

# Isolbeton and Termobeton

*Lightened concretes and mortars*

## ISOLBETON

Cement mix made with expanded polystyrene lightweight aggregates

**Isolbeton** is a special lightweight, heat-insulating and sound-absorbing mortar, suitable for making lightweight, heat-insulating substrates under screeds for ceramic, stone or wooden floors. Lightweight expanded polystyrene aggregates give the mix 4 to 8 times less density than conventional cement screed mortar.

Depending on the level of thermal insulation you want to achieve you can choose between:

- **Isolbeton 300** (lightweight thermal insulation mortar with an approximate density of 300 kg/m<sup>3</sup>) and
- **Isolbeton 600** (lightweight thermal insulation mortar with an approximate density of 600 kg/m<sup>3</sup>).

The particular lightness of **Isolbeton** substrates provides increased thermal insulation compared to that of a filling of the same thickness but made with a traditional cement mortar and, consequently, reduces heat loss through the floor. **Isolbeton** can also be pumped and has a superfluid consistency. Installation is therefore easy and straightforward, and installation time is drastically reduced.

**Table 1:**

Comparison between traditional cement mortar and **Isolbeton** in terms of density, thermal conductivity and thickness of the substrate to ensure the same thermal insulation.

	APPROXIMATE DENSITY (KG/M <sup>3</sup> )	THERMAL CONDUCTIVITY (W/M°C)	THICKNESS OF THE SUBSTRATE (MM) to ensure the same thermal insulation
TRADITIONAL MORTAR	2200	1.500	655
ISOLBETON 300	300	0.080	35
ISOLBETON 600	600	0.130	55

PHYSICAL AND MECHANICAL CHARACTERISTICS		
ISOLBETON 300	Approximate density	300 kg/m <sup>3</sup>
	Thermal conductivity	0.080 W/(m°C)
	Compressive strength (MPa)	1.0 MPa
ISOLBETON 600	Approximate density	600 kg/m <sup>3</sup>
	Thermal conductivity	0.130 W/(m°C)
	Compressive strength (MPa)	1.2 MPa

## TERMOBETON

Lightweight concrete mix made with expanded clay aggregate

**TERMOBETON 800** enhances the lightweight characteristics of the concrete mixes in this range and thus, augments the thermal insulation properties of the material. For this reason, it is used for the creation of substrates for roofing slabs, where heat dissipation is greatest, prior to the laying of the waterproof covering.

**Termobeton 800** also makes it possible to create substrates for floors that can be walked on before the screed is laid. Due to its excellent thermal insulation properties, it can be used easily for filling cavity walls to improve their thermal insulation properties.

**TERMOBETON 1400** gives priority to lightness without neglecting elastic and mechanical performance, which is fully comparable to that of a traditional concrete mix used for ancillary works. Thanks to its properties, it can be used to great advantage on its own or in combination with Isolbeton-based substrates for creating screeds prior to laying floors. Its compressive and tensile strength means that it can be used either as a screed in contact with the floor covering or as an unbonded screed with a polythene sheet in between.

The use of Isolbeton and **Termobeton 1400** in combination makes it possible to obtain thermal resistance values comparable to those achievable with thick synthetic panels, but much higher than those achievable with ordinary cement mortar.

**TERMOBETON 1800** makes it possible to obtain a mix that, in terms of mechanical performance, is substantially identical to a traditional concrete of equivalent compressive strength (C25/30 N/mm<sup>2</sup>) with the advantage of having a drastic reduction in the masses involved (about 30%).

Load-bearing structures made with **Termobeton 1800**, therefore, thanks to their lower mass, are suitable for adding floors to existing buildings where it is necessary to lighten the mass weighing on the load-bearing structures; for renovating old wooden floors by creating the extrados cap aimed at stiffening the flooring; for consolidating masonry or stone vaults when a concrete cap is to be created on the extrados of the archivolt.

**Table 2:**

Comparison of the physical and mechanical characteristics of **Termobeton** in terms of density, thermal conductivity and average compressive strength at 28 days

	APPROXIMATE DENSITY (KG/M <sup>3</sup> )	THERMAL CONDUCTIVITY (W/M°C)	COMPRESSIVE STRENGTH (MPA)
<b>TERMOBETON 800</b>	800	< 0.20 W/(m°C)	2.5
<b>TERMOBETON 1400</b>	1400	< 0.45 W/(m°C)	10
<b>TERMOBETON 1800</b>	1800	< 0.75 W/(m°C)	35

PHYSICAL AND MECHANICAL CHARACTERISTICS		
<b>TERMOBETON 800</b>	Approximate density	800 kg/m <sup>3</sup>
	Thermal conductivity	0.20 W/(m°C)
	Average compressive strength at 28 days	2.5 MPa
<b>TERMOBETON 1400</b>	Average compressive strength at 28 days	1400 kg/m <sup>3</sup>
	Thermal conductivity	0.45 W/(m°C)
	Average compressive strength at 28 days	10 MPa
<b>TERMOBETON 1800</b>	Approximate density	1800 kg/m <sup>3</sup>
	Thermal conductivity	0.75 W/(m°C)
	Average compressive strength at 28 days	35 MPa