

Wall-ACE

Wall Insulation Novel Nanomaterials Efficient Systems

TOUPRET Insulating Patching Filler

Contact:

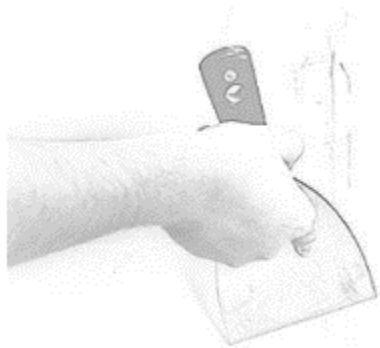
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Our Objectives:

As part of the **Wall Ace project**, develop an **insulated mineral based filler** enabling to repair walls – **holes and cracks** without damaging the **thermal performance** of the insulation system.



An innovative approach:

A new and unique Formulation based on most advanced Kwark® material and 100% inorganic binder

Fourth EPC Serie	EPC-10	EPC-11	EPC-12	EPC-13	EPC-14	EPC-15	EPC-15A	EPC-16	EPC-16A	EPC-16B	EPC-16C	EPC-16T
Portland cement	28	28	28	28	28	28	28	28	28	28	28	28
Aerogel												
<100 μ	10	10	12,3	10	10,2	14,8	16	11,05	13,4	10	11,8	12,5
< 300 μ		5	4,9									
200-500 μ												
Light aggregate 1	25	20	19,5	20	18,7							
Light aggregate 2				5	6,2							
Organic binder	34,7	34,7	33	34,7	34,6							

Formulation	TXA-7		EPC-AG5		EPC-AG5b		EPC-AG6		EPC10		EPC16		EPLC-3	
	% WW	% w/w	% WW	% w/w	% WW	% w/w	% WW	% w/w	% WW	% w/w	% WW	% w/w	% WW	% w/w
Calcium Aluminium COMBUT	25,5	0	0	0	0	0	0	0	0	0	0	0	0	0
Portland Cement	0	28	57	57	28	28	0	0	0	0	0	0	0	0
Diwater	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydraulic Lime	0	0	0	0	0	0	0	0	0	0	0	0	0	47,5
Aerogel PSUs														
< 100 μ	0	0	0	0	0	10	11	5						
100 - 300 μ	8	0	0	0	0	0	0	10						
200 - 500 μ	0	16	16	16	0	6	16							
Other light aggregates	4	20	20	20	25	18	0							
Other aggregates	55,5	9	0	0	0	0	0							
Organic Binder	3	35	25	25	35	35	0							
Additives	2	2	2	2	2	2	2	2	2	2	2	2	2	1,4
Density (kg/m³)														
POUTO	not done	268	not done	not done	185	178	188,5	sample						sent weeks
OSTUT1	420	225	210	214	220	187	200							30
Thermal conductivity (W/m.K)														
EVERSEMS Data	not done	not done	not done	not done	0.030	not done	not done							
POUTO Data	not done	0.055	not done	not done	0.041	0.038	0.034							



Very sensitive balance between thermal and mechanical properties

Insulating **Patching FILLER** – Key Features

Main performances

- Thermal conductivity $\lambda_{10,dry} = \mathbf{0,034\ W/mK}$
- Bulk density **1,72**
- **Full mineral** composition
- Fire reaction: Class **A1**
- Application on **any type of cohesive substrate**

Installation

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



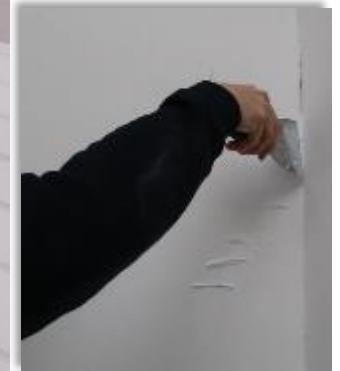
Industrial feasibility test

- **Pilot industrial batch successfully produced** in Toupret's Corbeil facility.
- Minimal **adaptation required on the mixing** unit.
- **Key learnings highlighted** on
 - Mixing,
 - Raw material storage (ie Aerogel)
 - Transfert and Packing of a very light weight material



Application tests

- Internal applications done to validate product behaviour and performances
 - Mixing,
 - Filling of different type of defects
 - Coating with TOUPRET skimming filler
 - Painting tests

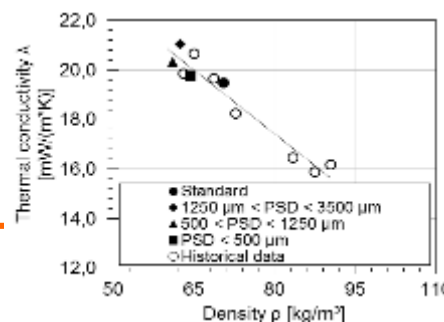


In Situ validation

Evaluation of product performances in **USTUTT, POLITO** facilities



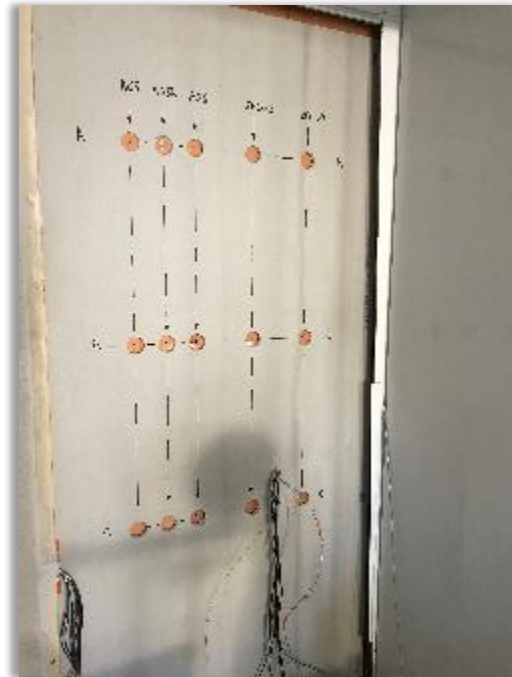
- **Thermal** performance
- **Mechanical** performance
- **Adherence**
- **LCA**
- **VOCs** Emission
- **Fire** resistance



Installation in CEA Facilities

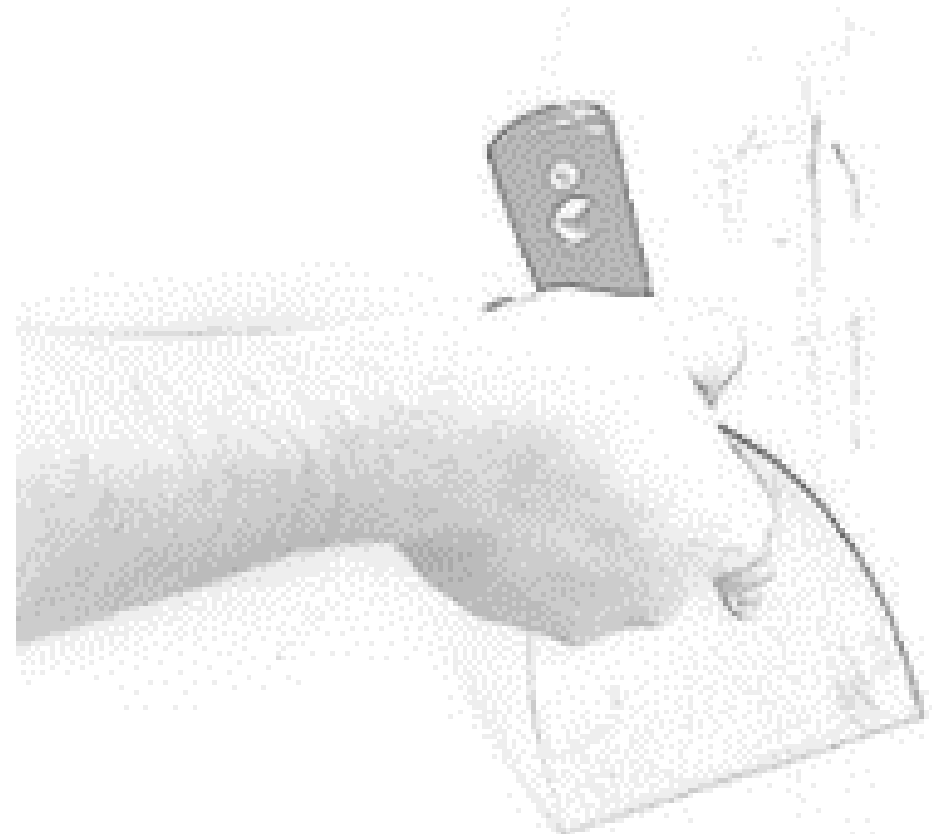
Installation of the solution in **CEA (INES)** France

- Validation of the impact of patching filler on the Global performance of the wall



**Thank you for your
attention!**

TOUPRET
THE PROFESSIONALS PREFERRED FILLER



ACKNOWLEDGMENTS

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