

### Innovative Solutions for a Circular Economy

Wood K plus is a non-university research organisation in the area wood and wood-related renewable resources in Europe. Our core competences are materials research and process technology along the complete value chain – from raw material to finished products. The R&D activities can also be accompanied by sustainability assessment (social LCA, LCA, LCC, ex-ante).

We develop methods and basics and perform applied research on the economy-science interface, in order to enable resource-efficient management in the circular bioeconomy.

### Biorefinery Processes & Composite Materials

- Development of fundamental understanding of chemical reactions in digestion processes and translation into new or improved processes
- Pretreatment of biomass to optimise digestion processes
- Efficient cellulose-based specialty products
- Selective recovery of components in biomass and their further use
- Conversion of degradation products of lignocelluloses to platform chemicals
- Downstream chemistry of (hemi-)cellulose, lignin - derivatisation and functionalisation
- Compounding and Profile extrusion (also foaming and coextrusion)
- Injection moulding (also foaming)
- Melt spinning
- Production of filaments (short and continuous fiber reinforced) for 3D-FLM printing
- Development of biobased carbide ceramics
- Development of carbon fibres and -precursors from biobased raw materials
- Bio-based components for electrochemical applications (batteries, fuel cells, supercapacitors)



(EN ISO 9239-1)

### Wood Materials Technologies

- Analysis and optimisation of disintegration processes
- Drying technology (simulation and optimising industrial drying process)
- Wood and fiber modification
- Surface functionalisation and hydrophilizing
- Fire behaviour of renewable raw materials
- Optimisation of production processes to reduce product variability
- Development of new adhesives
- Adhesive properties (e.g. tack) and interactions between adhesive and wood
- Adhesive distribution on industrially manufactured wood composites
- Analytic and evaluation of VOC and odours from solid wood and wood composites
- Development of processes for VOC and odour reduction
- Function oriented wood composites by means of „Design Engineering“

### Foundation

- 2000

### Turnover

- 11 million €

### Employees

- Approx. 125

### Key topics

- Biobased Carbon Materials
- Biobased Construction Materials
- Biomass Utilization
- Biopolymers
- Biorefinery Processes
- Biotechnology Processes
- Cellulose-based Sensors
- Coating Technologies
- Digital Transformation
- Green Chemistry (adhesives, biobased building blocks, additives, aromatics, so.)
- Indoor Quality / Emission Control
- Life Cycle Sustainability Assessment
- Market-oriented Technology Research
- Smart Wood and Composite Materials

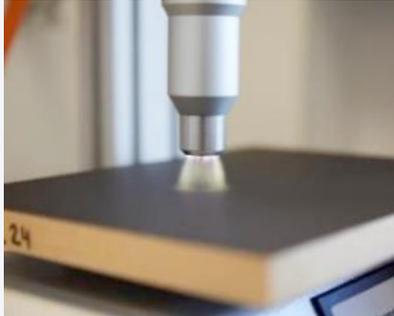
### Key services

- Contractual R&D
- Expertise and Consulting
- Feasibility Studies
- (Long-term) R&D Projects
- Material- and Process Development
- Project Management from Project Definition and Preparation of Applications
- sLCA, LCA (ex-ante), LCC



## Smart Composites and Surfaces

- Surface characterisation
- Determination of correlations und interactions between technology properties and surface appearance
- Process analysis for these surface properties
- Determination of efficient (production) processes
- Development of new surface characterisation methods
- Intelligent, integrated and impregnated cellulose-based sensors for reliable bio-based structures



## Sustainable Innovation and Impact Analysis

- Economic, ecological and social product & technology assessment
- Life cycle sustainability assessment
- Eco-efficiency analysis for new technical developments
- System Dynamics sector simulations with FOHOW
- Agent-based market modelling
- Econometric models and analyses
- Experimental designs for market-oriented product development
- Lead User Analysis, Conjoint Analysis and Analytical Hierarchy Process
- Technology foresight with scenario analyses, Delphi surveys, network analyses
- Media and content analyses
- Quantitative and qualitative methods of empirical social research, e.g. interviews, content analyses or online surveys



## CONTACT

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