

Hemcrete® Properties

Listed below are the basic material properties as provided by the manufacturer.

- Density: 20.6 to 30.0 pounds per cubic foot (PCF)
- Compressive strength: 116 to 145 pounds per square inch (PSI)
- Flexural strength: 44 to 58 PSI
- Fire rating: approximately 1 hour per 4.5 inches of thickness
- R-value: 2 to 3 per inch of thickness available
- Air permeability: 1.0×10^{-6} PSI
- Vapor permeability: 3.4×10^{-5} PSI
- Carbon capture: 6.8 PCF
- Achievable air tightness: <1.1 cubic feet per minute
- Acoustic absorption: 0.69 noise reduction coefficient (NRC)

Hemcrete® Material

Hemcrete® is a lightweight bio-composite building material made from industrial hemp stems (Tradical® HF), a lime based binder (Tradical® HB), and water.

- Aggregate: Hemp shiv (the woody stem/core of the hemp plant)
- Binder: hydrated air lime blended with selected cementitious, hydraulic and inorganic materials.
- Water: for mixing and curing

Hemcrete® Benefits

The use of Hemcrete® as a building material can have the following benefits:

- Non-toxic
- No off gassing
- No solvents
- Mold resistance
- High vapor permeability
- Humidity control
- Durable
- Sustainable
- Carbon sequestration
- Fire and pest resistance
- Passive self regulation of temperature and humidity

Key Staff



Edward K. Medlock
Professional Engineer
President



John M. Chase
N.C. Licensed GC
Secretary/Treasurer



Frank Ungert
Project Manager
Dipl – Ing/EI



Stephen Cook, EI
Project Manager

Each of the design professionals have multiple years in national and international ergonomically and green building experience, construction, and engineering.

SouthEastern USA Distributors

Hemp Technologies, LLC
PO Box 2326
Asheville, NC 28802
Phone: 828-989-6043 / 9
www.hemtecusa.com

Medlock & Associates Engineering, PA

53 Asheland Avenue, Suite 101
Asheville, NC 28801
Phone: (828) 232-4448
Fax: (828) 232-5224
www.medlockengr.com

Locally owned and operated for over 7 years.



MEDLOCK
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ENGINEERING, PA

Tradical® Hemcrete®
Materials and Design



*Tradical® Hemcrete®
Hemp Technologies, LLC*

Structural Design
Engineering Consulting
Construction Assistance



Tradical® Hemcrete® – Hemp Technologies, LLC

Hemcrete® & the Environment

Hemcrete® can benefit the environment and create a healthy structure in many ways including:

Environmental Benefits:

- Non-toxic
- Sustainable
- Renewable
- Carbon sequestration
- Reduction of carbon dioxide emissions
- Low energy building product
- Reusable

Healthy Structure:

- Good vapor permeability (capillarity and hygroscopicity)
- Naturally provides a healthy internal environment
- Thermal comfort

Material Benefits:

- Good thermal performance (insulation and mass)
- Inherently air-tight material
- Energy efficiency
- Reduced heating and cooling requirements
- Low maintenance
- Multiple finish options



Tradical® Hemcrete® – Hemp Technologies, LLC

Hemcrete® Structural/Construction

The hemp plant has been used for thousands of years for various trades, including rope making, ship sails, oils, textiles, paper, and construction materials. Though it doesn't have structural properties alone, it can enhance the structural components of a structure in several ways.

Structural:

- Can be used in load bearing applications with an integrated timber, steel, or concrete frame
- Provides racking/shear strength
- Can stiffen structural frames
- Can allow for increased spacing of structural members

General Information:

- Easy to handle and install
- Monolithic product
- Material costs: approximately \$12 CF

Construction:

- Wall construction including racking strength and insulation
- Protects timber from deterioration
- Durability and longevity
- Lightweight
- Site mixed
- Reusable



Tradical® Hemcrete® – Hemp Technologies, LLC

Tradical® Hemcrete®

Hemcrete® is a lightweight bio-composite building material made from industrial hemp and lime that provides insulating and moisture regulating properties. Various finishes can be incorporated with Hemcrete®.

Material Information:

- Lightweight sustainable bio-composite material
- Industrial hemp shiv with a lime based binder

Uses:

- Pre-cast blocks
- Cast-in-place walls
- Spray applied for in-fill of floor, wall, roof cavities
- Retrofit existing conditions
- Non-load bearing or infill conditions
- Load bearing with integrated structural frame
- Above ground/daylight walls

Benefits:

- Energy and thermally efficient
- Breathable insulating layers
- Vapor permeability
- Fire and pest resistant
- Acoustic insulating properties
- Easy to handle and install

"We strive to achieve a green, sustainable, and energy efficient design that is not only technically competent but also practical, constructible, and achieves the desired aesthetic." We provide commercial and residential structural design services. Material information listed herein is summarized from the manufacturer's literature: Lime Technology Limited, UK.