

Hemp and Lime technology

Lime

Air lime is produced by heating high purity limestone at temperatures around 900°C.

In all the civilisations and on all the continents, lime has been used in the construction of many different structures across all applications: housing, transportation, industrial and leisure...

Our expertise in all aspects of the production of modern lime delivers technical materials that allow us to create high technology products.

The definition of pure air lime products according to criteria (including fineness, reactivity, available lime ...) and quality control in production provides confidence in their application.

The air limes, pure or formulated, fulfilling these quality levels for the building industry receive the brand label Tradical®.



Hemp

For centuries hemp has been considered as a primary crop used in weaving cloth, making ropes, providing lighting oil and in construction.

The current resurgence of interest in hemp products is because of its excellent mechanical, insulating and environmental qualities.

The "Hemp shives" (cellulose fibres) used in construction are extracted mechanically from hemp, then the product is sized and dedusted before packaging.

Mixed with specifically designed binders (Tradical® HB), it gives mortars, renders, screeds and light Hemcrete of high quality.



Properties:

- low density
- high thermal insulation
- high sound insulation
- high thermal inertia
- vapour permeability, the construction "breathes"
- high elasticity
- fire and pest resistance

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Tradical® HF

20kg bag (approximately 200L)

Hemp aggregates, vegetable, natural, sound and "breathing" product Made from the hemp plant which is a yearly harvested plant cultivated in the UK without agrochemicals. It's an easily renewable primary material. The industrial process is mechanical and it requires little energy and no toxic products of any kind.



Tradical® HB

22kg bag

Special binder based on the purest hydrated air lime with selected :

- hydraulic additions
- pozzolanic components
- mineral materials.

These provide the perfect particle size distribution and setting characteristics to create the correct binder for use with Hemp shives.



Performance

- The characteristics of the hemp aggregates (size distribution, humidity...) have a direct impact on the performance of the hemp lime products and Hemcretes.
- Only the use of Tradical® HF mixed with the specific Tradical® HB or Tradical® special hemp binders guarantees quality results.

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Applications

Walls **In situ casting or buildings with timber frames**

Lightweight Hemcrete.

The walls of a timber structure can be insulated by placing, where it is needed Tradical® Hemcrete based on **Tradical® HF + Tradical® HB**. This mix can also be used to surround the wooden structure of a construction, with the timber exposed or not. The product can be applied in new build or for renovation of existing framed structures. The particular advantage of vapour permeability of the Hemcrete, maintains the necessary humidity balance for a long lasting timber structure. The ability of the walls to breathe allows for a self regulation of the humidity within the building in general, often reducing the need for air conditioning. In all cases, Tradical® Hemcrete provides sufficient insulation for the building and no additional material is normally required

Tradical® HF + Tradical® HB

Concrete dosed at 220 kg/m³

Density 330 kg/m³

Thermal conductivity $\lambda = 0,09$ W/m.k

Compressive strength at 90 days 0,9 Mpa

Screeds **In situ casting and levelling**

The very light aggregate Hemcrete screeds obtained with **Tradical® HF + Tradical® HB**, are suitable for profiling, refurbishing and insulation on the ground floor and suspended floors.

They bring together several advantages:

- low density
- insulation properties
- high elasticity of both lime and hemp
- high vapour permeability.

Hemcrete screeds are high performance due to all of these characteristics and can be applied either manually or mechanically. The selection of a Hemcrete screed is the sensible environmental choice for both new build applications and the renovation of existing floors. The vapour permeability of the screed, when applied to substrates of appropriate materials, addresses the issues of trapped moisture by allowing the structure to breathe.

Tradical® HF + Tradical® HB

Screeds dosed at 275 kg/m³

Density 375 kg/m³

Thermal conductivity $\lambda = 0,11$ W/m.k

Compressive strength at 90 days 1,1 Mpa

Renderers/Plasters

Mechanical or manual application

The combination of **Tradical® HF + Tradical® HB** is for renderers/plasters with insulation characteristics that can be applied to every kind of clean and sound substrate. These insulating renderers improve the surface contact heat feeling - and therefore the feeling of thermal comfort - as well as having excellent sound insulation properties. The vapour permeability of the renderers and plasters, when applied to walls of appropriate materials, allows the building to breathe and self-regulate humidity levels. The application can be made by hand or by spray with adapted machines. The surface can be provided with several very different finishes and the applied thickness can be substantial, if required.

Tradical® HF + Tradical® HB

Dosing 500 to 700 kg/m³

Density 700 to 950 kg/m³

Thermal conductivity $\lambda = 0,12$ to $0,13$ W/m.k

Roof Insulation

In situ casting on permanent formwork

Ultra light Hemcretes made of **Tradical® HF + Tradical® HB** allow the installation of thermal insulation to roofs. Through their high thermal mass, they bring a higher hydrothermal comfort that is especially important during weather extremes. The difference with flexible fibre insulation is that it is very solid and doesn't deform or compress and it is resistant to fire, rodents and damp. The vapour permeability avoids trapping moisture that can lead to deterioration and allows the self regulation of humidity levels, reducing the need for air conditioning.

Tradical® HF + Tradical® HB

Mortar dosed at 110 kg/m³

Density 220 kg/m³

Thermal conductivity $\lambda = 0,08$ W/m.k

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