

## Biogenic Heavy Tows based on hemp bast bark for textile lightweight products

Objective of the running R&D-project is the processing of hemp bast bark to obtain unidirectional as well as multidirectional non-crimp fabrics for the manufacture of high-performance composite parts. The project focus is aiming at the best possible mechanical properties by processing the hemp material without damage during the fibre treatment to transfer the initial performance of the natural fibre plant into the laminate. Ambition of the project team is to reach a mechanical performance comparable to glass fibre laminates.



### The project covers the whole process chain

- Development of customized fibre harvesting and fibre treatment processes without essential fibre damage
- Sizing of the bast segments and joining them to obtain continuous fibre material
- Development of a technology to manufacture two-dimensional fibre materials like non-crimp fabrics
- Qualification and validation of biogenic polymers to be used as matrix for the hemp bast bark fabrics to manufacture bio-based composites
- Design and manufacture of bio-composite demonstrators to verify and assess the newly developed technology
- Definition of recycling concepts for the production waste and end-of-life products composed of hemp bast bark and biogenic polymers



Hemp bast bark

Two-dimensional fibre materials  
like non-crimp fabrics

Bio-composite demonstrator

### Added value

- Substitution of top-price high-tech fibre products by natural fibre-based textiles
- Development of comprehensive end-of-life concepts for high-performance bio-composites
- Development of a strategy for the future industrialization of bio-materials
- More efficient use of resources compared to the state-of-the-art
- Waste-to-energy concepts for all material components after the product's life cycle

### Acknowledgements

We thank the Federal Ministry of Education and Research (BMBF) for funding the project (03ZZ0609D) within the funding program "Zwanzig 20 – Partnerschaft für Innovation" within the project futureTEX.

Contact: Dipl.-Ing. Elke Thiele  
Dipl.-Ing. Corinna Falck  
Dipl.-Ing. Günther Thielemann  
Dipl.-Ing. Reinhard Helbig

phone: +49 371 5274-243  
phone: +49 371 5274-252  
phone: +49 371 5274-239  
phone: +49 371 5274-214

E-Mail: elke.thiele@stfi.de  
E-Mail: corinna.falck@stfi.de  
E-Mail: guenther.thielemann@stfi.de  
E-Mail: reinhard.helbig@stfi.de