:2005+AC:2006 (CE-labelling)

The tested laminate floor coverings can be classified regarding to several properties according to EN 14041:2004+AC:2005+AC:2006 for the CE-labelling as follows:

Variant	Properties	Results	Declaration* according to EN 14041:2004+AC:2005+AC:2006
1	Sliding behaviour according to EN 13893:2002-11	$\mu = 0,51$	class DS
1	Thermal resistance according to EN 12667:2001-01	0,0614 $(m^2K)/W$	0,061 $(m^2K)/W$
2		0,0803 $(m^2K)/W$	0,080 $(m^2K)/W$

* Statements on conformity assessment/classification were made on the basis of the measurement results obtained. Measurement uncertainties were not included in the assessment (ILAC G8 03/2009 "Guidelines on the Reporting of Compliance with Specification" Section 2.7).

5.2 Other test - Impact sound reduction according to EN ISO 10140-3:2010 + A1:2015-06

An Impact sound reduction of 15 dB was determined on both tested floorings.

Dipl.-Ing. (FH) M. Peter
Engineer in charge