

# Newsletter #2

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## Natural insulation materials in transition

**In the Netherlands, the adoption of bio-based innovations in the building sector is slow. Natural insulation materials such as sheep's wool, flax, wood fibre, hemp, straw, and cellulose are seen as a promising sector, but still have a small market share (4% in Europe). As a part of BIOVOICES, WUR organized during the NatureFiberTastic 2019 in Bergen op Zoom - a dialogue with 28 entrepreneurs, citizens and researchers discussing how to speed up adoption of these materials. In this article we look at the bottlenecks and solutions to enhance the use of natural insulation materials.**

### Revision of standards needed

As new kid on the block, natural insulation materials have to prove their functional value compared to fossil-based insulation materials such as Rockwool. Researchers show already that many bio-based materials have a same insulation value (Van Dam & van den Oever, 2019). Furthermore, they are better to recycle

and less flammable (De Visser et al., 2015). Nevertheless, there are few natural insulation materials in the labelling of sustainable building materials.

Natural insulation materials are missing because of outdated standards that correct negatively for humidity (da Cunha et al., 2015). For plastic insulation materials it is right to minimise moisture, for natural materials this is wrong because they have good moisturizing capacities to eliminate humidity. A correction for moisture content then leads to a wrong insulation value. Furthermore, the outdated standards don't take into account specific benefits such as the contribution to a negative CO<sub>2</sub> balance and the ventilating properties. Although a revision of standards is needed, participants in the dialogue foresee a very slow progress of 15 years to revise them. They suggest to lobby more that the government favours building with materials that lower the CO<sub>2</sub> balance instead of only focussing at less CO<sub>2</sub> emissions for energy use to reach the climate goals.

## Unfamiliar with damp-open build as method

In Netherlands, we are used to build our homes damp proof as a plastic jacket. Bio-based insulation material, however, asks a damp-open building as a breathable jacket that keeps the rain out, but permeates the moisture from within. This requires a right choice and sequence of materials. Lack of experience in working with damp-open material is seen as a main reason why currently in Europe wood fibers are no competition forms of insulation (Pavel & Blagoeva, 2018).

Also, Dutch large construction builders lack experience with damp-open building. During the dialogue there were many reasons explained why they are still old-fashioned working. They can still learn from our neighbours in Belgium, where the sales of natural insulation materials and the influence of the end-users is much higher. In Belgium, there are more homebuilders together with an architect and contractor. Together they choose more often for a sustainable, natural and high-quality insulation material. In the Netherlands, there are mainly large construction projects with protocols of tasks and little room for experimenting with other insulation materials and interaction with end-users.

## More evidence needed to convince users

Also, at the side of users there are bottlenecks. As often with a new product, the purchase of a bio-based insulation material is more expensive than its plastic counterpart. This requires extra value to earn it back. Natural insulation materials do not contain any toxic substances. They provide a more favourable indoor climate. Health claims have yet to be proven. However: how important are these features for users in the business and the private housing market? At the business market for companies and governments, tenders have to be submitted with measurable results (Total Cost of Ownership, performance, origin products etc.) and understanding of the economic sustainability. For dwelling owners especially the price, performance and durability are important. During the dialogue it has been suggested to stress the health performance more.

## Forerunners or for anyone

Home owners can be motivated to lead in buying sustainable products or not. There are people who would like to try something and people who wait till the innovation works problem-free. Insulation materials such as hemp and flax are currently still used only by forerunners. Also the ignorance plays a role, because insulation materials are mainly in specialty stores, but not yet in main do-it-

yourself stores. Potential users will be supported if they can compare the benefits of several types of natural insulation materials. During the dialogue, the development of such a website has been explained. The type of home may play a role, because current target groups are mainly new or rebuilt detached houses and small construction projects. This leads to the question whether is too difficult for terraced houses without conversion.

### **How to speed up natural insulation materials?**

More appreciation for breathability of natural insulation materials can promote its use. During the dialogue it came out that many start-ups do not know well the Unique Selling Points for the users. Furthermore, civil society stresses that the stories of producers are still fragmented instead of being one shared story, which easy told to citizens. More lobbying to the government is necessary to promote the advantages of natural insulation to reach the climate goals.

### **References**

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