

Test Report

Report nº: ACU 238/09 Date: 2009/10/01

Requested by:

Name: Amorim Cork Composites, S.A.
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Manufacturer and test specimen identification:

Name*: Amorim Cork Composites, S.A.
 Test specimen*: Ref. Isolmur 100 - Agglomerated composition cork, produced with 2 to 3 mm cork granules and polyurethane binder. Typical density 130 kg/m3.

Test data:

Test: Laboratory measurement of sound absorption (in a reverberation room) (SACU.LAB.02)
 Date: 2009/09/30
 Empty reverberation room: Temperature (°C): 22,0 Reverberation room with test specimen: Temperature (°C): 23,3
Relative Humidity (%): 64,1 Relative Humidity (%): 57,9
 Standard: NP EN ISO 354
 Operator(s): Ana Nossa Report author(s): Ana Nossa / Paulo Amado Mendes

Test specimen description: Area of the test specimen (m²): 12,2

Set of 24 cork plates, with dimensions of 1000 mm X 500 mm and 10 mm of thickness (product with ref. Isolmur 100, our reference ACU085A/09), tested as delivered by the customer. The 24 plates were disposed side by side over the reflector pavement of the reverberation room, corresponding to an assembly classified as type "A", in agreement with the standard NP EN ISO 354. The collocation of the sample in the reverberation room followed the indications of the standard NP EN ISO 354, defining a total area of 12,18 m².

Reverberation room description: Volume of the reverberation room (m³): 204,0

The reverberation room has a rectangular shape, in plant, with approximately 5,85 m x 5,85 m and a ceiling height of 5,85 m. In order to comply with NP EN ISO 354, 15 polycarbonate diffusing elements were used, with 30 m² of total area and different concave and convex geometries, randomly placed on the ceiling of the reverberation room, helping to create a diffuse field and to comply with the specified maximum absorption areas. The total surface area of the room (walls, floor and ceiling) is 211,65 m² and the volume of the reverberation room is 203,98 m³.

Test equipment:

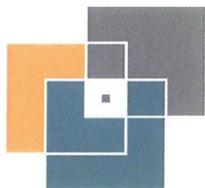
Acoustic chambers at ITEcons; "Bruel & Kjaer" Pulse multianalyser system, PUL02, model 3560-C-T46, with five acquisition channels; "Bruel & Kjaer" rotating microphone boom, type 3923, GIR01, with "Bruel & Kjaer" 1/2" microphone, type 4190, MIC06; sound level meter calibrator, type 4231, from "Bruel & Kjaer", CLS04; omnidirectional sound source, type OMNIPOWER 4292, from "Bruel & Kjaer", FSO03; thermohygrometer THR04; .

Additional information related with the test:

Number of microphone positions: 3 Number of source positions: 4
 Number of decays per microphone/source combination: 3
 Evaluation method of reverberation time: based on decay curves
 Measurement in bands of: One-third-octave

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 The results are valid exclusively for the tested specimens.
 Data reported with * supplied by customer.





Picture of the test specimen:



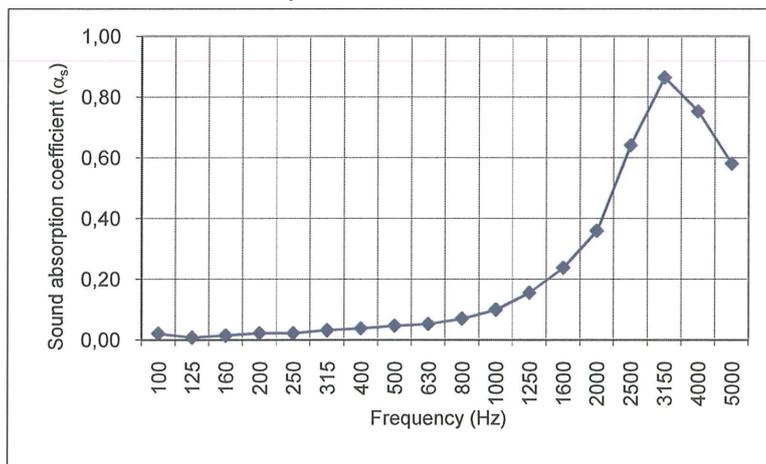
Average reverberation times (T1 - empty reverberation room; T2 - reverberation room with test specimen):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
T1 (s)	21,91	12,00	11,00	8,67	8,37	8,13	9,10	10,24	9,64
T2 (s)	18,76	11,58	10,38	8,10	7,83	7,42	8,06	8,70	8,12
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
T1 (s)	8,85	8,43	7,89	7,15	6,20	5,02	4,10	3,56	2,94
T2 (s)	7,19	6,43	5,42	4,38	3,39	2,29	1,77	1,78	1,80

Sound absorption coefficient (α_s):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
α_s	0,02	0,01	0,01	0,02	0,02	0,03	0,04	0,05	0,05
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
α_s	0,07	0,10	0,16	0,24	0,36	0,64	0,86	0,75	0,58

Graphical presentation of the sound absorption coefficient:



Remarks:

Empty space for remarks.

Technical responsibility

Paulo Amado Mendes

(Paulo Amado Mendes, Technical and Scientific Supervisor)

Administration

António Cadeu

Instituto de Investigação e Desenvolvimento Tecnológico em Ciências da Construção

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