MFPA Leipzig GmbH

Testing, Inspection and Certification Authority for
Construction Products and Construction Types

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Work Group 4.1 - Thermal Insulation and Moisture Protection

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Test Report No. PB 4.1/17-111-1

25 July 2017
No. Copy 1

Client:	Scan Underlay ApS Ursusvej 16 8464 Galten Denmark
Task:	Tests for the issue of a National Technical Approval (abZ) for an impact sound insulation
Material:	Laminate floor covering underlay
Product:	*Acoustic Silence 3 mm*
Samples received on:	12/04/2017
Date of testing:	06/06/2017 – 25/07/2017
Responsible:	Stefan Laut, laboratory technician Dipl.-Ing. (FH) Rüdiger Pusch Dr.-Ing. Claudia Fülle

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ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-11021-01-00

Testing laboratory accredited by DAkkS GmbH according to DIN EN ISO/IEC 17025. The certificate can be seen on www.mfpa-leipzig.de

Notified testing laboratories, inspection bodies and certification bodies recognized according to the Construction Products Regulation (NB 800) and the State Building Code (SAC02).

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1 Definition of the task

MFPA Leipzig was commissioned by co. Scan Underlay ApS. to test the following properties of the laminate floor covering underlay *Acoustic Silence 3 mm*:

- Compression behaviour according to EN 826
- Deformation under specified compressive load and temperature conditions according to EN 1605
- Length and width according to EN 822 and squareness according to EN 824
- Thickness and compressibility according to EN 12431
- Mass per unit area according to EN 1602

Therefore, 12 April 2017, 4 rolls of the material *Acoustic Silence 3 mm* were delivered to MFPA Leipzig.

Figure 1: Laminate floor covering underlay *Acoustic Silence 3 mm*

2 Test laboratory

MFPA Leipzig works according to the strict quality regulations of DIN EN ISO 17025. In this regard, the laboratory was accredited by DAkkS. All realised tests count among the accredited test methods. The certificate can be viewed at http://www.mfpa-leipzig.de.
MFPA Leipzig is also accredited supervisory and certifying facility at DIBt for impact sound insulations possessing a National Technical Approval abZ-23.21-.

3 Testing procedure and results – Acoustic Silence 3 mm

3.1 Length and Width according to DIN EN 822
Mass per unit area according to DIN EN 1602
Squareness according to DIN EN 824

DIN EN 822:2013	Thermal insulating products for building applications - Determination of length and width
DIN EN 824:2013	Thermal insulating products for building applications - Determination of squareness
DIN EN 1602:2013	Thermal insulating products for building applications - Determination of the apparent density

Pre-treatment: 6 hours storing at 23 °C and 50% r.h.

Testing device: Testing the length with metal tape
Testing the width with metal rule
Testing the thickness with a digital measuring slider
Testing the mass with precision lab balance
Testing squareness with metal square and feeler gauges

Execution: The specimen is placed on a flat surface and the length is measured directly with a metal tape and the width with a metal rule. With the digital measuring slide, the smallest and the largest thickness of the specimen is read directly. In addition, the mass is determined by weighing and the surface weight is calculated from this.

Date of testing: 25/07/2017					
Specimen	length [mm]	width [mm]	thickness [mm]	mass per unit area [kg/m²]	deviation from squareness S_b [mm/m]
AS3-LWT-1	9936	1002,5	3,1	1,07	1,6
AS3-LWT-2	9937	1003,5	3,1	1,06	2,1
AS3-LWT-3	9935	1005,0	3,2	1,06	1,7
mean value	**9936**	**1004**	**3**	**1,1**	**2**

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3.2 Compression behaviour according to DIN EN 826:2013

DIN EN 826:2013	Thermal insulating products for building applications – Determination of compression behaviour

Pre-treatment: 6 hours storing at 23 °C and 50% r.h.

Testing device: universal testing machine TT2850 S, force sensor 5 kN

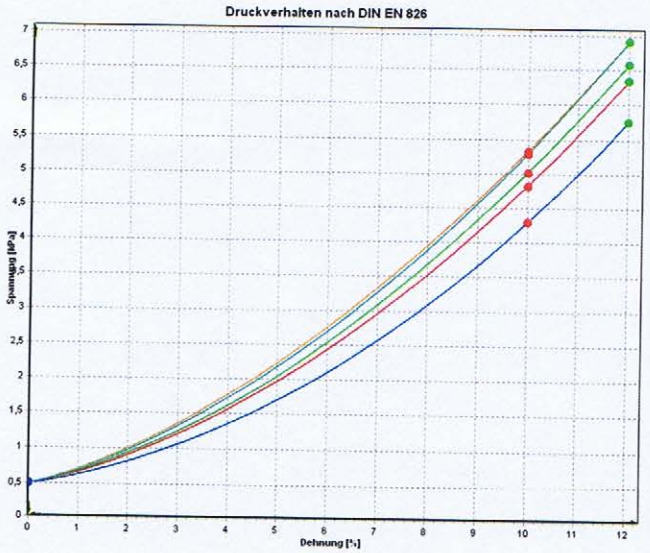
Initial load: 100 Pa

Parameter: compressive force and compressive strength at 0,5 mm deformation

Pressure frame: external dimensions 200 mm x 200 mm
internal dimensions 110 mm x 110 mm
pressure 0,5 kPa, made of steel

Execution: The specimen's surfaces are laterally strained under pressure frame in the universal testing machine. The compressive force results from pressure plate (100 mm x 100 mm) in the gap of pressure frame and will be increased with constant testing pace until 0,5 mm deformation.

Date of testing: 06/06/2017					testing pace: 0,1 mm/min
specimen	pressure plate length l [mm]	pressure plate width b [mm]	thickness at initial load (100 Pa) d [mm]	compressive force at 0,5 mm deformation $F_{0,5mm}$ [N]	compressive strength at 0,5 mm deformation $\sigma_{0,5mm}$ [kPa]
AS-CS-1	201,5	200,4	3,29	194,9	4,83
AS-CS-2	201,2	201,4	3,26	203,8	5,03
AS-CS-3	200,3	201,2	3,19	173,2	4,30
AS-CS-4	200,7	201,3	3,18	215,7	5,34
AS-CS-5	200,3	201,3	3,08	213,6	5,30
mean value	**201**	**201**	**3,2**	**200**	**5**



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3.3 Thickness and compressibility according to EN 12431

DIN EN 12431:2013	Thermal insulating products for building applications - Determination of thickness for floating floor insulating products

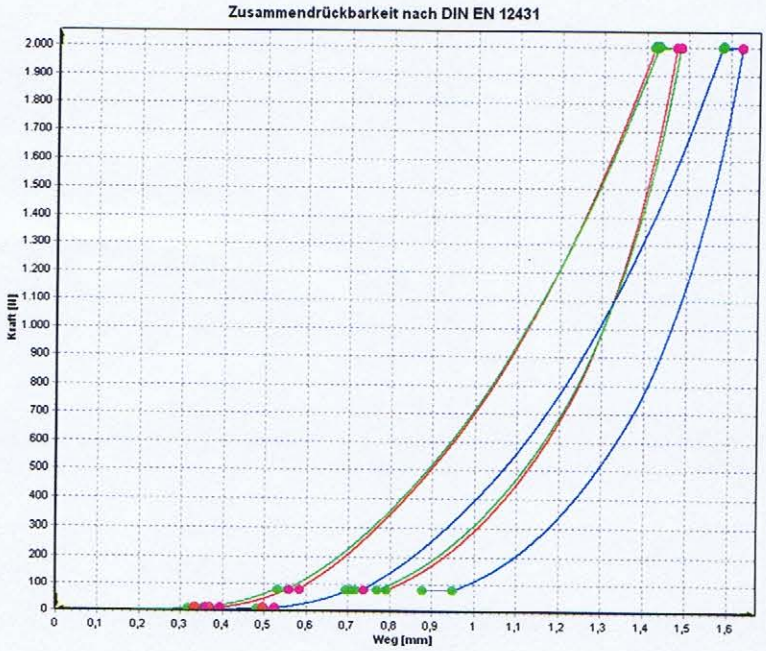
Pre-treatment: 6 hours storing at 23 °C and 50% r.h.

Testing device: universal testing machine TT2850 S, force sensor 5 kN, Determination of lengths and widths with a digital measuring slider

Execution: The specimens are subjected to the defined pressure load according to DIN EN 12431. Compressibility c [mm] is the difference between the thicknesses before and after the pressure load.

Parameter:
d_L: thickness of the product under a load of 250 Pa
d_F: thickness of the product under a load of 2 kPa
d_B: thickness of the product under a load of 2 kPa after application of a short time additional load (48 kPa)
c: compressibility, difference between d_L and d_B

Date of testing: 02/06/2017						
thickness	length l [mm]	width b [mm]	thickness d_L [mm]	thickness d_F [mm]	thickness d_B [mm]	compressibility c [mm]
AS-CP-1	200	200	3,11	2,92	2,78	0,32
AS-CP-2	200	200	3,14	2,94	2,81	0,34
AS-CP-3	200	200	2,98	2,76	2,62	0,35
mean value	**200**	**200**	**3,1**	**2,9**	**2,7**	**0,3**



3.4 Deformation under specified compressive load and temperature conditions according to EN 1605 - DLT(2)

DIN EN 1605:2013	Thermal insulating products for building applications - Determination of deformation under specified compressive load and temperature conditions

Conditioning: 45 days storing at 23(±2) °C and 50(±5) % rel. hum.

Testing device: heat cabinet Memmert UFE 600
digital measuring slide for the dimensions

Specimen dimensions: 100 mm x 100 mm

Test condition: test level A:
- 48(±1) hours, compressive load 40 kPa, temperature 23(±5) °C
test level B:
- 168(±1) hours, compressive load 40 kPa, temperature 70(±1) °C

Procedure: The start values of the specimen dimensions (length, width, thickness) are documented. The specimens are stored for 48 hours in a heat cabinet at 23(±5) °C under a compressive load of 40 kPa. The thickness is measured again and the compression ε_1 can be calculated (test level A).

After test level A the specimens remain under the compressive load of 40 kPa and the heat cabinet is heated up 70(±1) °C (test level B). After 168 hours the thickness is measured again and the whole compression ε_2 can be calculated.

Date of testing: 13/06/2016 – 22/06/2016
Test condition: compressive load 40 kPa,
Test level A: 48(±1) h at 23(±5) °C
Test level B: 168(±1) h at 70(±1) °C

Sample	Test level A compression ε_1 [%]	Test level B compression ε_2 [%]	Difference of compressions $\Delta\varepsilon$ [%]
AS-DLT-1	5,06	8,47	3,41
AS-DLT-2	2,93	6,52	3,59
AS-DLT-3	3,61	9,26	5,65
mean value	**3,9**	**8,1**	**4,2**

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4 Summary

The tests yield the following mean values for the laminate floor covering underlay *Acoustic Silence 3 mm*:

Property	standard	result
length	EN 822	**9936 mm**
width	EN 822	**1004 mm**
deviation from squareness	EN 824	**2 mm/m**
mass per unit area	EN 1602	**1,1 kg/m²**
compressive strength at 0,5 mm deformation $\sigma_{0,5mm}$	EN 826	**5 kPa**
compressibility c	EN 12431	**0,3 mm**
deformation under specified compressive load and temperature conditions - DLT(2), difference of compressions	EN 1605	**4,2 %**

This document does not replace a certificate of conformity or suitability according to national and European building codes.

Leipzig, 25 July 2017

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