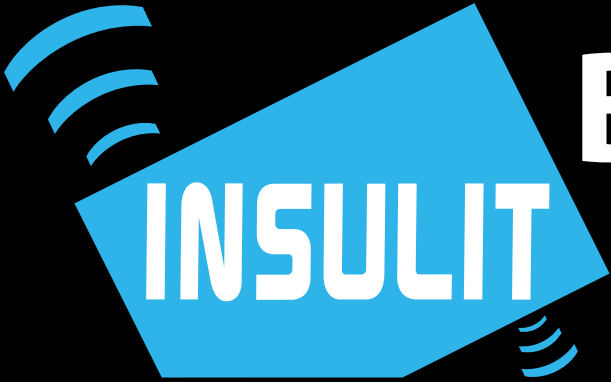


EN

**PREMIUM**  
★ ★ ★ LINE ★ ★ ★



# Bi+9

## Acoustic underlay for screed

against impact and airborne noises

**$\Delta L_w$  30 dB**



**insulco**  
insulation products

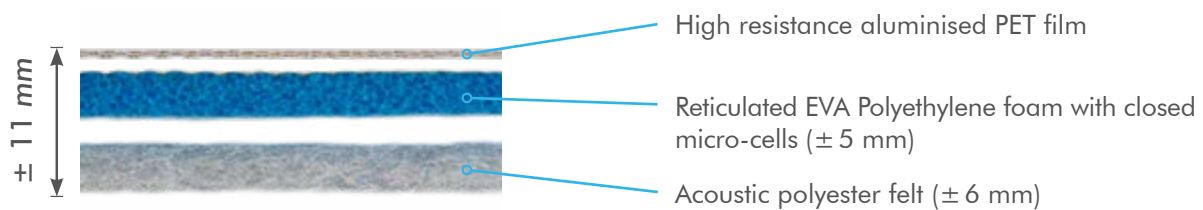
# insulit Bi+9

insulit Bi+9 is an acoustic underlay consisting of a crosslinked EVA polyethylene foam with closed micro-cells bonded to a thermo-acoustic layer of felt. Recent tests, performed in accordance with standard EN ISO 717-2 certify its performance. insulit Bi+9 is one of the premium range products made by insulco, the Belgian specialist in acoustic underlays for the last 30 years.

The highest performance

## Structure

insulit Bi+9 is made up of reflective and highly resistant aluminised PET film, and of double spring structure made up of foam and felt, making it more efficient. The felt corrects low frequencies from 100 to 500 Hz and the foam corrects medium and high frequencies from 500 Hz to 5000 Hz. This thin underlay of  $\pm 11$  mm has better acoustic results than other panels or bulk materials. Supplied in roll with a self-adhesive overlap, insulit Bi+9 is easily unrolled on the floor, felt side down. The laying is convenient, clean and well-done thanks to the self-adhesive foam overlap of  $\pm 10$  cm.



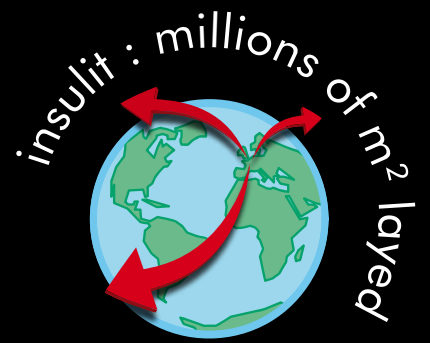
## Characteristics



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Material	Aluminised PET film, crosslinked EVA Polyethylene foam and acoustic polyester felt
Thickness	$\geq 10$ mm (under 1,5 kPa)
Color	Metallic (film) / Bleu (foam) / Blanc (felt)
Impact noises insulation	$\Delta L_{W} = 30$ dB <sup>(A)</sup> (ISO 717-2:2013 ; EN ISO 10140-3:2010) $\Delta L_{W} = 34$ dB <sup>(B)</sup> (ISO 717-2:2013 ; EN ISO 10140-3:2010)
Dynamic stiffness	$s'_i = 5$ MN/m <sup>3</sup> (EN 29052-1)
Tear resistance	50 - 50 N (EN 12310-1)
Compression	$\leq 10$ % under 2 kPa (tolerance 10%)
Thermal resistance	$R = 0,30$ m <sup>2</sup> ·K/W (EN 12667:2002)
Conductivité thermique	$\lambda = 0,0356$ W/m·K at 10°C (foam) (EN 12667:2001) $\lambda = 0,0353$ W/m·K at 10°C (felt) (EN 12667:2001)
Length	30 m
Width	1,50 m
Weight	$\pm 350$ g/m <sup>2</sup>
Weight/roll	$\pm 18$ kg
Overlap	Included and self-adhesive ( $\pm 10$ cm)
Packaging	Plastic bag

insulit is being exported  
world wide



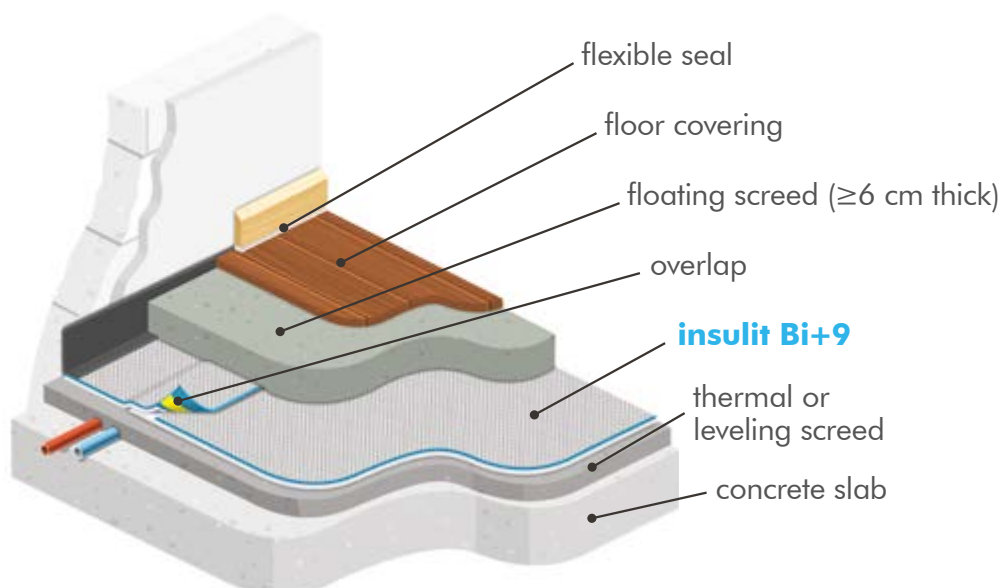
*Foam + felt : unique performances !*

## Benefits

- Outstanding performances
- Reduce impact & airborne noises
- Low dynamic stiffness = higher efficiency
- Efficient at all frequencies
- Quick and safe laying
- Soft and Tear resistant
- Low creeping
- Self-adhesive overlap included
- Recent BBRI reports = guarantee of results

## Floating screed

The acoustic sublayer insulit Bi+ 9 is laid under  $\geq 60$  mm of floating screed. It disconnects the slab from the building and avoids the transmission of noises between dwellings.



## Reports



insulit Bi+9 has recent test report. The test was run following the EN ISO 717-2:2013 norm and prove the underlays quality. It is available on request.



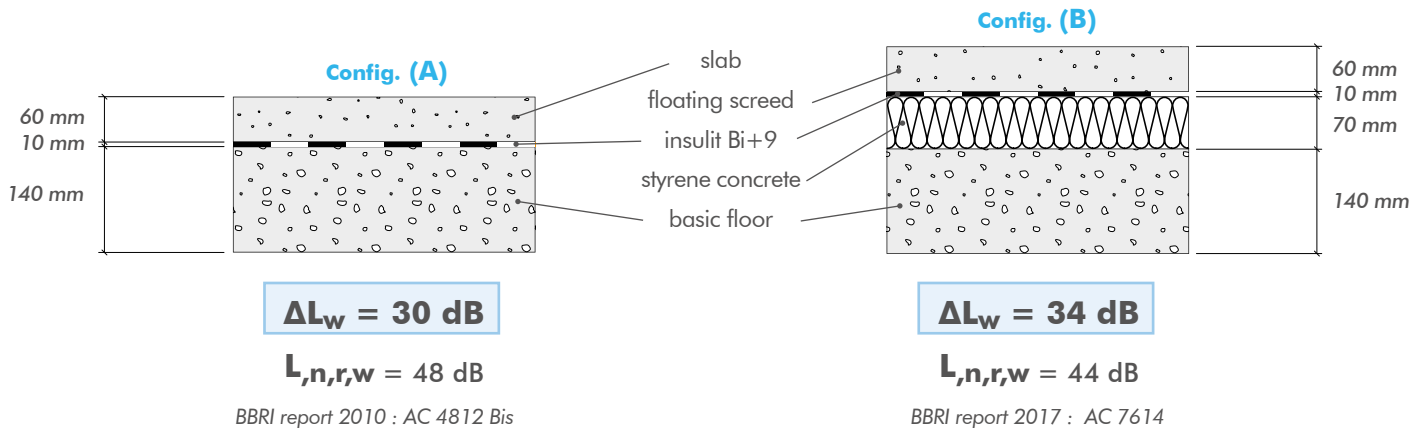
# Acoustic performances

## 1 - Impact noises

insulit Bi+9 has been tested according to the norms EN ISO 10140-3 and EN ISO 717-2. Two configurations were set up in laboratory : (A) under a floating screed of 60 mm ; (B) under a floating screed of 60 mm and above 70 mm of thermal leveling screed made of styrene concrete.

**Improvement of  $\Delta L_w$**  – according to the norm EN ISO 717-2:2013 ; EN 10140:2010

Single value of reduction of impact sound pressure level.

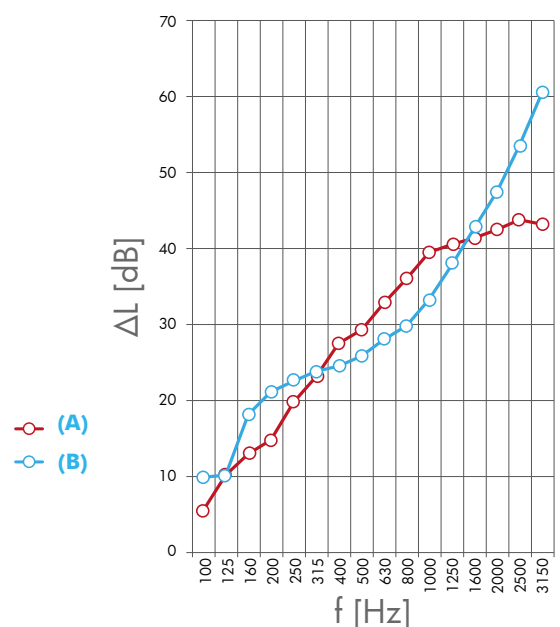


## Measurements of acoustic improvements ( $\Delta L$ ) :

Reduction of impact sound pressure levels by adding the sublayer insulit Bi+9.

frequencies	Config. (A)	Config. (B)
125 Hz	10,0 dB	10,1 dB
250 Hz	19,7 dB	22,5 dB
500 Hz	29,4 dB	25,8 dB
1000 Hz	39,5 dB	33,3 dB
2000 Hz	42,5 dB	47,5 dB
4000 Hz	45,0 dB	66,6 dB

Reduction of impact sound pressure level



## 2 - Airborne noises

### Improvement of $R_w$ – according to the norm EN 12354-1

The underlay insulit Bi+9 efficiently separates the screed from the compression slab (principle of mass – spring – mass).

insulit Bi+9 has a low resonance frequency ( $f_0 \leq 20$  Hz, that determines the low dynamic stiffness.

The effect of this attractive property is that, for a slab with a weighted sound reduction index ( $R_w$ ) of between 20 dB and 60 dB, it is possible to achieve an improvement in the acoustic insulation of airborne noise of  $\leq 7 \text{ dB} - R_w/2$  compared with underlays whose resonant frequency is greater than 160 Hz.

**Note :** The dynamic stiffness ( $s'$ ) is given by the resonance frequency of the underlay ( $f_r$ ), the basis weight of the supporting floor ( $m'1$ ) and the basis weight of the screed ( $m'2$ ).  
**Most of the underlays available in the market have a dynamic stiffness higher than 160 Hz.**

**VOC  
FREE**

According to the CEN/TS 16516 method (ISO 16000-3), the insulit underlays have a very low Volatile Organic Compound emissions level (VOC), in compliance with the following current requirements :

	French regulations	Belgian decree	M1 label	Italian regulations	Blue Angel	Emicode	AgBB
S1	A+	✓	M1	✓	✓	✓	✓

## Laboratory Research and development

### Internal test procedures :

- Dynamic stiffness (EN 29052/1)
- Thermal resistance (EN 12667)
- Creeping (loaded)
- Compression /traction/ tear - resistance
- Weight
- Thickness (EN 823)



### Creeping with time :

The underlay insulit Bi+9 is made to last. We choose components that are not flatted with time under floating floor.

- Tested with load  $\geq 2$  kPa



## Installation

### 1 Preparation

Place a first screed in order to cover the tubes and other sheaths if needed. If the placement of this pre-screed is impossible, unroll the insulit Bi+9 directly on the technical tubes. The concrete slab will have to be flat and carefully brushed. At the crossing of the tubes, equalize with sand or cement so that there is no hollow space under the insulit membrane.

### 2 Installation of the underlay

The insulit Bi+9 will have to be unrolled, felt side down. An overlap of  $\pm 10$  cm is made thanks to the surplus of foam provided for that purpose (1). The protective yellow band will be removed in order to keep the overlap fixed with the lateral layer on the aluminium side (2). The insulit Bi+9 should be cut as close as possible to the wall.

Insulate carefully the vertical tubes from the flooring they cross with the help of insulation sleeves made on the spot from the insulit Bi+9 or with the adhesive Stickelfoam from insulco.

The junction between the underlay and the wall will be covered by the peripheral strip – Insulco Lfoam 18 This self-adhesive foam is designed in an L-shape, in order to be fixed to the underlay and alongside the wall (4).

### 3 Application of the screed

Immediately after the laying, pour a reinforced screed of minimum 6 cm thick on the insulit Bi+9. In case of a flowing screed, make sure that the underlay is totally waterproofed. Once the screed is poured and the floor covering laid, cut the surplus of Lfoam 18. Lay the baseboard slightly higher than the final floor covering, in order to avoid any lateral acoustic transmission. Finally, make a flexible joint under the baseboard.

The screed is made according to the official regulations (in Belgium please follow the NIT 189-193).



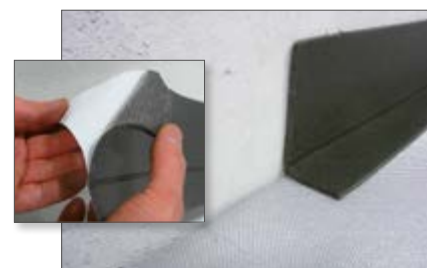
(1) Unroll the underlay with the overlap over the lateral roll



(2) Remove the protective yellow band to fix the lateral layer



(3) Stick correctly the two layers together



(4) Cover the junction between the underlay and the wall with the peripheral strip Lfoam

### Underfloor heating system ?

It is possible to use the insulit Bi+9 in combination with an underfloor heating system. In this case, we advise that the heating system should be placed above the insulit Bi+9. The piping system will be maintained in a soft structured membrane designed to be put in floating installation. The pipes cannot be fixed under any circumstances through the insulit Bi+9.