limetechnology
Sustainable building innovation

Available Through:

Tradical® Hemcrete®

Product Datasheet

1. Product Tradical® Hemcrete® is a, robust, highly breathable and sustainable insulation, that can be cast or sprayed. Tradical® Hemcrete® is a blend of specially selected and chopped woody core (shiv) of industrial hemp (Tradical® HF 200ltr bales) and (Tradical® HB 22kg bags), a lime based formulated binder that is in powder form.

2. Suitable Uses

When Tradical® HF Hemp and Tradical® HB Lime Binder are mixed together they become Tradical® Hemcrete® and form a bio-composite building material that can be used for the creation of walls, and used in roof and wall construction with excellent thermal and breathable , creating healthy living and working environments. Tradical® Hemcrete® is a lightweight material that achieves a negative carbon footprint as it locks up approximately 130kg of CO^2 per m3 of wall and when protected by Limetec lime renders and plasters, provides one of the best value walling systems for high thermal mass, good insulation, breathable, sustainable and commercially viable construction.

Tradical® Hemcrete® is not a load bearing material. It is normally cast or sprayed around a timber or steel frame and relies on the frame to carry the vertical loads of the roof and upper floors down to the ground. The lightweight nature of Tradical® Hemcrete® means that lightweight timber framing and foundation structures may be considered (to reduce costs and construction time). Tradical® Hemcrete® provides some racking strength for the frame and as a result the frame may not need additional bracing (structural engineers should be consulted – see Structural Design Guide by AKS Ward).

The high thermal performance and air-tightness of the Tradical® Hemcrete® means that single skin structures are sufficient and do not require additional insulation layers, This avoids the need for cavity wall construction. The ability of the walls to breathe and to store heat allows for passive self regulation of the temperature and humidity within the building, often reducing the need for heating and air conditioning.

3. Benefits

Easy to use – just mix and add water. Can be formed to almost any castable shape. Good synergy with other natural breathable building products. Good fire resistance. Effective thermal inertia delivering temperature change buffering. Carbon capture through hemp production and recapture from binder through carbonation

4. Authority

Tradical® Hemcrete® has now been awarded BBA accreditaion

Tradical® Hemcrete® wall system is approved by LABC Building New Homes Warranty, Premier Guarantee and Building Life Plans.

Tradical® Hemcrete® is approved by LABC and Zurich Insurance and complies with their low and zero carbon housing technical standards.

5. Technical Data (Standard 275mix)

- Nominal Dried Density of 275kg/ m^3
- Thermal conductivity: λ=0.06W/m.K
- μ Vapour Diffusion Resistance: 4.84
- Heat Capacity: 1500 – 1700 J/kg
- Air Permeability: 0.75 gm/m^2/mm hg
- Vapour permeability: 24.2 gm/m^2/mm hg

6. Manufacture and Packaging

Tradical® HB Lime Binder (22kg bags: 48 per pallet)
Tradical® HB is a special lime binder based on hydrated air lime blended with selected cementitious, hydraulic and inorganic materials. This ensures the perfect particle size distribution and setting characteristics to create the binder for use with Tradical® HF Hemp.
Tradical® HB Lime Binder is manufactured to BS EN 459 (part 1).Packed in water resistant paper 22kg bags to facilitate mixing

Tradical® HF Hemp (200 ltr bales: 36 per pallet)
Tradical® HF is a hemp aggregate made from the inner woody core of the hemp plant's stem. The hemp is chopped, graded and de-dusted to give a natural, sound and breathable product. It is cultivated in the UK without agrochemicals and is harvested annually. The hemp is a renewable primary material; the industrial processing is mechanical and requires little energy or toxic products. Packed in recyclable polymer bales of 200 ltr capacity to facilitate mixing

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7. Storage

Keep dry and protected – particularly the binder – once the protective cover has been removed, pallets should be protected. Do not store pallets more than two high.

8. Quality Assurance

The product constantly undergoes in-house monitoring, using tested and certificated quality management systems conforming to the current international standard EN ISO 9001 and the environment standard EN ISO 14001.

9. Health and Safety

See separate Health and Safety datasheet.

10. Mix Proportions

Mix class	Hemp: binder (vol/ vol)	Per 1m3 mix	Dry density (kg/m3)	Thermal conductivity (w/mK)	Strength (MPa)
Standard	2 : 3	5 bales 7.5bags	275	0.06	0.9

11. Performance

Casting is a straight forward method of use and can be readily achieved with good tradesman following training by Lime Technology Ltd Spraying requires bespoke equipment and trained operatives, or members of the Sprayed Concrete Association who have received Tradical® Hemcrete® training.

A typical 300mm Tradical® Hemcrete® wall provides a U value of 0.19. 1m3 of Tradical® HB & HF mix will cover approximately 3.3m2 of walls.

12. Sitework

See separate Tradical® Hemcrete® Method Sheets i e Tradical® Hemcrete® 'Casting Method Sheet' and where appropriate 'Small volume mixing guidance'.

12.1. Timber Frame

The timber frame should be designed to support the load from the upper floors and roof by a qualified Structural Engineer. A typical timber frame could use 38mm x 89mm studs at 600mm centres for two storey domestic construction. Other types of frame such as lightweight steel frame may also be used, please consult Lime Technology's technical department for details.

13. Finishes

Only use Baumit breathable lime renders with the Tradical® Hemcrete® Insulation Wall System to ensure performance and maintain the product warranty.

Other finishes that can be considered such as timber cladding, tile and slate hanging or brick or stone facing, laid in Limetec Hydraulic Lime Mortar.

Work should not be carried out if the temperature is below 5 ºC. If, after application, the temperature is expected to fall below 5 ºC some form of protection must be given to the area of work. Without adequate protection there is a risk of frost damage during the curing process.

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