



FAQ - Frequently Asked Questions

FESI- Acoustic Commission

1. Coating or painting of absorbing surfaces

Question:

Is it possible to paint contaminated rough acoustic plaster or an absorbing ceiling without changing the effect, namely the absorptivity?

Answer:

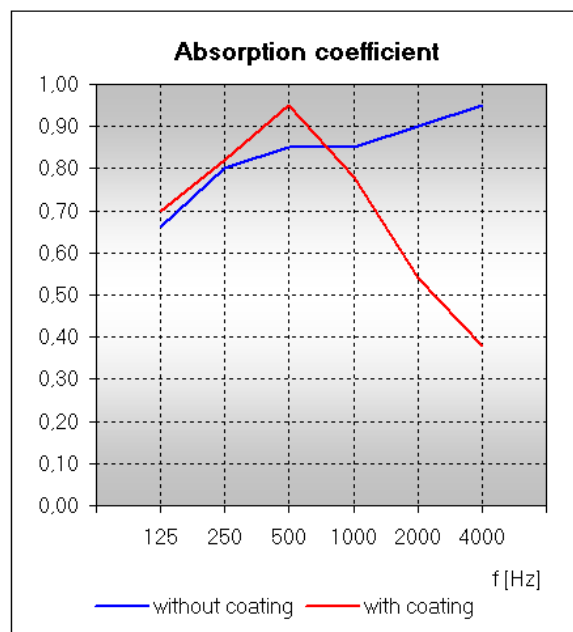
The painting of an absorbing surface influences the absorption to a greater or lesser extent, depending on the coating material and the application thickness.

By closing an open porous surface, the absorptivity in the high-frequency range reduces while an increase of the input resistance and thus an increase of the absorption may arise in the low-frequency range. This applies especially to suspended ceilings and directly mounted light mineral wools or foams where a sound entry plane of high resistance can cause corresponding resonator effects (Example 1).

Example 1:

Ceiling panel: 40 mm Eurocoustic, Tonga 600 x 600 m
 Suspension height: 250 mm
 Painting: 2 layers, material unknown

f [Hz]	without	with coating
125	0,66	0,70
250	0,80	0,82
500	0,85	0,95
1000	0,85	0,78
2000	0,90	0,54
4000	0,95	0,38



Example 2:

Reverberation room measurement at OWAcoustic – ceiling construction

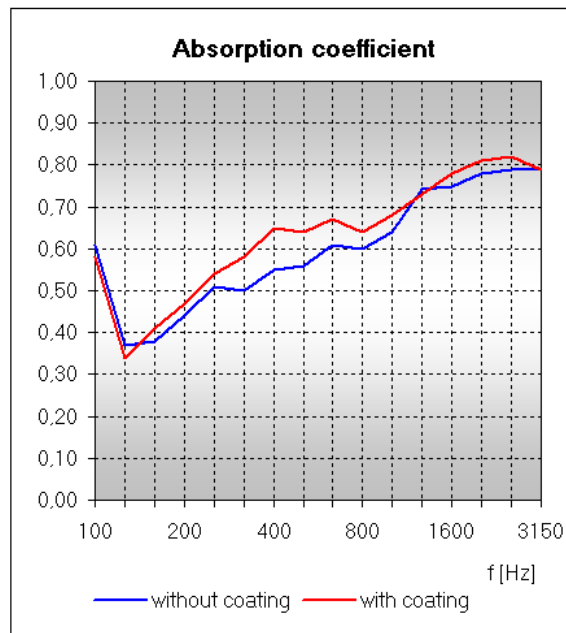
Ceiling panel: OWAcoustic smart, Harmony 72

Suspension height: 200 mm

Painting: Brillux Aqualoma ELF 202

According to the client, the ceiling panels were coated 21 days before measurement by open sprinkling process in 2 working operations. The material consumption amounted to 200 ml/m² for the 1st spray process and 150 ml/m² for the 2nd spray process. Additionally there was a spray loss of 10 %.

f [Hz]	without coating	with coating
100	0,61	0,58
125	0,37	0,34
160	0,38	0,41
200	0,44	0,47
250	0,51	0,54
315	0,50	0,58
400	0,55	0,65
500	0,56	0,64
630	0,61	0,67
800	0,60	0,64
1000	0,64	0,68
1250	0,74	0,73
1600	0,75	0,78
2000	0,78	0,81
2500	0,79	0,82
3150	0,79	0,79



Result: The tested coating (material and thickness) is so transparent that the absorbing properties of the ceiling system did almost not change. In the medium frequency range, even an improvement has been noted, presumably through resonator effects.

Example 2 is a special case and not the general rule. Here, the painting had specifically been developed for this purpose. The general consequence of painting absorbing ceilings is shown in Example 1.