



New bio-based insulation material from vegetal pith and natural binders

Partners to further develop the system through technical cooperation are sought. The areas of developing are: performance improvement: use of other bio-based binders and additives, material applications (construction systems, renders, etc.) and manufacture at commercial scale. Partners to establish commercial agreements are also sought.

The Challenge

The building sector is moving towards new approaches to energy efficient design, which includes not only the decrease of the thermal transmittance of the building envelope but also the improvement and use of natural and locally available building materials. In this regard interest in bio-based insulation materials is increasing because of the generally lower environmental impact of these materials compared to inorganic or petrol based insulation materials. Their low embodied energy, their ease biodegradability and their nontoxic nature are some of their environmental benefits. We propose a new bio-based material made from currently available crop by-products which is completely compostable and present high hygrothermal properties.

The Technology

Rigid insulation boards made from the pith-rich plants (such as corn, sunflower, miscanthos, elderberry, etc.) bonded with a small amount of a natural binder. This material can also incorporate different repellents, fungicides, flame retardant products, to improve their performance. A wide range of materials can be developed to respond to different requirements (wall insulations, under-floor, roof...).

Innovative advantages

- Rigid variable density board (40-150 kg/m³)
- Completely compostable
- Cellular structure
- Low binder content
- Low thermal conductivity
- High moisture buffering capacity
- Unbiased results

Current stage of development

Prototypes of 700x700x50 mm are developed. The fire reaction and the fungal resistance have been analysed and improved using low environmental impact products. Further work should be done in these areas though, as well as on durability and production process.

Applications and Target Market

Thermal insulation of buildings (walls, ceilings and floors)

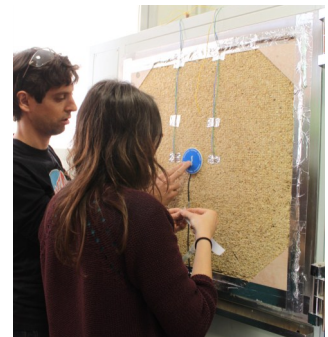
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MKTXXXXXX_H

Bio-based insulation boards made from available crop by-products



Thermal conductivity of 0.039 W/mK and high moisture buffering capacity



Low cost, low energy

Business Opportunity

Technology available for licensing with technical cooperation

Patent Status

Priority application

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