



**POWER4BIO**  
REGIONS FOR  
BIOECONOMY

# Modification of a polyurethane adhesive for gluing lignocelulosic materials using polyurethane recyclate as a filler

Resolution time: 2017-2018

Budget: 600 000 CZK

Team leader: Štěpán Hýsek

Cross visit Czech Republic 30.11-1.12. 2020

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# Contents of the board

- Cereal husks – excellent insulation characteristics
- Recycled soft PUR foam – high elasticity
- PUR adhesive modified with a filler – high elasticity and strength

# Insulation board



# Insulation board – parameters

- Gluing agent content: 20%
- PUR recyclate/husks ratio: 50/50 (dry matter/dry matter)
- Molding pressure: 3 kPa
- Specific mass: 140 kg m<sup>-3</sup>
- Thermal conductivity coefficient: 0.06 W/m K
- Elastic modulus: 217 kPa
- Bendability coefficient: 0.042
- Parameters of the board are strongly related to density, adhesive used, adhesive content, husk to PUR recyclate ratio, and the size of PUR particles

# Insulation board – advantages

- Thermal insulation parameters competing with commercial materials (thermal conductivity coefficient 0.06 W/m K)
- High elasticity,
- High bearing of connective agents – advantageous during mounting
- Low production costs (about 95% waste materials content)



# Insulation board – legal protection

- HÝSEK, Š., BÖHM, M., a GAJDAČOVÁ, P. 2017, registered utility model: Tepelně izolační materiál a lisovaná izolační deska jej obsahující – UV 2017-34117, č. 31238

# POWER4BIO website and social media



[www.power4bio.eu](http://www.power4bio.eu)



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# Thank you for your attention

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