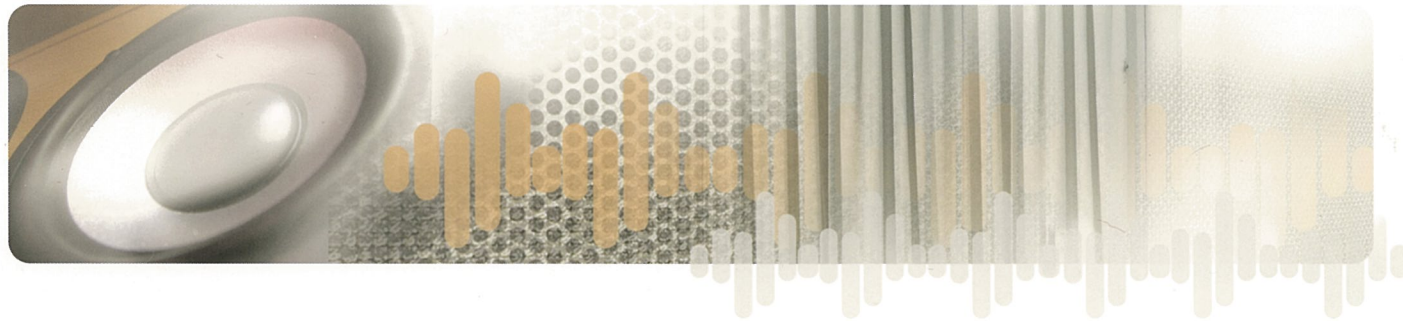


sound absorption



Sound

one standard that meets all



Characteristics of reflection and absorption are measured by the degree of sound absorption in a space. Every element in a room has a sound absorption factor that affects the room acoustics. Sound absorption is measured by calculating the reverberation time in the frequency range 100 to 5000 Hz, in accordance with EN ISO 354. The test compares results between an empty reverberation chamber and one containing the test product. The sound absorption in a room is defined by how reverberant a room appears. Speech intelligibility depends on the reverberation time of the room.

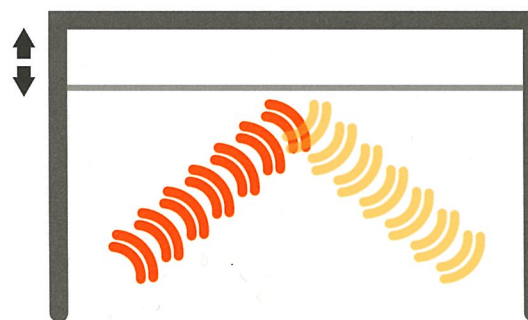
The NRC (Noise Reduction Coefficient) is a single value based on the arithmetic average of the four sound absorbent values at 250, 500, 1000 and 2000 Hz and then rounded to the nearest 0.05 (ASTM C 423-90 A).

The weighted sound absorption coefficient α_w is determined according to BS EN ISO 11654. The individual sound absorption coefficients (α_s) - measured in accordance with BS EN ISO 354 - are converted to, the practical sound absorption coefficient α_p for octave bands 250, 500, 1000, 2000 and 4000 Hz.

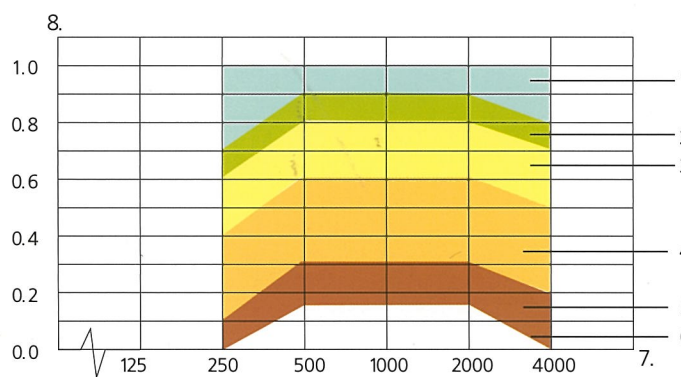
$$\alpha_p(f) = \frac{\alpha_{11} + \alpha_{12} + \alpha_{13}}{3}$$

A standard reference curve is shifted against this α_p curve until the two graphs match as closely as possible. The weighted sound absorption coefficient α_w is the single figure rating then obtained at 500 Hz. Shape indicators L, M and H are applied to the weighted sound absorption coefficients where the measured coefficient exceeds the reference curve at one or more frequencies by at least 0.25.

- L - excess of absorption at 250 Hz
- M - excess of absorption at 500 to 1000 Hz
- H - excess of absorption at 2000 to 4000 Hz.



Void depth of 200 mm as per EN ISO 11654



- 7. Frequency Hz
- 8. α_p Practical absorption coefficient

Sound Absorption Class (as per ISO 11654)	α_w - value	Absorption class	NRC
A (1.)	0.90 ; 0.95 ; 1.00	Extremely Absorbing	>0.75
B (2.)	0.80 ; 0.85	Extremely Absorbing	
C (3.)	0.60 ; 0.65 ; 0.70 ; 0.75	Highly Absorbing	0.50 - 0.75
D (4.)	0.30 ; 0.35 ; 0.40 ; 0.45 ; 0.50 ; 0.55	Absorbing	
E (5.)	0.15 ; 0.20 ; 0.25	Hardly Absorbing	0.25 - 0.50
not classified (6.)	0.05 ; 0.10	Reflecting	<0.25



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