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HotHemp – Significant improvement of hemp bast laminates' mechanical properties through chemical-thermal reduction of the biological matrix content

Problem / Motivation

- Material manufacturers for the composites industry are working intensively on the use of alternative fibre materials made from renewable raw materials
- Natural fibres (e.g. hemp) cannot match the mechanical properties of chemically produced reinforcing fibres (e.g. carbon, glass or aramid fibres)
- Hemp has significant advantages in cultivation, such as pest resistance and fibre length compared to other natural fibres such as flax
- In order to improve the mechanical properties of hemp bast laminates, the cellulose content of the hemp bast fibres must be significantly increased

Solution

- Production of warp knitted fabrics consisting of endless hemp bast strands manufactured through KEMAFIL® technology
- Increasing the cellulose content by means of targeted chemical processing of the hemp bast surfaces by removing the biological matrix and thermal-mechanical post-treatment
- Production of thermoset hemp fibre laminates in sheets and complex structures
- Determining mechanical and characteristic properties

Hemp bast bark (left) and warp knitted fabric made from endless hemp bast strands using KEMAFIL® technology (right)

Project Launch

06/2024

Project Partner

currently none,

open for enquiries

INNO-KOM

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