SUCCESS STORY

Wood K plus
WOOD: Transition to a sustainable bioeconomy

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: COMET-Center (K1)

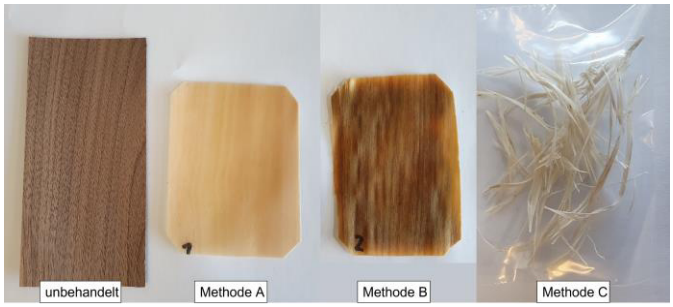
Type of project: Advanced Characterisation/Designed Properties, multi-firm

FLEXIBLE WOOD

PHYSICAL AND CHEMICAL CHANGES OF NATURAL WOOD

Wood and wood veneers are used in a variety of interior applications. On the one hand, this can be the case for conventional furniture or flooring, due to the abundance of aesthetic design options, but it can also go far beyond that. Refined wood surfaces can thus be found in the highest quality luxury furnishings. Here, new design options and smart features are intended to realise areas of application far beyond the state of the art. In the presented COMET project, special attention was paid to the highest possible deformability of the veneers used to achieve previously unthinkable elasticity of the materials used. Naturally, the challenge here was to make the veneers more flexible without destroying their aesthetics, but still to maintain a certain strength to ensure processability or applicability on substrates.

Based on the state of the art, several modifications and adaptations were necessary to meet the technical as well as the aesthetic requirements. The fact that this question could not be implemented exclusively with already known methods is shown in the figure. It becomes clear that approaches can work in terms of flexibility, but the aesthetic impression of the wood veneer is lost due to massive colour changes and staining, up to complete fraying.



Results of different flexibilisation methods that did not meet the required criteria (©Wood K plus)

Federal Ministry
Republic of Austria
Climate Action, Environment, Energy, Mobility, Innovation and Technology

Federal Ministry
Republic of Austria
Labour and Economy

Austrian Research Promotion Agency
Sensengasse 1, A-1090 Vienna
P +43 (0) 5 77 55 - 0
office@ffg.at
www.ffg.at

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Flexible and aesthetic wood veneers

At the end of a series of modifications and adaptations, both in the flexibilisation method itself and in the individual processing steps, the desired aesthetic impression could be achieved in combination with the highest possible deformability (see figure). In an additional step, the flexible veneers can be provided with a coating with functional properties. This research question is the subject of ongoing development work.

Successfully flexibilised veneer differently reversibly deformed (©Wood K plus)

In addition to the accompanying analysis and data evaluation, Wood K plus also contributed know-how in sample production on a laboratory scale to prepare the construction of the demonstrator at the company partner F/LIST.

Effects and impacts

F/LIST researches natural, high-quality and flexible materials to create shape-changing interiors that combine functional customer benefits with unsurpassed aesthetics to create more space in the cabin. One example is a flat real wood veneer tray that transforms into a tray for contactless charging of the phone when a mobile phone approaches. The fact that wood does not have to be a conservative material, but rather creates the transformation towards a highly functional and at the same time aesthetic material, was shown with this implementation. F/LIST can inspire customers with a repertoire of innovative materials and be a solution provider with high-quality products.

A deformable tray (©Wood K plus)

Project coordination (Story)
Olivia Moser, PhD
Project Leader
Wood K plus, St. Veit an der Glan

T +43 4212 494 – 8027
o.moser@wood-kplus.at

Wood K plus
Kompetenzzentrum Holz GmbH
Altenberger Straße 69
4040 Linz
T +43 732 2468 – 6750
zentrale@wood-kplus.at
www.wood-kplus.at

Project partner

- F/List, Österreich
- University of Natural Resources and Life Sciences, Austria

This success story was provided by the center management and by the mentioned project partners for the purpose of being published on the FFG website. Wood K plus is a COMET Center within the COMET – Competence Center for Excellent Technologies Programme and funded by BMK, BMAW and the provinces of Carinthia, Lower Austria and Upper Austria. The COMET Programme is managed by FFG. Further information on COMET: www.ffg.at/comet

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