

Sound absorption coefficient ISO 354

Measurement of sound absorption in reverberation rooms

Client: Sigel GmbH
Bäumenheimer Str. 10, D-86690 Mertingen

Test specimen: Acoustic wall tiles Sound Balance

The acoustic wall panels Sound Balance were laid directly onto the floor of the reverberation room. The setup was enclosed by a 40 mm high frame of 19 mm thick MDF panels. The joints between the reverberation room floor and the enclosing frame were sealed with an adhesive tape.

The following wall panels sizes were distributed in the test area of the dimensions length x width = 3.6 m x 2.8 m (without frame):

31 pieces: 400 mm x 800 mm x 40 mm

1 piece: 400 mm x 400 mm x 40 mm

The wall panels had the following structure (beginning from the front face):

- 1 mm tissue, mass per unit area 227 g/m², specific airflow resistance 166 Pa s/m
- 39 mm three-layer PET-sandwich, mass per unit area 6327 g/m², gross density 162 kg/m³, specific airflow resistance 1240 Pa s/m; consisting of:
 - 15 mm PET, punctually connected with hot glue with
 - 9 mm PET, punctually connected with hot glue with
 - 15 mm PET
- 1 mm tissue, mass per unit area 227 g/m², specific airflow resistance 166 Pa s/m
- 1 mm spacer to simulate the adhesive tape
- floor of reverberation room

The wall panels consisted of a circumferential, 50 mm wide aluminium profile with a PET-sandwich clamped in-between. On the visible face of the aluminium profile, 9 mm thick panels of PET were incorporated. The aluminium profile was hollow, closed on all sides and narrowing to a thickness of 15 mm at the rim.

Room: reverberation room

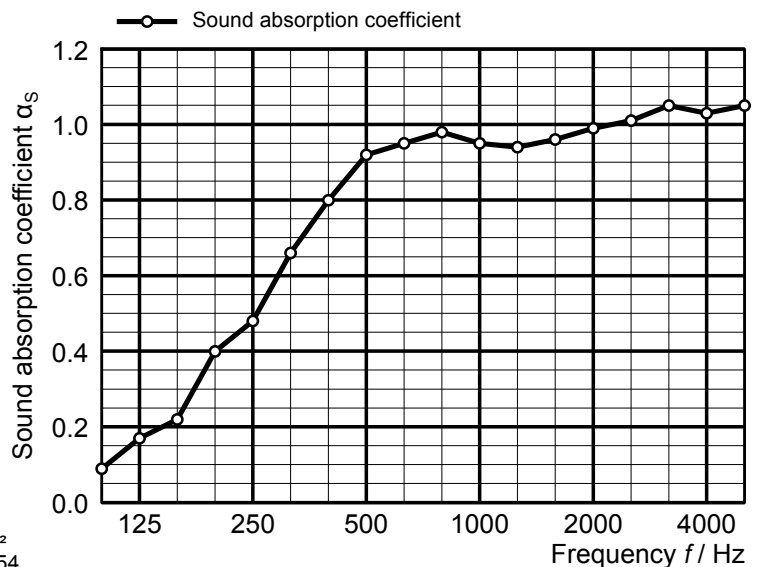
Volume: 199.60 m³

Size: 10.08 m²

Date of test: 2018-09-05

	θ [°C]	$r. h.$ [%]	B [kPa]
without specimen	22.1	57.1	95.4
with specimen	22.3	60.6	95.3

Frequency [Hz]	α_s 1/3 octave	α_p octave
100	0.09	
125	0.17	0.15
160	0.22	
200	0.40	
250	0.48	0.50
315	0.66	
400	0.80	
500	0.92	0.90
630	0.95	
800	0.98	
1000	0.95	0.95
1250	0.94	
1600	0.96	1.00
2000	0.99	
2500	1.01	
3150	1.05	
4000	1.03	1.00
5000	1.05	



o Equivalent sound absorption area less than 1.0 m²
 α_s Sound absorption coefficient according to ISO 354

α_p Practical sound absorption coefficient according to ISO 11654

Rating according to ISO 11654: Weighted sound absorption coefficient $\alpha_w = 0.80 (H)$ Sound absorption class: B	Rating according to ASTM C423: Noise Reduction Coefficient NRC = 0.85 Sound Absorption Average SAA = 0.84
--	---

MÜLLER-BBM

Planegg, 2018-11-29

No. of test report M136562/2

Appendix A

Page 1