

Patent pending invention.  
 Latvian patent application no. LVP2020000063 (Riga Technical University property)  
 Available for technology transfer

### Renewable raw material

In response to European Union’s Green deal initiative, we have developed 100% bio-based material for thermal insulation packaging applications. Leading Europe’s cold chain transportation to greener future, away from materials made from non-renewable fossil resources.

### Performance

Competitive performance is ensured by low thermal conductivity and almost twice as high specific heat capacity compared to polystyrene, ensuring excessive heat accumulation in the material rather than in the transported goods.

### Material production

Production consists of four stages: (1) mixing of raw material (2) forming wet mass (3) drying (4) finishing product – box in box or insulation pillows\*. Invention consists of composition of material and *know how* describing production approach.

### Advantages

Packaging can be produced in various scales from the “garage” to large scale production plant. Raw material is an abundant residue of human activity – forest logging and agriculture. In addition, there is a potential for eco label certification.

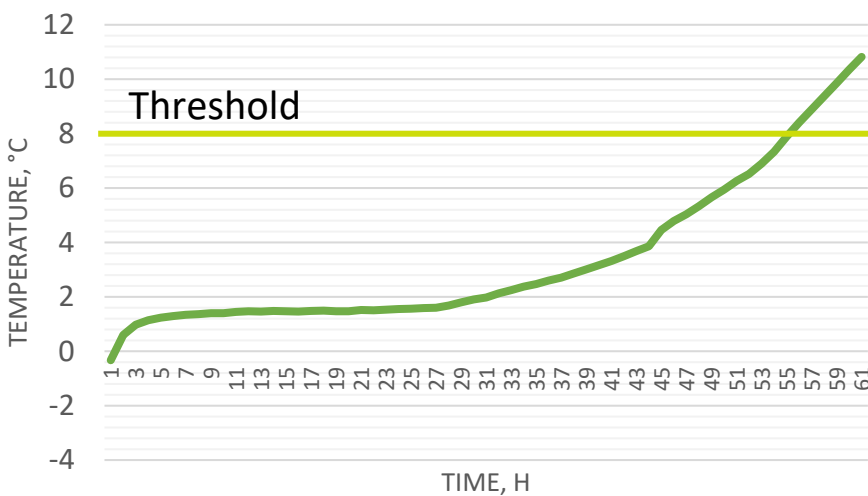
Modular nature of insulation pillows ensures that thermal packaging can be re-used multiple times. In case one part gets damaged, it can be replaced with identical insulation pillow.





- 100% bio-based raw material
- final product – odourless
- 140 kg/m<sup>3</sup> bulk density
- fast production process
- Buffer capacity 5.51 g/(m<sup>2</sup>·%RH)
- Water vapor resistance factor  $\mu = 2.09$

## THERMAL PACKAGING PERFORMANCE IN +22°C CLIMATE CHAMBER



Excellent performance ensuring temperature from -2°C to +8°C for 42 hrs with test chamber temperature of +30°C and 55 hrs with test chamber temperature of +22°C.

### End-of-life

Due to its bio-based composition – at the end of its life material will bring no harm to environment or human health. Material is bioeconomy and circular economy compliant – it can be brought back to factory for raw material reuse or used for energy regeneration.

Technology transfer is supported by Investment and Development Agency of Latvia. For detailed information on thermal insulation material properties, licencing and potential expenditures associated with Natural thermal packaging production please contact us.