Wall-ACE

Wall Insulation Novel Nanomaterials Efficient Systems

New highly insulating mineral products for the construction market

Outcome of the European project Wall-ACE

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Content

1. Wall-ACE project
2. Set of products
   - Vimark products
     - Internal high performance insulating plaster
     - Insulating thermal coating finish
   - Toupret
     - Insulating interior patching filler
   - Leipfinger Bader
     - High performance insulating material filled bricks
   - Quick-Mix
     - External high performance insulating render
3. Summary

Wall-ACE project

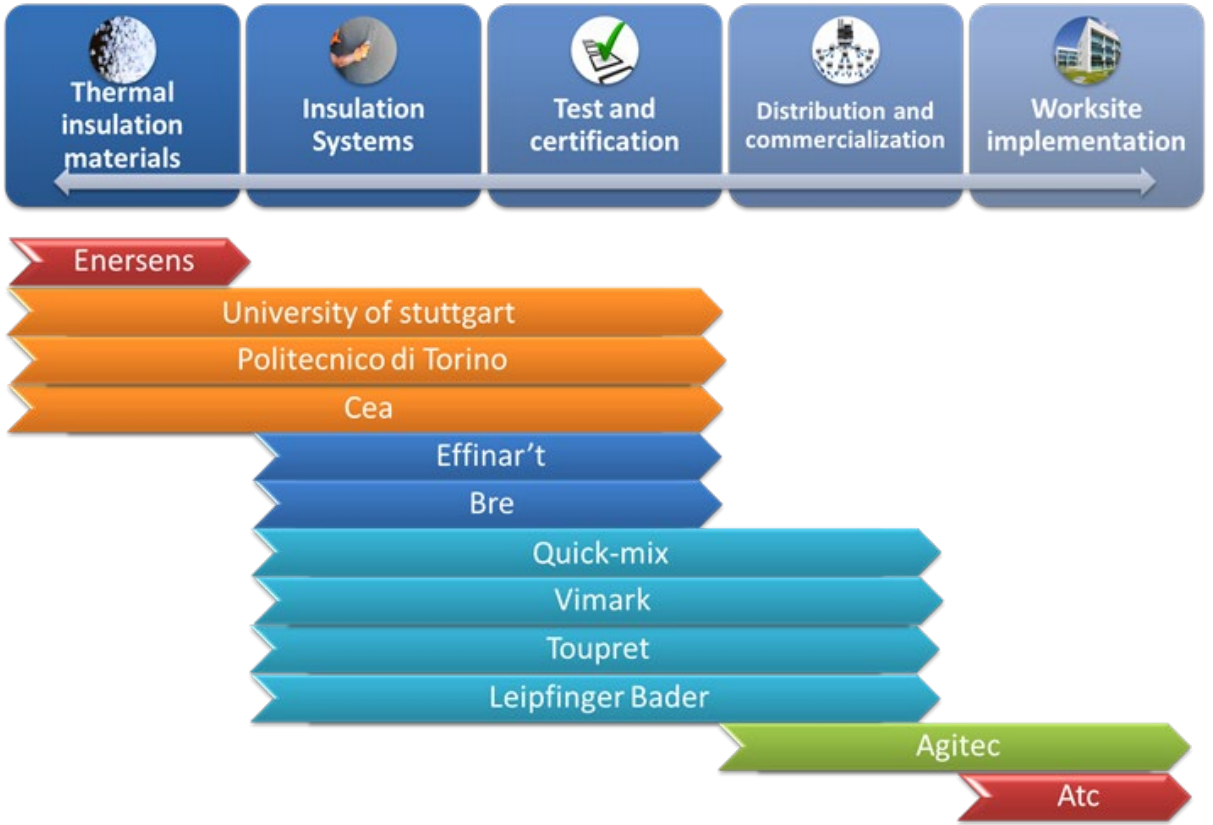
- Coordinator: QuickMix, a branch of Sievert

- Grant Agreement number: 723574 — Wall-ACE
- Innovation action
- **Call: EEB-01-2016: Highly efficient insulation materials with improved properties**

- **Grant amount: EUR 4.3 Mio €**
  Estimated eligible costs of the action are EUR **6.25 Mio. €**

Project consortium

No	Name	Short name	Country
1	QUICK-MIX PUTZTECHNIK GMBH & CO. KG	QUICK-MIX	Germany
2	ENERSENS SAS	ENERSENS	France
3	TOUPRET SA	TOUPRET	France
4	VIMARK SRL	VIMARK SRL	Italy
5	LEIPFINGER-BADER KG	LeipfingerBader	Germany
6	UNIVERSITAET STUTTGART	USTUTT	Germany
7	POLITECNICO DI TORINO	POLITO	Italy
8	COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES	CEA	France
9	EFFINART SARL	EffinArt	Switzerland
10	BUILDING RESEARCH ESTABLISHMENT LTD	BRE	United Kingdom
11	AGITEC AG	AGITEC AG	Switzerland
12	AGENZIA TERRITORIALE PER LA CASA DEL PIEMONTE CENTRALE	ATC Torino	Italy
13	KURT SALMON FRANCE SAS	Kurt Salmon	France



Product portfolio

ENERSENS absolute insulation

KWARK®: SILICA Aerogel

Insulating thermal coating finishing

Internal high performance insulating plaster

Insulating interior patching filler

High performance insulating materials filled bricks

External high performance insulating render

Vimark next to your job | vimark.com

TOUPRET

LEIPFINGER BADER Ziegelwerke

quick-mix

General idea:

- Fully mineral
- Easy recyclable
- Fire behaviour
  - A1/A2
- Cost-effective

Internal high performance insulating plaster

Natural hydraulic lime thermal plaster with grains of aerogel.

Main performances

- Water vapour permeability coefficient μ <7
- Thermal conductivity $\lambda_{10,dry}$ = 0.028 W/mK
- Bulk density < 200 kg/m^3
- Full mineral composition
- Reaction to fire: Class A1

Installation

- It can be applied manually or mechanically sprayed
- Coating finish needed
- Maximum thickness: 12 cm
- Indicative amount: 10 l/m^2 per cm of thickness

Insulating thermal coating finish

High insulating thermal coating finish based on natural hydraulic lime with grains of aerogel.

Main performances

- Water vapour permeability coefficient μ <7
- Thermal conductivity $\lambda_{10,dry}$ = 0,027 W/mK
- Bulk density < 200 kg/m^3
- Full mineral composition
- Reaction to fire: Class A1

Installation

- Manual application, mechanical possible
- Coating finish needed
- Maximum thickness: 3 cm
- Indicative amount: 10 l/m^2 per cm of thickness

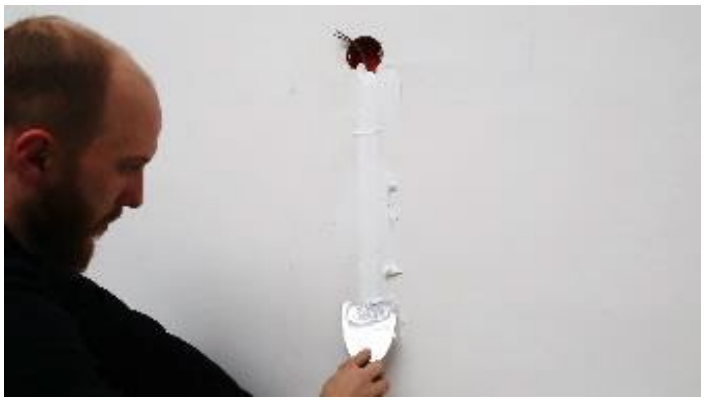
Insulating interior patching filler

Main performances

- Thermal conductivity $\lambda_{10,dry}$ = 0.034 W/mK
- Bulk density 1.72 kg/m^3
- Full mineral composition
- Reaction to fire: Class A1
- Application on any type of cohesive substrate

Installation

- Manual application
- Maximum thickness: no limitation
- Working Time: 45 min



High performance insulating material filled bricks

→ Hole pattern with very high core proportion

→ Low thermal conductivity of brick body

→ High insulation filling material (charge mortar by quick-mix)
- Mineral
- Aerogel based
- Fully bounded

→ λ-target: ≤ 0.06 W/mK
Confirmed by measurement & simulation

External high performance insulating render

Main performances

- Dry mortar density < 200 kg m^3
- Compressive strength 0.7 N/mm^2
- Thermal conductivity λ = 0.030 W/mK
- Full mineral composition
- Reaction to fire: Class A1
- Capillary water absorption W_c0
- Water vapour permeability μ = 2

Installation

- Sprayable thermal insulation
- Approx. 1.6 kg/m^2 per cm layer thickness, up to 12 cm
- Yield: approx. 7000 l of fresh mortar per ton of dry material

Experimental demonstration on real buildings

Test wall at AGITEC:

AGITEC green efficiency

University of Stuttgart
Germany

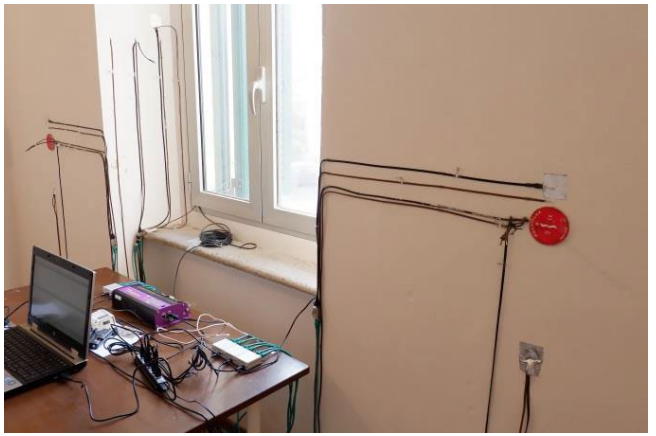
MPA STUTTGART Materials Testing Institute University of Stuttgart

quick-mix

Wall-ACE render 2 July August 2019

Experimental demonstration on real buildings

The case study 1920’ building (TORINO)



Experimental demonstration on real buildings

Flat (1950) – “refurbished house”
on BRE Innovation Park,
Ravenscraig in Scotland

bre

Vimark®

All products at CEA-INES near Chambery, France

Summary

- Aerogel production in pilot line as pre-product
- 5 new products developed
- Ready on the market within 1 to 2 years
  - Vimark products
    - Internal high performance insulating plaster
    - Insulating thermal coating finish
  - Toupret
    - Insulating interior patching filler
  - Quick-Mix
    - External high performance insulating render
- Need of more cost-effective aerogel provision
  - Leipfinger Bader
    - High performance insulating material filled bricks

Thank you for your attention

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