SOLID-SOLID PHASE CHANGE MATERIAL

Highly performant solid-solid Phase Change Material (PCM) designed to improve thermal efficiency of materials; protection against temperature variations.

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PRESENTATION

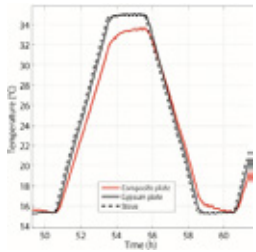
PCM improves thermal performances of materials by delaying temperature increase and decrease and by mitigating the temperature peaks. Most PCM available are based on state change implying solid and liquid transitions which present major issues such as leakage risks and volume variations.

Our technology is based on a solid-solid phase change material that avoids any of these issues.

The temperature of phase change can be tuned between 20°C to 65°C according to the application.

The PCM presents a Shore hardness which allows its grinding up to grain size lower than 50 µm. The grain size of the PCM can be controlled by sieving for injection in different matrixes (plaster, plastics...).

The environmental impact of the PCM is limited, as the synthesis process does not involve any solvent or catalyst.



Thermal profile of the PCM when incorporated in plaster, and comparison with plaster only.
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Solid-solid Phase Change Material - Thermal energy storage - Phase shift - Energy efficiency - Thermal comfort - Sustainable building

PERFORMANCES

- Phase change temperature : 20°C to 65°C (peak; onset at 50°C max)
- Latent heat : from 80 J/g up to 116 J/g
- Thermal conductivity : 0.231 W/mK
- Density about 1.1 kg/m^3
- Stable from at least -40°C up to 290°C (degradations without release of formaldehyde and HCN)

INTELLECTUAL PROPERTY

Patent application
WO2017198933A1

SYNTHESIS

- No solvent or catalyst
- No residual isocyanate
- No encapsulation

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APPLICATIONS (non exhaustive)

- Building materials (plaster, cement...)
- Packaging
- Electronic circuits
- Foams