

Test Report

Report nº: ACU 226/11Date: 2011-09-22

Requested by:

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Manufacturer and test specimen identification:

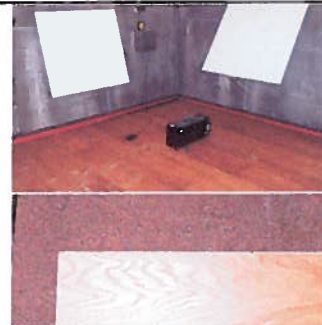
Name*: Amorim Cork Composites, S.A.
 Test specimen*: AcoustiCORK T66 - This product is a layer of the entire floor covering assembly composed by 20mm Engineering Wood Floor and the 2mm underlay itself made by composition cork with recycled rubber.

Test data:

Test: Laboratory measurement of the reduction of the transmitted impact noise by floor coverings, ΔL_w (SACU.LAB.06)
 Date: 2011-09-14
 Source room: _____ Receiving room: _____
 Temperature (°C): 23.0 Temperature (°C): 22.1
 Relative Humidity (%): 62.4 Relative Humidity (%): 70.5
 Standards: NP EN ISO 140-8; ISO 717-2
 Operator(s): Ana Neves / José Nascimento Report author(s): Ana Neves / Paulo Amado Mendes

Test specimen description and test opening:

Floor covering composed by Engineering Wood Floor with 20mm thickness (sample with our reference ACU202A/11), glued with polyurethane glue, over an underlay in composition cork with recycled rubber with 2mm thickness (sample with your reference AcoustiCORK T66 and our reference ACU076A/11). The floor covering was placed over a reinforced concrete slab of thickness 14cm (ITeCons heavyweight standard floor). The total area of the test specimen is 3,56m x 3,56m, with a 20cm width of its perimeter supported on the test rim; The test opening is 3,16m x 3,16m, which corresponds to an area of approximately 10m².



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, GIR03, with "Bruel & Kjaer" 1/2" microphone, type 4190, MIC08; sound level meter calibrator, type 4231, from "Bruel & Kjaer", CLS04; impact sound generator, type 3207, from "Bruel & Kjaer", MPR02; omnidirectional sound source, type OMNIPower 4292, from "Bruel & Kjaer", FSO03; thermohygrometer THR07; thermometer, TER04.

Brief description of test procedure:

The test is performed in the laboratory, in accordance with the NP EN ISO 140-8 standard, by the following procedure: measurement of the sound pressure level in the receiving room, with the normalized tapping machine acting on the ITeCons standard floor (a reinforced concrete slab of thickness 140 mm); application of the covering on the reference floor, in accordance with the manufacturer's specification; evaluation of the sound pressure level in the receiving room, in 4 different positions of the normalized tapping machine; evaluation of the reverberation times in the receiving room, considering 1 source position and 2 decays measured, at least, at 3 microphone positions; calculation of the difference between those two sound pressure levels, for each band of frequency, being the result transposed to a normalized curve, corresponding to a reinforced concrete floor of thickness 140 mm. The normalized impact sound pressure level of the reference floor with floor covering under test is, then, determined in accordance with the NP EN ISO 140-8 standard. The ISO 717-2 standard is used for the calculation of the sound reduction index DL_w , applying the method of calculating the normalized impact sound pressure level index to the initial reference floor curve and to the reference floor affected by the difference previously calculated.

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The results are valid exclusively for the tested specimens.

Data reported with * supplied by customer.

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Calculations for the determination of the weighted impact sound pressure level reduction index of the covering under test, on a normalized floor:

Average sound pressure level in the receiving room, with covering (L2):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
L2 (dB)	59.9	64.1	65.3	70.8	69.1	70.5	67.1	62.8	61.6
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
L2 (dB)	62.4	57.4	50.9	49.9	42.8	37.0	29.2	24.3	18.8

Average background noise pressure level in the receiving room (L0):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
L0 (dB)	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
L0 (dB)	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6

Average sound pressure level in the receiving room after background noise correction (L):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
L (dB)	59.9	64.1	65.3	70.8	69.1	70.5	67.1	62.8	61.6
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
L (dB)	62.4	57.4	50.9	49.9	42.8	37.0	29.0	23.8	17.5

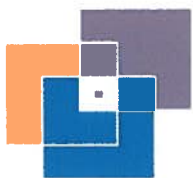
Average reverberation time in the receiving room (Tr):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
Tr (s)	2.59	2.39	1.96	1.64	1.49	1.14	1.08	1.05	0.99
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
Tr (s)	1.08	1.12	1.14	1.15	1.13	1.07	1.07	1.00	0.90

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Results obtained from the test:

Normalized impact sound pressure level in the receiving room, of the ITeCons reference floor
without the floor covering ($L_{n,0}$):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
$L_{n,0}$ (dB)	51.7	64.0	73.5	65.2	76.8	72.3	76.1	73.2	75.1
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
$L_{n,0}$ (dB)	76.9	76.2	75.4	75.4	76.4	75.7	75.0	72.9	69.8

Normalized impact sound pressure level in the receiving room, of the ITeCons reference floor
with the floor covering (L_n):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
L_n (dB)	56.6	61.2	63.2	69.4	68.2	70.7	67.6	63.4	62.4
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
L_n (dB)	62.8	57.8	51.2	50.1	43.1	37.5	29.5	24.6	18.7

Reduction of impact sound pressure level in the receiving room, resulting from the application
of the floor covering ($\Delta L = L_{n,0} - L_n$):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
ΔL (dB)	-4.9	2.9	10.3	-4.2	8.6	1.6	8.5	9.8	12.7
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
ΔL (dB)	14.1	18.5	24.2	25.3	33.3	38.2	45.5	48.3	>51.1

Standard/reference floor without floor covering (ISO 717-2):

Normalized impact sound pressure level of the ITeCons reference floor ($L_{n,r,0}$):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
$L_{n,r,0}$ (dB)	67.0	67.5	68.0	68.5	69.0	69.5	70.0	70.5	71.0
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
$L_{n,r,0}$ (dB)	71.5	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0

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Volume of the rooms (in m³):

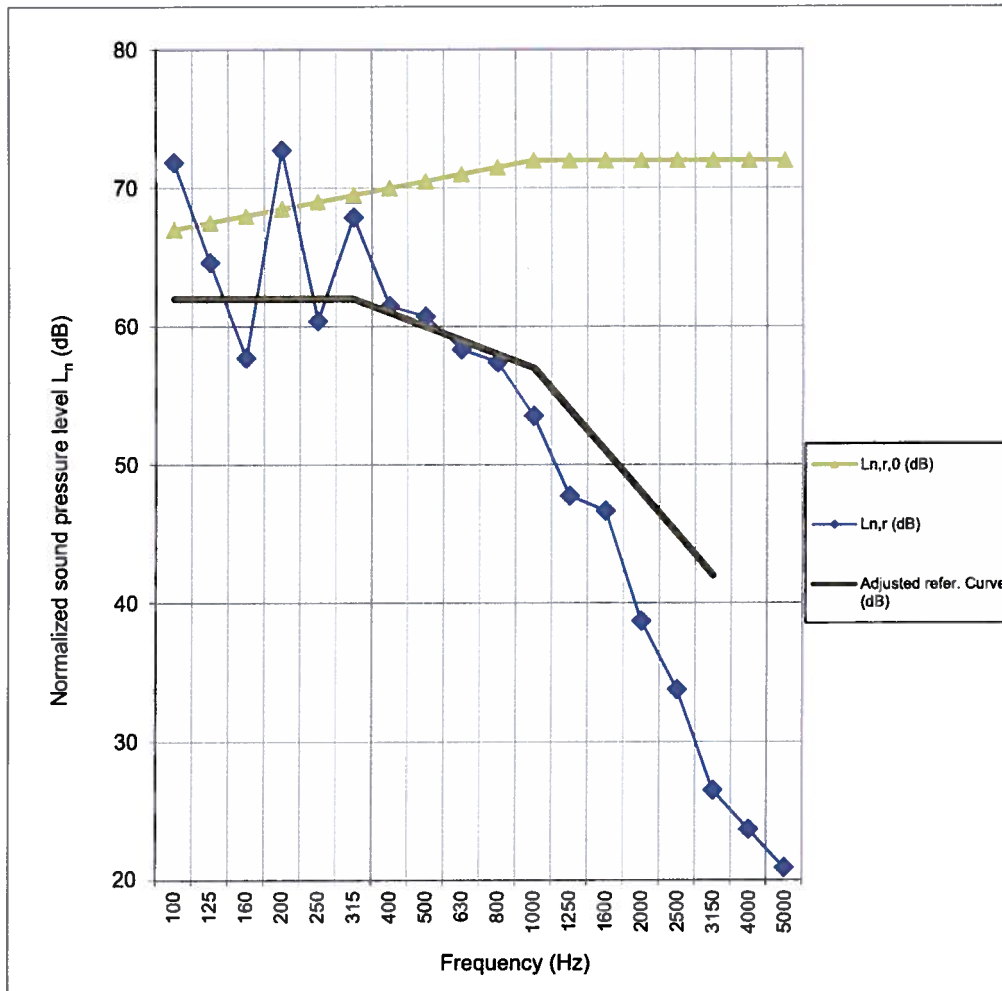
Source room: 52.9

Receiving room: 75.3

Normalized impact sound pressure level of the reference floor with the floor covering under test (L_{n,r}):

Freq. (Hz)	100	125	160	200	250	315	400	500	630
L _{n,r} (dB)	71.9	64.6	57.7	72.7	60.4	67.9	61.5	60.7	58.3
Freq. (Hz)	800	1000	1250	1600	2000	2500	3150	4000	5000
L _{n,r} (dB)	57.4	53.5	47.8	46.7	38.7	33.8	26.5	23.7	<=20.9

The values indicated with "<=" represent measurement limit for which the difference between the sound pressure level in the receiving room, resulting from the normalized tapping machine, and the background noise is less than 6dB.



$$L_{n,r,0,w}(C_{1,r,0}) = 78 (-11) \text{ dB}$$

$$L_{n,r,w}(C_{1,r}) = 60 (2) \text{ dB}$$

$$\Delta L_w(C_{1,\Delta}) = 18 (-13) \text{ dB}$$

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Technical responsibility: Paulo Amado Mendes
(Paulo Amado Mendes, Technical and Scientific Supervisor)

Administration: [Signature]
Instituto de Investigação e Desenvolvimento em
Tecnologias em Ciências da Construção

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