

Cellulose fibre - the cosiest insulation material

Cellulose fibre insulation is efficient, high-quality, environment-friendly and healthy insulation material and allows cutting down on heating bills.



Description of the case study:

Future building regulations will require higher energy efficiency and environmental performance. It is also likely that the price of energy will increase.

Production of construction materials from waste and by-products is a growing and environmentally preferred trend in Estonia and wider in Europe. Demand for a high-quality, environment-friendly and healthy insulation material has steeply increased. Use of renewable resources in the manufacturing of insulation materials is increasingly important.

WerroWool helps to improve thermal insulation of buildings and create more environment-friendly housing that can also achieve considerable cost saving. Thereby, it also contributes to the reduction of harmful CO₂ emissions and slows down the climate change.

Specific innovative elements that distinguish WerroWool from other alternative insulation materials already on the market are:

- WerroWool is made nearly 85% of waste paper collected entirely in Estonia, using energy-saving manufacturing technology. It is produced mechanically, the insulation is made from newsprint by refiberization.
- Production process requires very little energy. Therefore, WerroWool is produced with as little environmental impact as possible. The amount of energy put to the insulation is significantly smaller compared to many other industrial thermal insulation materials.
- New, environmentally sustainable added compounds are used in WerroWool to keep rodents away, avoid mould and guarantee fire resistance. Majority of added compounds is made up by aluminium hydroxide, which is a residue from the aluminium industry and significantly more environment-friendly alternative, compared to boron compounds that are used in other blown insulation materials.
- WerroWool is packaged in paper packages that are collected and used for the manufacturing of cellulose fibre. When a building has reached the end of its life cycle, cellulose fibre insulation can be reused as thermal insulation or dispersed as soil conditioner. Hence, we can say that WerroWool is produced from recycled materials and the product itself is also reusable throughout its life cycle.
- Due to the local raw material and installation network, environmental impact from the transportation is small, compared to the other thermal insulation materials.

A well-insulated building is comfortable to live in. WerroWool's excellence is due to its seamlessness, breathability of porous fibre and small air permeability. A breathable structure ensures also better indoor climate. As the new added compounds used in the production are completely safe, then WerroWool is suitable for insulating also buildings where kids or people with various allergies often stay.

Decision of taking the production activities to country-side was made consciously, in order to increase the rate of employment in rural area. We also actively contribute to social development and social responsibility outside the production activity. We are an opened partner for the local community, as well as all the other progressive-minded people and organizations in whose conception of the world the sustainable development has taken an important place.

We had to face the following barriers:

- Financial barrier - it was hard to convince financial institutions to make the financing proposal, at all. Maximum extent of collaterals were used. One may understand institutions will to but it was rather demotivating
- Lack of technical expertise - industrial consultancy is incredibly costly and being short in budget one has to grow the expertise inside the team. It's hard but inevitable.
- Lack of interest in green products - still existing barrier as everybody recognizes the essentiality of it but few are ready (without further assistance in buying process), to buy 30% premium for more feasible and green product.
- Lack of raw-materials - access towards raw-materials may be very limited. Green product is usually based on waste or recyclables and the owner of this are corporations interested only in cash-flow and not in supporting local manufacturing. It has to be regulated to re-value local waste locally instead of shipping it to or from thousand miles.

What was the type of green solution? Please select the type of solution.:

Technology/Product [1]

What does the featured solution contribute to?:

Environmental protection,
Resource efficiency

Which technology area(s) does the case study belong to?:

Building materials [2], Other waste treatment and recycling [3]

How was the green solution financed?:

Private funds [4]

Emission reductions description:

Compared to alternative insulation materials, production of WerroWool does not emit any emissions to ambient air.

Energy consumption description:

30 times less input energy, compared to the manufacturing of stone wool and fibreglass.

Water consumption savings description:

Compared to alternative insulation materials, production of WerroWool does not use water and emissions to water do not occur. Neither are there any emissions to ambient air.

Material consumption savings description:

85% of the material used in the production is waste paper.

Operating and maintenance costs:

No O&M costs

Partners:

Company name

- Werrowool OÜ [5]

Relationship type:

Company that produced the green solution,
Company that supplied or installed the green solution

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Links

[1] <http://greeneconet.eu/type-green-solution/technologyproduct>

[2] <http://greeneconet.eu/technology-area/materials/building-materials>

[3] <http://greeneconet.eu/technology-area/waste-treatment-and-recycling/other-waste-treatment-and-recycling>

[4] <http://greeneconet.eu/financing/private-funds>

[5] <http://greeneconet.eu/werrowool-o%C3%BC>