19th EIHA Conference

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Hempcrete solution by VICAT

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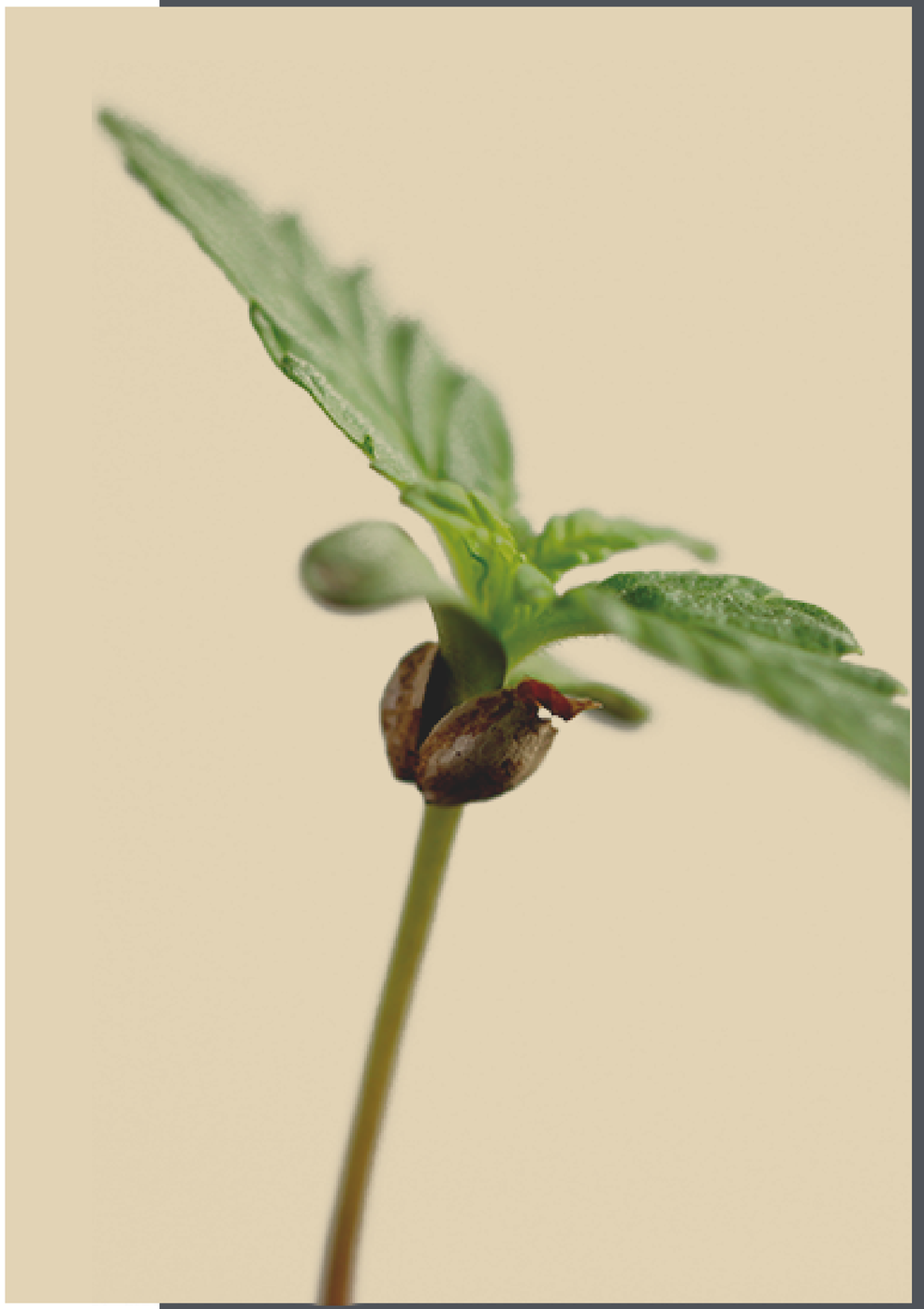
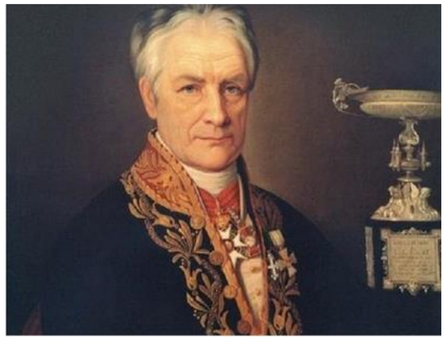


THE VICAT GROUP

- The Vicat Group is a French company founded 167 years ago in the tradition of Louis Vicat, inventor of artificial cement in 1817.
- Vicat is developing a high-performance range of mineral and bio-based building materials, as well as services that meet the needs of the construction industry.
- The group aims to be carbon neutral by 2050 across its entire value chain.



Vicat Group's expertises

Cement

Concrete

Aggregates

Secondary products

Laboratory

Transport and logistics

Pumping

Stationery

Constructive systems

Key facts

9 900 — **COLLABORATORS**
of which 2/3 are outside France

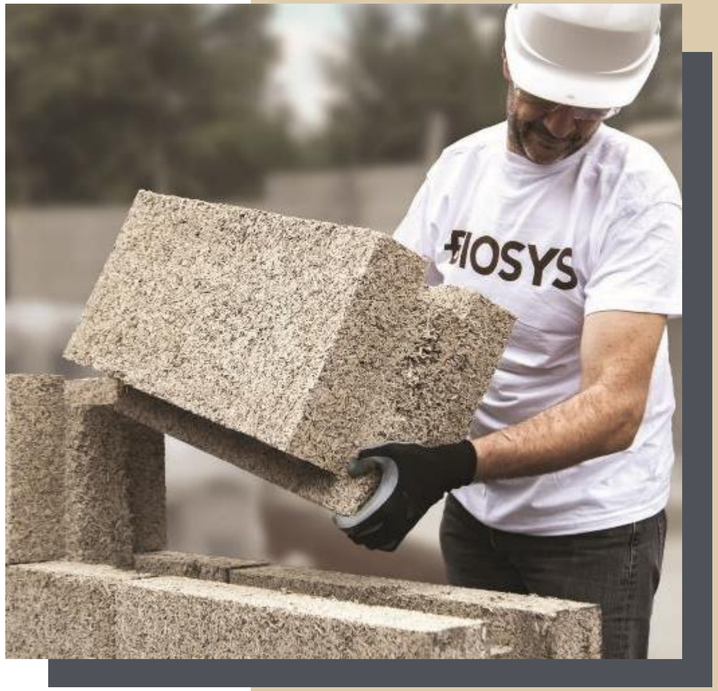
12 — **COUNTRY OF ESTABLISHMENT**
France, Switzerland, Italy, USA, Egypt, Senegal, Mali, Mauritania, Turkey, Kazakhstan, India, Brazil

2,8 — **BILLION EUROS IN SALES**
of which 63% outside France and 33% in emerging countries

HEMPCRETE by VICAT
IN A FEW WORDS

More than 20 years, VICAT R&D works in favor of Bio-Based Solution with Natural Cement Prompt

- Develop **a know-how in the Bio-based materials** in particular on the linking connection between mineral binder and vegetal aggregates.
- **International project** with industry and university partnerships.
- **Technical support** for a quick and optimal product development.
- **BIOSYS,** a daughter brand of the **Vicat Group**, is positioned as **a reference brand in the field of biosourced concrete construction solutions.**



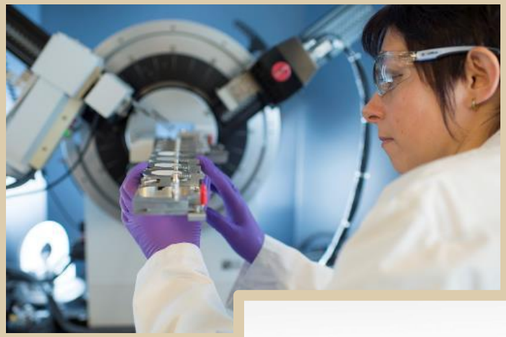
AVIS TECHNIQUE
n°16/20-781_V1

An example of our product development

The Interlocking Hemp Block ***Biosys IHB***

BIOSYS IHB BLOCK

- A unique know-how for 170 years, Prompt Natural Cement
- More than 20 years of experience in biosourced concrete formulations



BIOSYS IHB

The brand's first product, the BIOSYS IHB interlocking hemp concrete block, co-developed with an industrial partner, Vieille Matériaux company

French cement group
Eco-construction approach
BIOSYS patent
Technical development

VICAT

VIEILLE matériaux

INDUSTRIAL PARTNER

Prefabricator
Manufacturing and marketing
Plant dedicated to the manufacture of hemp concrete blocks

MATERIAU 100% NATUREL

NATURAL PROMPT CEMENT

Unique mineralogical composition, naturally compatible with the plant
Low temperature firing
Capture of CO2 during the entire life of the structure
Excellent durability
Permeable to water vapor

HEMP SHIVES

Crushed and dusted hemp stalk

Ecological culture
Fast (life cycle of 4 to 5 months)
Resistant (no phytosanitary treatment)
Doesn’t require irrigation
Zero waste plant
No competition with food crops

INDUSTRIAL PROCESS

- Manufactured by the Vieille Matériaux factory in Mérey-sous-Montrond (25)
- Unique industrial system resulting from the collaboration between Vieille Matériaux and Quadra:
  - ✓ Dedicated building and storage yard
  - ✓ Specific press designed specifically for the production of hemp concrete blocks
- Blocks are dried for at least 1 day in an oven before being stored under cover
  Minimum drying time of 28 days before shipping the blocks
  Protection of the pallets by film before transport

Mixer

Storage of raw materials

Block press

Dosing hopper

Drying of the blocks
Preferably in an oven

Overview

Biosys

A CONSTRUCTIVE SYSTEM

For construction professionals

- Designed for the construction of **facade walls**
- Composed of **dry interlocking hemp concrete blocks** which serve as **filling and formwork for a reinforced concrete column/beam structure**.

Under technical advice (n°16/20-781_V1)

- Façade walls of residential buildings, buildings covered by the CoT and ERP within the limit of R+1 construction.
- Non-supporting infill for buildings of greater height.

AVIS TECHNIQUE
n°16/20-781_V1

THE ELEMENTS

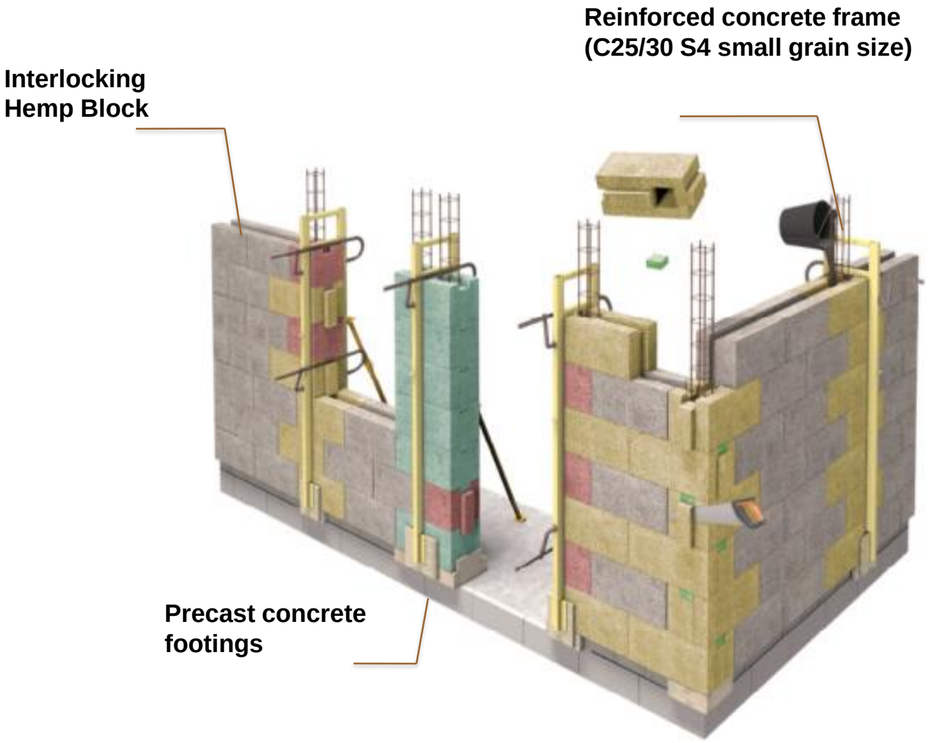
Solid block
600x300x308

Post block
Reservation 150 x150

Double post block

Bloc U

Starting
25x20x10



Biosys

IN THE SERVICE OF CONSTRUCTION

EASY TO IMPLEMENT

An ecological solution, easy to implement and suitable for construction professionals.

- Easy to install thanks to the tongue and groove system
- Output of 30 m²/d with 2 workers (standard wall)
- 2 operations in 1: filling and insulation
- Reduced effort: average weight of 18kg / block (5.4 blocks / m²)
- Easy to cut

AREAS OF APPLICATION

Housing 1st and 2nd families: R+1

Building under the labour code and ERP: R+1

Seismic zones 1 to 3

Other field of application: non-load-bearing facade infill

IN THE SERVICE OF WELL-BEING

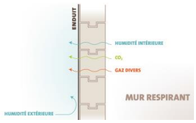
A low environmental impact solution compatible with the objectives set by the RE2020

- Reduces the carbon impact of buildings by reducing the Eges PCE indicator (the highest carbon contributor at building level).
- For an individual building, the façade part corresponds to 15 - 20% of the Eges PCE.
- A BCE block construction reduces the carbon impact by half compared to a traditional construction system.

Biosys

MULTI-PERFORMANT

R = 4,6 (m².K)/W
Λuseful =0,071 W/(m.K)



Excellent moisture regulation

Reaction B-s1, d0
Fire resistance: EI 90

COV

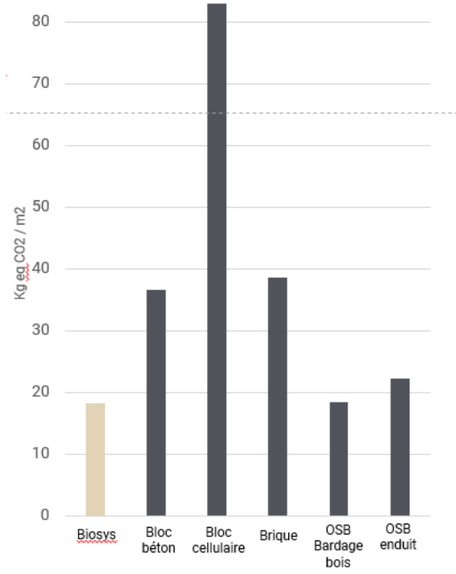
No VOC emissions

Attenuation : - 43dB
Excellent absorption

Good thermal phase shift
8 to 10 hours

BIO-BASED AND LOW-CARBON

Climate change impact: 0.889 kg CO2/m2
FDES available on the INIES database
Biosourced material content: 42% by mass



Thank you !