

Development of a heatable composite material for series production through functionalisation of a bonding agent layer in the manufacture of classical wooden materials (EleiK)

Figure 1: Electrically conductive demonstrator (parquet element) in composite design

Figure 2: Heat development on the electrically conductive demonstrator – IR thermal images after 20 min

Object of research:

- Integration of a heating function into a classical wooden material (e.g. plywood)
- Development of an innovative functional bonding agent layer that is electrically conductive as a result of additives
- Specification of the thermal properties to achieve optimal stability of form of the composite material and use as low-temperature heating system

Key words

- Wooden materials
- Renewable resources
- Functional integration
- Electrical conductivity
- Heating function
- Bonding agent layer
- Temperature control

Third-party funds provider:

- Fachagentur Nachwachsende Rohstoffe (FNR) (Agency for Renewable Resources)
 - A project sponsor of the Federal Ministry of Food and Agriculture (BMELV)

Results:

- Definition of a guide formulation of the electrically conductive bonding agent layer and the reproducible manufacture of the latter
- Specification of the thermal properties of the composite material in view of the subsequent use as low-temperature heating system
- Testing of the dimensional stability of the multi-layer composite laminated wood with regard to continuous alternating stress
- Provision of the proof of functionality

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