

# Vacuum insulation panels to fill gap in retrofitting market

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The next stage is for industrial partners involved in the EU-funded VIP4ALL project to fully commercialise the new all-natural insulation panels, which are manufactured from minerals and renewable organic by-products. The target market is low budget renovation and retrofitting projects, jobs which are often carried out by SMEs (indeed SMEs make up more than 99 percent of the EU construction sector).

Buildings in Europe currently account for approximately 40% of annual energy consumption and carbon dioxide emissions. Low-cost, eco-friendly insulation technology pioneered by projects like VIP4ALL will enable European SMEs to retrofit buildings effectively, and in doing so, help Europe meet its environmental commitments through saving energy

efficiently.

The panels have been recognised for their excellent thermal insulation properties (achieving lambda value 7 mW/mK) at a thickness of less than one third of conventional air-filled insulation panels. In addition, the new panels offer excellent fire resistance, which is vital for building application acceptance.

Another key strength of the panels is their cost-effectiveness. This will make insulation retrofitting much more feasible at a time when the construction industry is still reeling from a severe economic crisis. The economic downturn has made it harder for the sector to exploit expensive state-of-the-art vacuum insulation panels (VIPs) over more cost-effective conventional – but less thermally effective – solutions, and this is something that the VIP4ALL project has sought to address.

All design work for the various materials and processing technologies was fully supported throughout the project with predictive modelling tools. The team first established a comprehensive database of raw material characteristics, which led to the identification of two promising envelope systems and four hybrid core compositions. Core processing technologies were optimised and a number of formulations prepared.

The project team then began designing novel vacuum insulation panels with a new thin exterior encapsulating face layer made of cork. The new layer makes the panels much more user-friendly in terms of handling during stock, transportation and installation on-site. The layer also acts to protect the panel, making it less likely that the VIP will be punctured and consequently lose thermal performance.

With thicknesses of between 3 and 4 cm, VIP4ALL products are designed to reach minimal thermal conductivities at common pore pressures, comparable to commercial VIPs for building applications,

whilst providing superior thermal insulation to any other conventional material on the building market.

The VIP4ALL project was completed at the end of November 2015, though the project's impact on the building retrofitting industry is expected to be felt for years to come. Indeed, the [project](#) team hope that the final products will make a major contribution to the viability and competitiveness of retrofitting in the EU, a key economic and indeed environmental concern.

**More information:** For further information please visit the VIP4ALL project website: [www.vip4all.com/](http://www.vip4all.com/)

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