



NEPTUTHERM®

**100% organic
insulation material**





ORGANIC INSULATION FOR BUILDINGS AND APPLICATIONS

NeptuTherm® reduces the loss of thermal energy in winter and provides a pleasant coolness in summer – with the highest heat storage capacity of all insulation materials.



SEAGRASS AS A NATURAL INSULATION MATERIAL

Neptune balls are a waste product of seagrass meadows around the Mediterranean Sea and are created by wave movements. The mother plant plays an important role in the global ecosystem, as one hectare **stores 10 times more CO₂** and can convert 5 times as much CO₂ into oxygen as the same area of rainforest.

Seagrass characteristics

The fibres have a high mould resistance, are **poorly flammable (B2)** and have a measured **heat conduction of only 0.039 watts** per Kelvin and metre – and all this by nature. These properties make them ideal for sustainable use in the construction industry. In addition, the fibers have an excellent **heat storage capacity of over 2,500 joules** per kilogramme Kelvin. Neptune grass thus exceeds the heat storage capacity of all known insulation materials.

Disposal in the event of a later demolition is completely unproblematic: if the Neptune fibers are not reused in another building, they can simply be raked into the garden soil as a **planting substrate** to loosen up the soil.



In today's world with [...] the growing awareness of the environment in all sections [...], it is an indispensable must to follow this path in construction as well.

NeptuTherm®

Parameter	Unit	Fibres
Thermal conductivity λ_D	W/mK	0.039
Rated value λ (DIN 4108)	W/mK	0.046
Heat storage capacity	J/kgK	> 2,500
Water absorption capacity	kg/kg	1.6 to 3.4

100 %

**organic and completely
free of toxic matter**



WANT TO LEARN MORE?

Producer

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UNFOLD ME



Materials impact the environment, society and economy. Under Horizon 2020, the EU's research and innovation programme, about €2 billion in EU funding, has supported research in advanced materials.

More information on EU funding:

<https://europa.eu/!MJ49rK>



European Commission

www.ec.europa.eu/info/research-and-innovation_en

Concept & Design

www.lekkerwerken.design

www.haute-innovation.com

Realisation

www.triplea.be

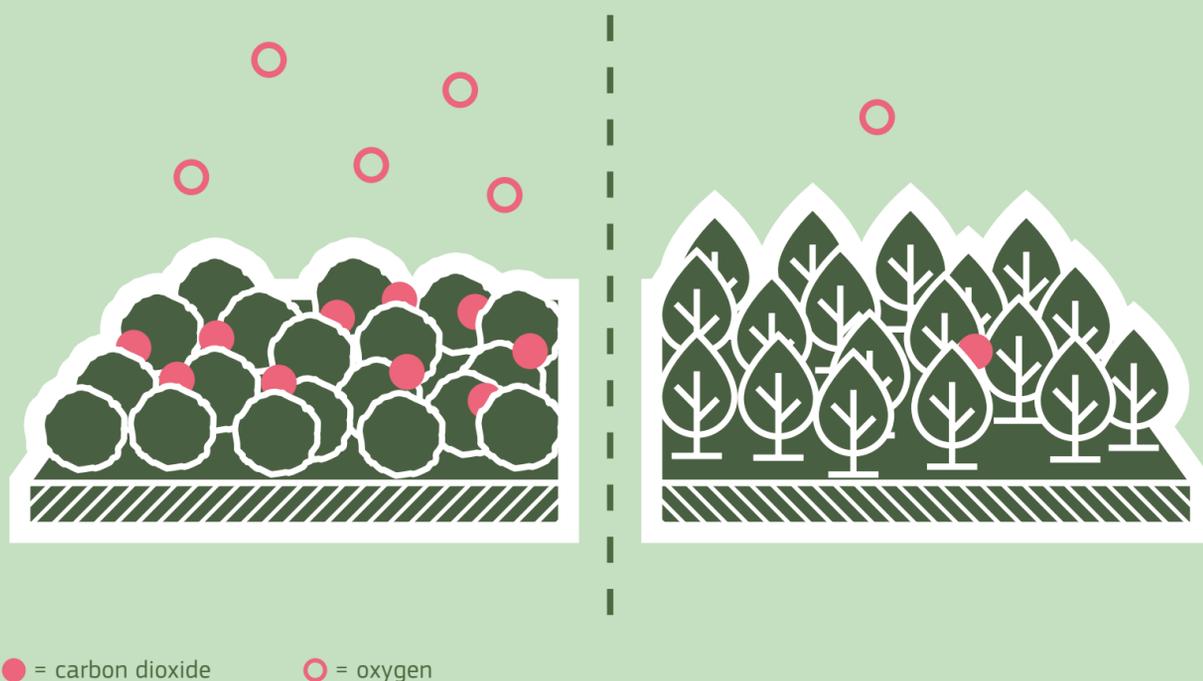
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1 hectare of seagrass **stores 10x** more carbon dioxide and can **convert 5x** as much carbon dioxide into oxygen as the same area of a tropical rainforest.



Source: James Cook University Australia

DID YOU KNOW?

@EUScienceInnov
#InvestEURResearch
#EUGreenDeal

The German professor of architecture Richard Meier, an enthusiastic kiter, and his wife Monika spent their summer holidays in Spain.

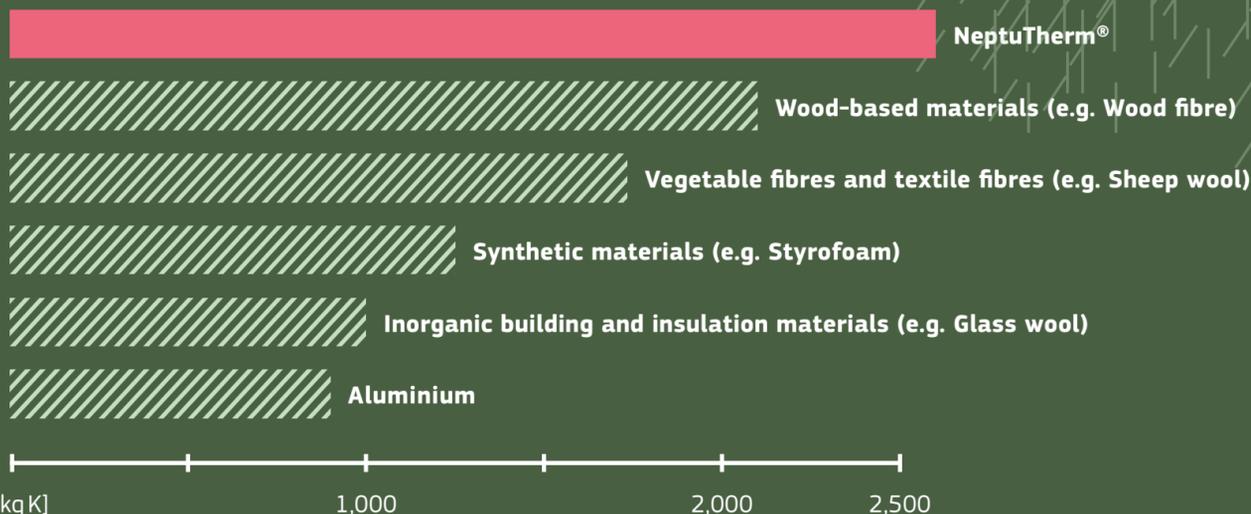
While on the beach, they noticed these small brown felt balls, pulled them apart and examined them. A friend pointed out to them that the weird balls were not even good for lighting the fire. Immediately, the idea was born to make a heat insulation out of the wool.

Tests conducted by the Fraunhofer Institute for Building Physics confirmed its naturally outstanding properties.



SPECIFIC HEAT CAPACITY

up to **2,599** J/kg K

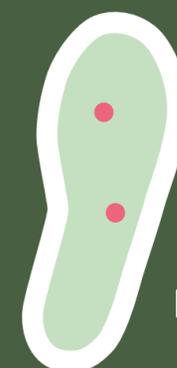


Source: FNR - Fachagentur Nachhaltigende Rohstoffe e. V., www.baunetzwissen.de

Carbon footprint of **1 kg Glass wool**



Carbon footprint of **1 kg NeptuTherm®**



99,9 %

reduced carbon footprint

compared to the production of 1kg glass wool

Source: FNR Research Project 2020, Navaro Insulation materials, in cooperation with the University of Stuttgart, Institute IABP



BIOLOGICAL CYCLE

If not being reused in another building, the Neptune fibers can simply be raked into the garden soil as a planting substrate to loosen up the soil.



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