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MA 39 – 25-07219-001

Vienna, September 19, 2025
Total pages: 8

Test report

Measurement of the sound absorption coefficient of "Akustikboard" acoustic wall panels on needle felt backing

Client: Maria Leitl, Furniere und Laubschnittholz OG, Hauptstraße 10,
3423 Wördern

Date of order: August 1, 2025

Measurement date: August 12, 2025

Test material: Acoustic wall panel, edges offset on all sides Test setup:
Needle felt carrier plate 7 mm
Wood veneer 0.9 mm

The test material was supplied by the client.

Measurement location: Acoustic laboratory, reverberation chamber 4 – Absorption of the testing,
inspection, and certification agency of the City of Vienna, MA 39,
laboratories for building physics

Test program: Determination of the sound absorption coefficient in accordance with EN ISO
354:2003 and calculation of the weighted sound absorption coefficient α_w in
accordance with
EN ISO 11654:1997.

1 General

1.1 Order

Based on your order dated August 1, 2025 (via email from Maria Leitl, Veneers and Hardwood Lumber OG), a measurement of the sound absorption coefficient of acoustic wall panels was to be carried out. The frequency-dependent sound absorption coefficient α_s (determination of sound absorption in a reverberation chamber) was determined. The practical sound absorption coefficient (α_{pi}) and the weighted sound absorption coefficient (α_w) were to be determined from the values obtained.

In accordance with the contract, conformity statements are made in binary form using simple acceptance in accordance with section 4.2.1 ILAC-G8:09/2019.

2 Design, installation type, and test conditions

2.1 Structure of the elements

Absorber: Acoustic wall panel "Akustikboard," product name according to the client Total thickness approx. 8 mm Consists of wood veneer bonded to a needle felt backing board

Information on the type of bonding and the adhesive manufacturer is available to MA 39 and is kept on file here.

36 pieces, each measuring 800 mm x 400 mm

Mass: Acoustic wall panel 463 g per element on average (surface mass 1.45 kg/m²) determined by weighing a subset of the elements

2.2 Installation type

Installation type: Type

A mounting frame: None

2.3 Test conditions

Test area: 11.54 m

Air temperature: 23.5 / 23.5 °C without / with test

material Humidity: 50.0 / 50.2 relative humidity

Air pressure: 100.5 / 100.5 kPa

The delivered material was laid out on the floor of the hall to form a closed surface in accordance with EN ISO 354 (type A installation).

No fasteners were used.

3 Measurement

3.1 Measuring instruments and test equipment

Measuring system:	Norsonic Nor850 (2x)	S/N 8501147, 8501148
Calibrator:	Norsonic Nor1256	S/N 125626839
Speaker:	Norsonic dodecahedron loudspeaker 276	S/N 2765873
Amplifier:	Norsonic Nor280	S/N 2804532
Microphones:	Norsonic 1225	S/N 215370, 215379, 215377, 48123, 103193, 112865
Preamplifiers:	Norsonic 1209	S/N 20380 to 20385

3.2 Measurement of reverberation time

The measurement was performed using the method with noise switched off. Microphones and microphone positions, sound source and sound source positions, and the number of microphone and loudspeaker positions are in accordance with section 7.1, the measurement method with noise switched off and the averaging method are in accordance with section 7.2 of EN ISO 354.

4 Definitions

4.1 Sound absorption coefficient α_{s}

The change in equivalent sound absorption area after placing the test object in the reverberation chamber compared to the equivalent sound absorption area of the empty reverberation chamber, divided by the area of the test object. This value is defined for flat test objects and is designated α_{s} or $\alpha_{s,i}$ (measured in the i -th third octave band).

4.2 Practical sound absorption coefficient α_{pi}

The practical sound absorption coefficient is calculated for each octave band from the arithmetic mean of the sound absorption coefficients of the three third-octave bands within the octave:

$$\alpha_{pi} = (\alpha_{i1} + \alpha_{i2} + \alpha_{i3}) / 3$$

4.3 Rated sound absorption coefficient α_w and shape factor

To determine the weighted sound absorption coefficient, the reference curve specified in EN ISO 11654 is shifted in increments of 0.05 [-] towards the measured values until the sum of the unfavorable deviations is less than or equal to 0.10 [-]. An unfavorable deviation occurs when the measured value is lower than the reference value. Only unfavorable deviations are taken into account. The weighted sound absorption coefficient α_w is the value of the reference curve at 500 Hz.

The form indicator "L", "M" or "H" is used when a practical sound absorption coefficient α_{pi} exceeds the value of the shifted reference curve by at least 0.25 [-]. The designation "L" is used if the exceedance applies at 250 Hz, the designation "M" is used if the exceedance applies at 500 Hz or 1000 Hz, and the designation "H" is used if the exceedance applies at 2000 or 4000 Hz.

5 Results

Page 6 shows the measured curve of the sound absorption coefficient α_s as a function of frequency (from 100 Hz to 5000 Hz) and the individual sound absorption coefficients are given numerically.

5.1 Practical sound absorption coefficient α_{pi}

The following practical absorption coefficients (rounded in accordance with section 4.1 EN ISO 11654) are calculated from the sound absorption coefficients of the respective third octave bands (see page 6), see page 7:

$\alpha_{p, 125} = 0.00$	$\alpha_{p, 250} = 0.10$	$\alpha_{p, 500} = 0.35$
$\alpha_{p, 1000} = 0.70$	$\alpha_{p, 2000} = 0.65$	$\alpha_{p, 4000} = 0.50$

5.2 Rated sound absorption coefficient α_{rw} and shape factor

The rated sound absorption coefficient is calculated from the practical absorption coefficients as follows

$$\alpha_{rw} = 0.35 \text{ (MH)}$$

with specification of a shape factor.

6 Technical regulations

Standards/guidelines within the scope of accreditation:	
Measurement and test bench standard:	EN ISO 354: May 1, 2003
Evaluation standard:	EN ISO 11654: April 1, 1997

Standards / guidelines not within the scope of accreditation:	
Terms and units:	ÖNORM B 8115-1: June 1, 2011

7 Value comparison

Annex B of EN ISO 11654:1997 lists a classification system for sound-absorbing materials. This is primarily intended for use with broadband noise. Depending on a certain bandwidth of the evaluated sound absorption coefficient α_{rw} , a distinction is made between different absorber classes are defined.

Sound absorber class	α_w values
A	1.00 – 0.90
B	0.85 – 0.80
C	0.75 – 0.60
D	0.55 – 0.30
E	0.25 – 0.15
Not classified	0.10 – 0.00

If a practical sound absorption coefficient α_{pi} exceeds the value of the shifted reference curve by 0.25 or more, one or more shape indicators must be specified in addition to the α_w value.

Based on the determined value of the evaluated sound absorption coefficient, the tested acoustic wall panels are to be classified into the following absorber classes (a shape indicator is used):

Test material - Designation	Rated sound absorption coefficient α_w / Absorber class
Acoustic wall panel 8 mm wood veneer, bonded on all sides to a needle felt backing board	0.35 / D

It is recommended to read the single value α_w in conjunction with the complete curve of the sound absorption coefficient across the respective third octave bands (see page 6).



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The Head of the Testing,
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The document has been signed electronically (issuer: City of Vienna User CA 2). The handwritten signature has been removed for security reasons. If you require a paper copy of the document with handwritten signatures, you can request one from MA 39 by email (post@ma39.wien.gv.at).

Appendix: Measurement curves and photo documentation

Sound absorption coefficient according to ISO 354

Measurement of sound absorption in the reverberation chamber

Client: Maria Leitl, Furniere und Laubschnitt Holz OG, Hauptstr. 10, 3423 Würdem Test date: August 12, 2025

Description: Acoustic wall panel "Acoustic board" (3205 mm x 3600 mm) Total weight per unit area: 1.45 kg/m²
Wood veneer on needle felt backing board, total thickness 8 mm, 36 pieces

Object:

Hallroom empty:

Relative humidity: 50.0
Temperature: 23.5 °C
Air pressure: 100.5 kPa

Hall room with test object:

Relative humidity: 50.2%
Temperature: 23.5 °C
Air pressure: 100.5 kPa

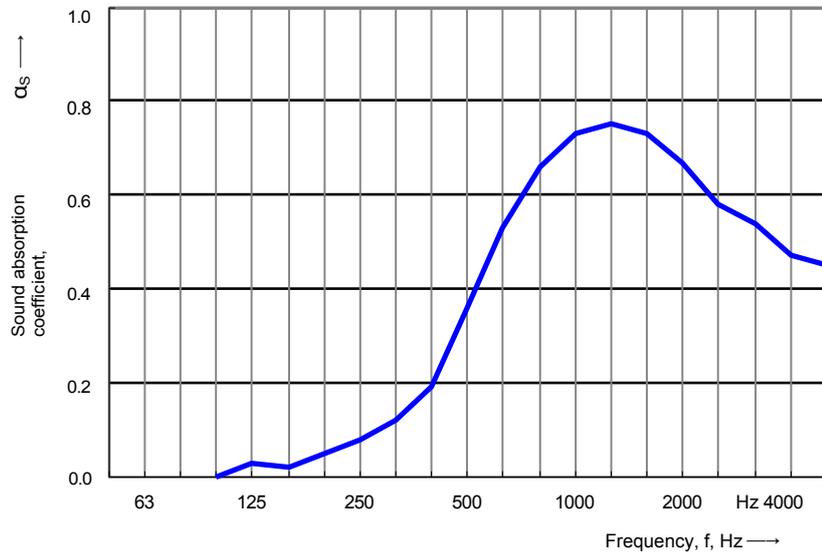
Area of test material: 11.54 m²

Volume of reverberation chamber: 203.5 m³

chamber: Total room area 219.1 m²

S_i :

Frequency f [Hz]	α _s Third
50	
63	
80	
100	0.00
125	0.03
160	0.02
200	0.05
250	0.08
315	0.12
400	0.19
500	0.36
630	0.53
800	0.66
1000	0.73
1250	0.75
1600	0.73
2000	0.67
2500	0.58
3150	0.54
4000	0.47
5000	0.45



Name of testing institute: MA39 - Testing, Inspection, and Certification Agency of the City of Vienna

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Sound absorption coefficient according to ISO 11654

Measurement of sound absorption in an anechoic chamber

Client: Maria Leitl, Veneers and Hardwood Lumber OG, Hauptstr. 10, 3423 Wördern Test date: August 12, 2025

Description: Acoustic wall panel "Acoustic board" (3205 mm x 3600 mm) Total weight per unit area: 1.45 kg/m²
Wood veneer on needle felt backing board, total thickness 8 mm, 36 pieces

Object:

Empty hall:		Hall room with test object:	
Relative humidity:	50.0	Relative humidity:	50.2%
Temperature:	23.5 °C	Temperature:	23.5 °C
Air pressure:	100.5 kPa	Air pressure:	100.5 kPa

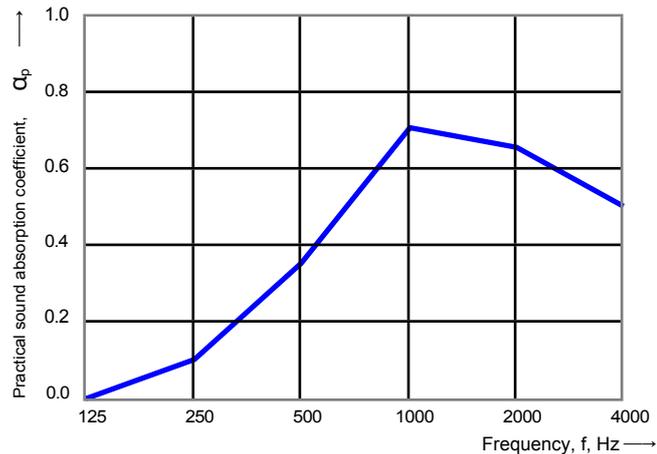
Area of test material: 11.54 m²

Volume of reverberation chamber: 203.5 m³

chamber: Total room area 219.1 m²

S_i :

Frequency f [Hz]	Q _p Octave
10	0.00
125	
160	
200	0.10
250	
315	
400	0.35
500	
630	
800	0.70
1000	
1250	
1600	0.65
2000	
2500	
3150	0.50
4000	
5000	



Rated sound absorption coefficient according to ISO 11654

Q_w = 0.35 (MH)

It is strongly recommended to use this single value rating in conjunction with the complete curve of the sound absorption coefficient.

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Image
no. 1 Individual absorber
element



Image
no. 2 Installation on the
hall floor