

Description

Tradical® Hemcrete® is a two component material mixture of Tradical® PF 70 binder and Chanvribat®. The Tradical® PF 70 is a lime based formulated binder that is in powder form. The Chanvribat is specially selected and chopped, woody core (*shiv*) of the industrial hemp plant. When combined together in appropriate proportions and mixed with water the resulting mixture becomes Tradical® Hemcrete®.

Tradical® Hemcrete® can be used to form the solid thermal walls of framed buildings and provides an excellent, breathable, insulation wall form. The mixture can be cast into moulds of all shapes and sizes to form pre-cast blocks and panels both on and off site. Tradical® Hemcrete® is a non-structural, lightweight material that has vapour phase change characteristics delivering low energy buildings with the potential to achieve negative carbon footprints.

Product Benefits

- Easy to use – just mix and add water
- Packaged to provide simple mixing ratio of two component mix
- Adaptable building material and can be formed to almost any castable shape
- Light weight, low density leads to efficient construction processes
- Excellent synergy with other natural building products
- Good fire resistance
- Excellent acoustic qualities that limit noise transfer
- High insulation performance attributable to air pockets in filler material
- Hygrothermal characteristics of a vapour phase change material
- Effective thermal inertia delivering temperature change buffering
- Passive humidity and temperature regulation
- Carbon capture from the atmosphere during industrial hemp growth
- Carbon re-capture from binder production through carbonation

Technical Product Data for wall mix (2 bags of Tradical® PF 70 for one bale of Chanvribat® (20kg))

TYPICAL DATA*	
Characteristic	Data
Typical Compressive Strength (EN 1015-11)	0.8 – 1.0 N/mm ²
Typical Flexural Strength (EN 1015-11)	0.3 – 0.4 N/mm ²
Fire Rating (CSTB EN1363-1)	5.53 hrs/m
Fire Resistance (CSTB EN1363-1)	1.66 hrs/300mm
Acoustic absorption	0.6 αa / 0.2metres
Acoustic absorption	0.7 – 0.76 α500/0.1metres
Mean Acoustic Absorption Coefficient	0.69 NRC
Air Permeability	0.75 gm/m ² /mm hg
Vapour Permeability	24.2 gm/m ² /mm hg
μ vapour diffusion resistance	4.84
εΦHygic capacity	10.2 – 15 %
Thermal conductivity λ @ 330kg/m ³ (EN 12664)	0.085 W/mK
Heat Capacity	1400 – 1550 J/kg
Carbon capture @ 330kg/m ³ (EN14040)	108kgCO ₂ (equiv)/m ³
Achievable Airtightness (m ³ /m ² .hr at 50 pa)	<2

Lhoist Southern Europe

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S.A.S. au capital de 2 098 600 euros – 450 910 021 RCS Besançon – Siret 450 910 021 00010 – APE 2364 Z – TVA FR85 450 910 021

*Data obtained from various sources and some data derived from tests on materials manufactured from different raw materials supply. Target density for mixed Hemcrete® wall material for testing is 330kg/m³. Some test data from samples of greater density.

How to Use

Radical® Hemcrete® can be cast or sprayed in situ or off site. Casting is a straight forward method of use and can be readily achieved with a minimum amount of training. For construction professionals familiar with casting concrete this can be provided as a tool box talk. Non-professionals can also achieve cast Hemcrete® constructions following the tool box talk although production efficiency and quality will depend upon the practical capabilities of those involved.

Spraying Radical® Hemcrete® requires bespoke equipment or modified pneumatic dry spray concrete machines and trained operatives. We would only recommend that spraying is carried out by members of the Sprayed Concrete Association who have received training in the application of Hemcrete®.

Mixing

Radical® Hemcrete® mixing for casting should for best results be achieved using a pan mixer. The volume of the mixer and the mixed volume will determine the mixing time duration. Ideally the material should be mixed until all added water has been absorbed and the mixed material has the consistency to hold form as a ball when squeezed by hand, all of the hemp shiv is coated in the binder slurry and the mix has a uniform colour.

Practical Aspects

Part L Building Regulations data

TYPICAL DATA	
Wall Thickness (mm)	R Value (m ² K/W)
300	2.9
350	4.1
400	4.7

Physical characteristics – dependent upon ambient conditions and circumstances of application.

TYPICAL DATA – GUIDANCE ONLY		
	Sprayed Wall	Cast Wall
Mixing Time	N/A	3 to 5 minutes
Open time (workability)	Up to 24 hrs	3 to 6 hours
Initial set for placed material	2 to 4 hours	3 to 6 hours
Temporary shutter removal time limits	24 hours	24 hours
Drying time prior to wet finishes application (300mm thick wall)	7 to 14 days	30 to 60 days

Packaging

Radical® PF 70 is packaged in water resistant paper sacks of 22kgs weight. Chanvribat® is packaged in recyclable polymer bales of 200 L capacity when packed. These pack sizes are determined to facilitate simple mixing ratios for Radical® Hemcrete. Wall mix ratio is 1 bale of Radical® HF to two bags of Radical® HB.

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