

Wood K plus

WOOD: next generation materials and processes – from fundamentals to implementations

Programme: COMET – Competence Centers for Excellent Technologies

Programme line: COMET-Center (K1)

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WOOD
K PLUS

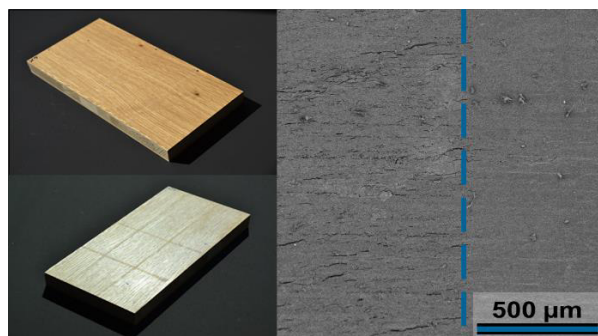
HARD-WEARING OILED WOOD SURFACES

DEVELOPED OIL FORMULATION PROVIDES WOOD SURFACES WITH SIGNIFICANTLY IMPROVED RESISTANCE TO WATER COMPARED TO CONVENTIONAL WOOD OILS

Wood affects functional and design components of our architectural environments, such as furniture. As a rule, very high demands are placed on the aesthetics of wood surfaces.

Oils are non-film-forming coatings that can be used to create a natural wood look as well as a pleasant touch of the surfaces. One of the decisive criteria for the quality of a wood surface coated with oil is its resistance to water.

Water drops that have already rolled off or run off the surface can, for example, cause unattractive, stripe-shaped discoloration, so-called water streaks, on an oiled wooden surface. In this case, the running water creates cracks in the coating at the micro- and nano-structure level, which makes the surface rougher in this area and changes the gloss, i.e. the reflection of the light.



© Kompetenzzentrum Holz GmbH. Water streaks on an oiled oak surface in incident and back light (left) and microscopic image of the interface (right).

Depending on the angle of view and incidence of the light, the water streaks on the surface are thus more or less visible. Even more drastic changes can be caused on an oiled wood surface by standing liquids or a mechanical load in combination with water, e.g.

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during cleaning. Regular maintenance of oiled wood surfaces is therefore necessary to meet the requirements for optics and haptics.

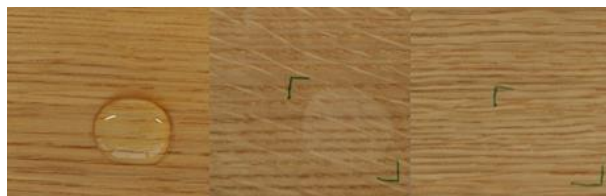
As part of the COMET project "New Functions for Wood", a new oil formulation for wood surfaces has now been developed in a knowledge-based and systematic way on the basis of a vegetable oil.

Effects and impacts

The formulation shows very good resistance to the effects of water. On wood surfaces that have been oiled with the new formulation, running-off as well as standing water drops show practically no effects, i.e. they do not cause any visible changes.

The resistance of the coating to heavy cleaning is also significantly better than that of already established wood oils. The oil formulation can be processed with industrial application methods, and the drying time of

the new formulation has been optimised for the economic efficiency of the processes. The industrial implementation at a leading furniture manufacturer in Austria is already underway.



© Kompetenzzentrum Holz GmbH. Standing water drop on oiled oak surface (left), loaded, re-dried surfaces: Comparison product (centre) and new development (right).

The development as well as the elaborated findings are the content of a recently completed dissertation and have been published in scientific papers in renowned journals.

Project coordination (Story)

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- Fritz Egger GmbH & Co OG, Austria
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- Scheucher Holzindustrie GmbH, Austria
- Weitzer Parkett GmbH & Co KG, Austria

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