

Informationen

zur Zertifizierung des Schallabsorbtionsgrads nach DIN EN ISO 354

Stoff • halifax

Farb.-Nr. 653.xx

Zertifikat-Nummer **21-000537-01**

Bestätigung Die Firma erfal bestätigt, dass dieser Qualität das Zertifikat **21-000537-01** zugrunde liegt.

Datum 26.02.2024



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Geschäftsführer



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TFI Report 21-000537-01

Sound Absorption

Customer



Product

fabric



This report includes 2 pages and 1 annex



Responsible at TFI

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Aachen, 22.04.2021



Dr.-Ing. Andreas Zoëga

- Head of the testing laboratory -



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1 Transaction

Test order	sound absorption according to EN ISO 354
Order date	12.04.2021
Your reference	Dorith van Delft
Sampling performed by	Customer
Product designation	██████████
TFI sample number	2100816

2 Product Specification

Type of manufacture	woven
Type of surface	woven structure
Pattern	multicoloured, patterned
Colour	black, brown
Thickness [mm]	0.48*
Area density [g/m ²]	190*
View	

*customer information

3 Results

Sound absorption	$\alpha_w = 0.50$ (H)
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The measurement results are evaluated without consideration of the measurement uncertainty with reference to compliance with limit values, unless otherwise specified by the test standard.

4 Annexes

Sound absorption	SA 21-000537-01 ^a
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The annexes marked ^a are based on tests accredited in accordance with EN ISO/IEC 17025.

Annex SA – Sound Absorption

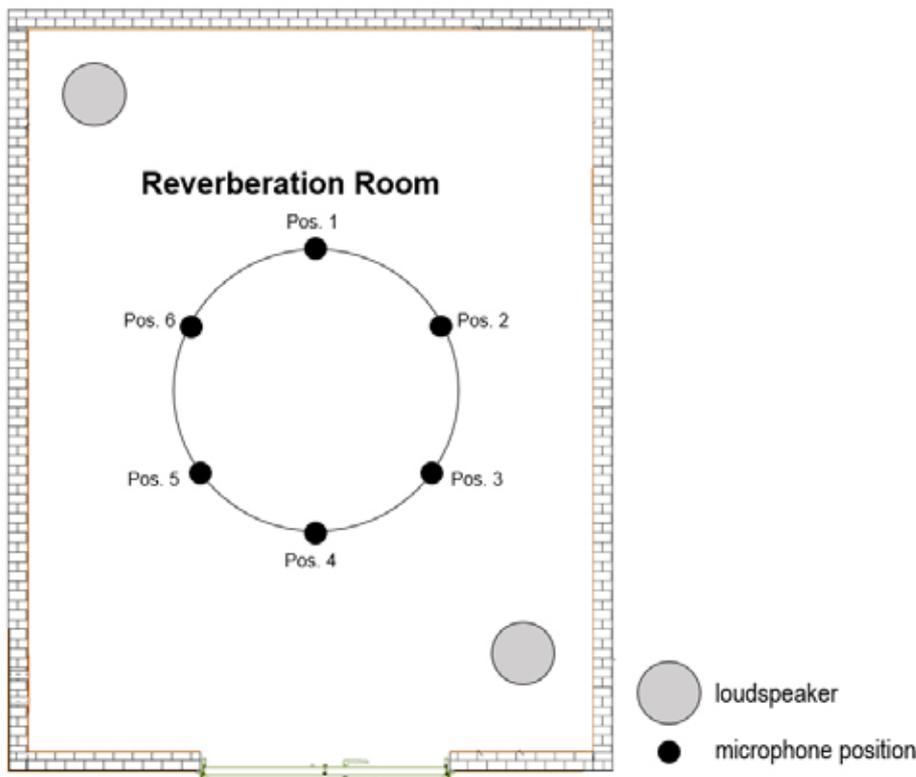
1 Test Method / Requirements

EN ISO 354:2003-12	Acoustics - Measurement of sound absorption in a reverberation room
EN ISO 11654:1997-07	Acoustics - Sound absorbers for use in buildings - Rating of sound absorption
ISO 12999-2:2020-06	Acoustics - Determination and application of measurement uncertainties in building acoustics - Part 2: Sound absorption

2 Laboratories

Test rooms:	TFI Aachen GmbH, Charlottenburger Allee 41, 52068 Aachen
Test method:	reverberation room method
Volume:	$V = 7,60 \text{ m} \times 5,91 \text{ m} \times 4,95 \text{ m} = 222,33 \text{ m}^3$
Total surface:	$S_t = 223,60 \text{ m}^2$
Floor plan:	rectangular
Diffusors:	15

Plan of the reverberation room:



3 Measuring Devices

Real-time analyzer:	1 Norsonic Nor140
Microphone:	1 Norsonic Type1209
Loudspeaker:	2 Norsonic Nor229

4 Measuring Operation

Test noise:	broadband noise
Receive filter:	one-third octave band filter
Measurement:	2 loudspeaker positions 6 microphone positions

5 Evaluation

The decay curves are determined using the interrupted noise method. A minimum of one decay curve is measured at each of the 6 microphone positions. The decays are averaged for every microphone position to enhance reproducibility. The reverberation time of the room is expressed by the arithmetic mean derived from the total number of all reverberation time measurements in each frequency band.

The equivalent sound absorption area of the test specimen A_T is calculated as the difference between the equivalent sound absorption area of the reverberation room with test specimen A_2 and the equivalent sound absorption area of the empty reverberation room A_1 without test specimen.

The equivalent sound absorption coefficient α_s describes the ratio of the equivalent sound absorption area A_T of a test specimen divided by the area of the test specimen.

The evaluated sound absorption coefficient α_w is a single-number frequency-independent value which equals the value of the reference curve at 500 Hz after shifting it.

6 Note

The results are based on measurements performed under laboratory conditions with artificial excitation (standard procedure). The test results are applicable in due consideration of the national provisions and the local circumstances and/or constructions.

Measurement of sound absorption coefficient in a reverberation room

Annex SA – Sound Absorption

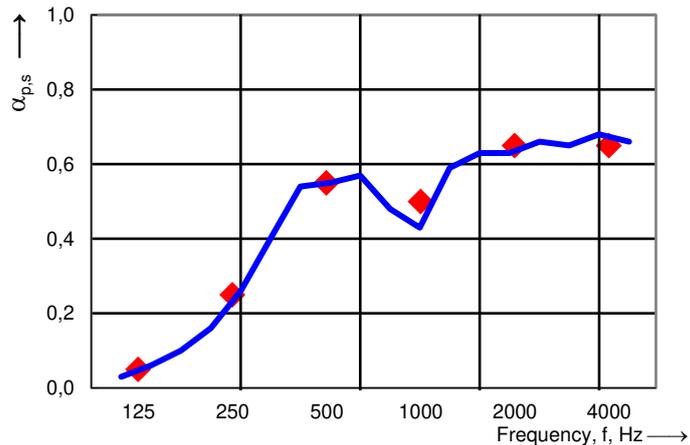
TFI sample number: 2100816 Testing period: 21.04.2021
 Product designation: [REDACTED] Installation: 21.04.2021
 Installed by: TFI Aachen GmbH
 Mounting type: G-200, tested with 20 cm distance parallel to the room surface.
 (ISO 354 Annex B) The sides of the set-up were closed.
 Remarks: Pleated

Object set-up:
 (if multi-parted;
 from top to bottom)

Reverberation room without sample:	Reverberation room with sample:
Relative humidity: 55,6 %	Relative humidity: 55,6 %
Temperature: 18,9 °C	Temperature: 18,9 °C
Barometric pressure: 101,2 kPa	Barometric pressure: 101,2 kPa

Surface area: 10,30 m²
 Room volume: 222,30 m³
 Total room area S_i: 223,60 m²

Frequency f [Hz]	α _p Oktave
100	0,05
125	
160	
200	0,25
250	
315	
400	0,55
500	
630	
800	0,50
1000	
1250	
1600	0,65
2000	
2500	
3150	0,65
4000	
5000	



Weighted sound absorption coefficient according to ISO 11654

α_w = 0,50 (H)



Measurement of sound absorption coefficient in a reverberation room

Annex SA – Sound Absorption

Page 2 of 2

Weighted sound absorption coefficient according to ISO 11654

$$\alpha_w = 0,50 \quad (H)$$

Surface area: 10,30 m²
 Room volume: 222,30 m³
 Total room area S_t: 223,60 m²

Frequency [Hz]	α_p	α_s		T1 [s]	T2 [s]
50		0,01		10,57	10,35
63	0,00	-0,01		10,45	10,63
80		0,01		15,55	14,83
100		0,03		14,05	12,53
125	0,05	0,06		12,99	10,69
160		0,10		14,15	10,05
200		0,16		14,04	8,51
250	0,25	0,26		14,91	7,06
315		0,40		13,57	5,33
400		0,54		12,22	4,24
500	0,55	0,55		11,73	4,12
630		0,57		11,44	4,00
800		0,48		10,69	4,33
1000	0,50	0,43		9,19	4,30
1250		0,59		8,08	3,41
1600		0,63		6,92	3,09
2000	0,65	0,63		5,84	2,85
2500		0,66		4,87	2,54
3150		0,65		3,99	2,29
4000	0,65	0,68		3,15	1,95
5000		0,66		2,28	1,59

Reverberation room without sample:
 Relative humidity: 55,6 %
 Temperature: 18,9 °C
 Barometric pressure: 101,2 kPa

Reverberation room with sample:
 Relative humidity: 55,6 %
 Temperature: 18,9 °C
 Barometric pressure: 101,2 kPa

Remarks:
 Pleated