



ACOUSTIC SOLUTIONS WITH NATURAL PRODUCTS



AMORIM

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WITH CORK REGRANULATE

- composed by expanded pure cork exists in several diameters (calibre)
- sold in bags 0.5m³ ou 0.25m³
- it is a simple and effective solution for situations such as:
 - light filling (screed)
 - filling for floor chambers
 - filling for double walls
- with a thermal conductivity of 40.25mW (m°C)
- can be used as a thermal insulation, taking of the acoustic properties of cork

EXPANDED CORK REGRANULATE LIGHT FILLING THERMAL AND ACOUSTIC INSULATION OF SLABS



Specific weight of the regranulate: 67/75 kg/m³
 Granulometry: 3/15 mm (are possible other calibres)

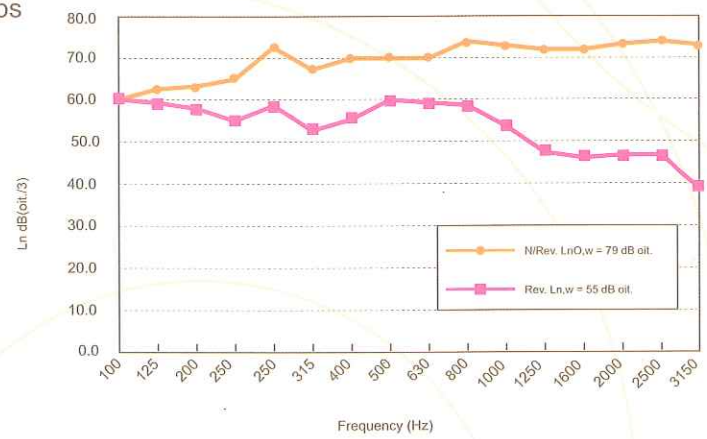
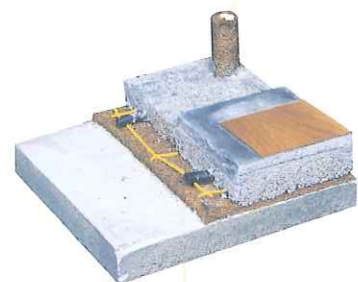
Utilization: mix the cork inside the concrete mixer with a little water to moisten the regranulate. Afterwards mix normally with cement and/or sand.

| Cement | Volume Composition | | Regran. | Weight density (kg/m ³) | Bending Resistance Comp. (kg/cm ²) | | Absorption | | Thermal Conduct. W/m C° |
|--------|--------------------|--|---------|-------------------------------------|--|-----|------------|-----|-------------------------|
| | Sand | | | | Medium 400 - 1250 Hz | | | | |
| 1 | 0 | | 6 | 400 | 2 | 3,5 | | | 0,13 |
| 1 | 0 | | 4 | 500 | 6,2 | 5 | | 0,7 | 0,18 |
| 1 | 2 | | 6 | 900 | 5 | 6 | | 0,2 | 0,24 |
| 2 | 3 | | 8 | 1100 | 11 | 7 | | | 0,6 |

WITH COCONUT FIBRE (TK10)

- application of coconut fibre 10mm thick on slabs with reinforced 4cm screed
- coconut fibre as a flexible material

(LNEC/LEAC)



L_{n0,w} (uncoated slab) = 79 dB (according to EN ISO 717-2: 1996)
 L_{n,w} (coated slab) = 55 dB (according to EN ISO 717-2: 1996)
 ΔLW = 22 dB (according to EN ISO 717-2: 1996)

WITH COCONUT FIBRE (TK20)

- application of coconut fibre 20mm thick slabs
- with reinforced 4cm screed
- coconut fibre as a flexible material

(LNEC/LEAC)



LnO,W (uncoated slab) = 79 dB (according to EN ISO 717-2: 1996)

Ln,W (coated slab) = 54 dB (according to EN ISO 717-2: 1996)

Δ LW = 24 dB (according to EN ISO 717-2: 1996)

AIRBORNE NOISE

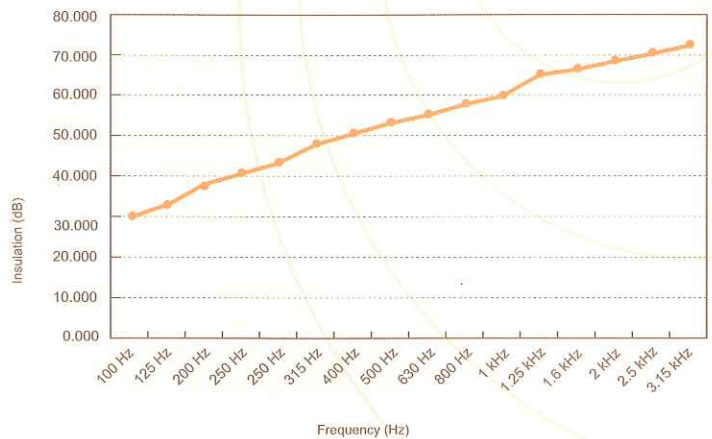
SIMPLE WALL

- simple brick wall with 11cm
- plastered in one of the sides
- on other side reinforced with a 13mm plaster slab and 20mm + 20m Corcoko

(University of Coimbra)



An economic, easy and effective solution

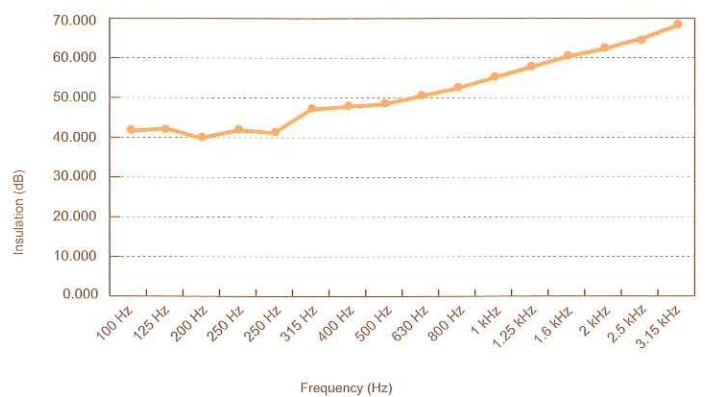


Insulation index to airborne sounds: $D_{n,w} = 55$ dB

DOUBLE WALL

- double brick wall with 11cm + 15cm
- plastered on both sides
- air chamber with Corcoko

(University of Coimbra)



Insulation index to airborne sounds: $D_{n,w} = 53$ dB



INSULATION OF PARTITIONS WITH CORK REGRANULATE

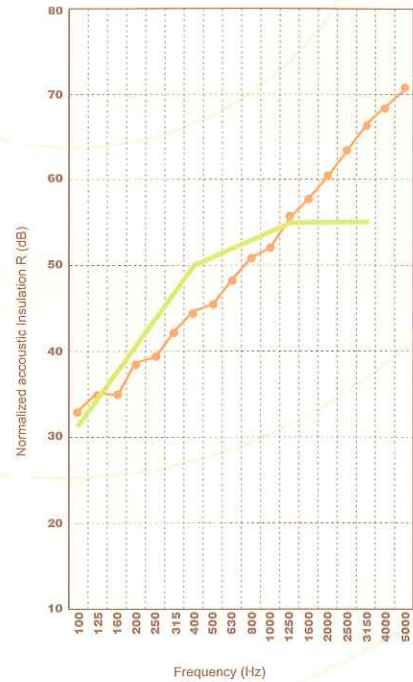
- double brick wall, 15cm + 11cm, and air chamber of 5cm
- air chamber completely filled with black regranulate of cork
- outside of the wall plastered with 2 cm of mortar
- the opening, where the test specimen was installed, presents sizes from 3.72m by 2.71m, corresponding to an area of approximately 10m²

(University of Coimbra)

Thermal conductivity coefficient - 0,040W/Km



An economic, easy and effective solution



Insulation index to airborne sounds:
R_w (C ; Ctr) = 51 (-2; -6) dB

ABSORPTION / ACOUSTIC ENVIRONMENT CORRECTION

When used as a coating for walls or ceilings, the black cork agglomerate allows a reduction of the reverberation times, therefore making the sound environment of better quality and without any unwanted resonance.

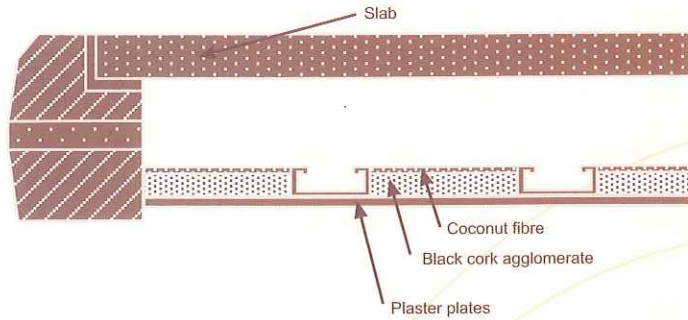




FALSE CEILINGS / WALLS

- massive slab in reinforced concrete 0.14m thick
- false ceiling in plaster plate 13mm thick and with Corkoco 1+1 (40mm) with air chamber of approximately 0.35m.

(F.E.U.P.)



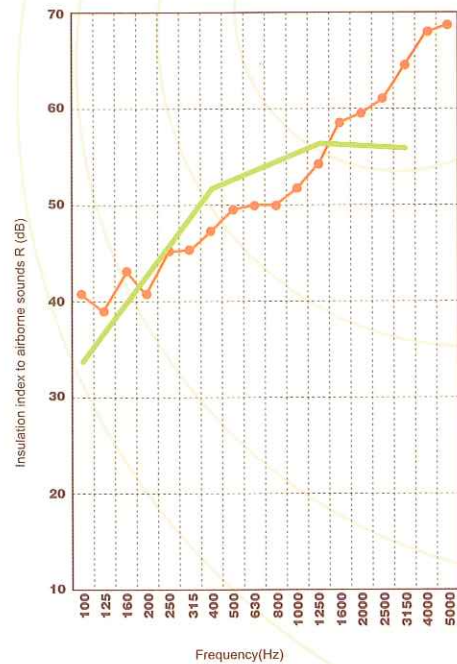
| | Slab | Slab w/ false ceiling |
|---------------------|------|-----------------------|
| R _w (dB) | 46 | 58 |

DOUBLE WALLS

- double brick wall, with 15cm + 11cm
- air chamber with 5cm
- air chamber partially filled with 40mm of black agglomerate
- plastered outside of the walls
- with 2cm of mortar
- the test opening has dimensions of 3.72m by 2.71m corresponding to an area of approximately 10m²

Result = 53 dB

(University of Coimbra)



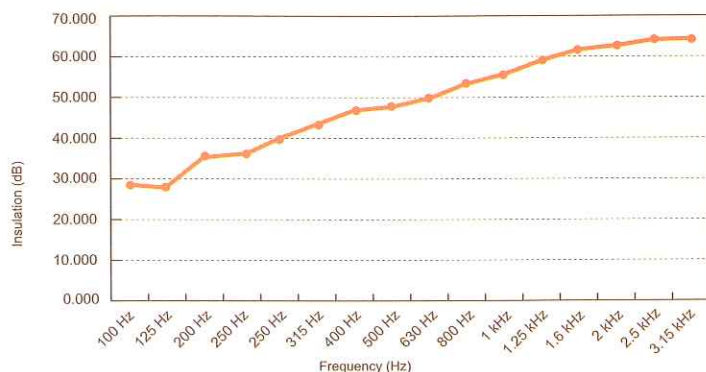
R_w (C ; Ctr) = 53 (-1; -4) dB

DIVIDING WALLS

- simple brick with 11cm
- plastered on both sides
- reinforced with a plaster plate 13mm thick and expanded cork agglomerate with 30mm

Result = 50 dB

(University of Coimbra)



Insulation index to airborne sounds: D_{n,w} = 50dB



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