

# softTOUCHwood

Highly flexible, scratch-resistant, easy to clean, flame-retardant, easily recyclable decorative wood films made from wood residues

## Research question

Bendable and mouldable like plastic films, flexible like foam, scratch-resistant and easy to clean like synthetic resin, ecologically sustainable like the natural material wood itself - a previously unknown combination of properties of wooden surfaces. In terms of design, it is geared towards an „experience of nature“ with a visual and tactile impression and longevity, in our highly technologically, functionalised, abstract interiors (living, working, mobility & travelling). This integration of nature is currently becoming increasingly important.

## Objective

The aim of the „softTOUCHwood“ project is to develop a highly innovative new wood-based material, i.e. a completely wood- and bio-based thin, highly flexible and mouldable material that can be adapted to the design and is functionally adaptable to the stresses of the intended use (scratching, cleaning).

For the development of this surface material, only sustainable materials are used. It relies on industrially scalable ecological manufacturing processes and fulfils the required properties also in the area of „flame and fire protection“ for applications in the mobility sector (automotive, aircraft, rail vehicles) and construction (furniture construction & interior design).

## Methodology

Decorative surfaces from ORGANOID already bring the feel-good atmosphere of mountain meadows, for example, into urban spaces - but so far only with low resistance to typical stresses and strains (scratch sensitivity to scratching and soiling) or without systemic requirements such as high flame and fire resistance. ORGANOID is already industrially produced natural „feel-good“ surfaces and is the global technology and market leader and already utilises a structure made from a completely sustainable material concept as a carrier substrate (e.g. flax nonwovens) for the plant decor.

Highly durable and long-lasting flexible wood veneer surfaces will need to fulfil higher application requirements and therefore need a significantly changed surface coating concept. This was already described and proposed in feasibility studies by Wood-Kplus and JR on the basis of the processing and utilisation requirements by the project partners F/ List as the world market leader in design for business aircraft and yachts and Haratech as a highly innovative translator of design into construction and manufacturing (3D printing, back injection moulding technology) with an extensive network in the furniture, interior design, rail vehicle and automotive industry (associated project partners).

Eco-design and resource-friendly, at least CO2-neutral processing as well as design-to-repair and design-to-recycle at the end-of-life are also of great importance, as reflected by the additional „associated project partners“ with a high level of interest in the future use of such materials.

## Results & Conclusion

Decorative layers: Different variants of decors were tested in the project. For example, different decors were produced on bio-based PLA films made from wood residues.

Back injection moulding - the decorative layers: In further series of tests, among other items, decorative surfaces classified as fire-resistant were overmoulded with selected flame-retardant biocomposites to test the flame resistance of the composite and the adhesion to the natural surface. For some of the samples, a UL 94 classification was achieved.



Figure 1: Ecologicalisation of interiors through „feel-good“ atmospheres: State-of-the-art materials by Organoid made from real natural raw materials, e.g. with the feel and look of mountain meadows, and their current application in design. Future vision and development focus of the softTOUCHwood project: flexible wood surfaces as a laminable film, providing the basis for functional integration (Image sources: Organoid Technologies GmbH; Kompetenzzentrum Holz GmbH)



Figure 2: Sample decor

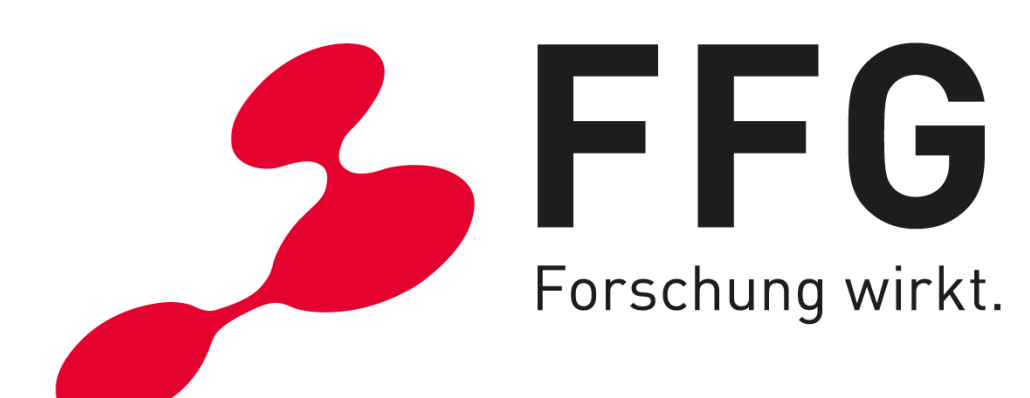


Figure 3: Sample decor back injection moulding

This project is funded by the Forest Fund, an initiative of the Federal Ministry for Agriculture and Forestry, Regions and Water Management and funded within the within the framework of the Think.Wood programme of the Austrian Wood Initiative programme.

Waldfonds  
Republik Österreich

Eine Initiative des Bundesministeriums für Land- und Forstwirtschaft, Regionen und Wasserwirtschaft



## Project softTOUCHwood

**Funding programme:** THINK.WOOD.Innovation.Kooperative F&E Projekte  
1. Call for proposals; Project ID: FFG-Nr: 891637

**Duration:** April 2022 - March 2025

**Consortium leader / project coordinator:** Kompetenzzentrum Holz GmbH  
- Research area wood & paper surface technology (Area 3)

**Project partners:** Kompetenzzentrum Holz GmbH, F. LIST GMBH, HARATECH GmbH, JOANNEUM RESEARCH Forschungsgesellschaft mbH, Organoid Technologies GmbH

**Project management:** DI (FH) Christoph Jocham / DI Judith Sinic