

The GRETE logo features a stylized green plant with two leaves on the left, followed by the word "GRETE" in a bold, dark green, sans-serif font.

“Green chemicals and technologies for the wood-to-textile value chain”



GRETE project has received funding from the Bio-Based Industries Joint Undertaking under the European Union’s Horizon 2020 research and innovation programme under grant agreement No. 837527



OVERCOMING THE BOTTLENECKS OF THE WOOD-TO-TEXTILE VALUE CHAIN

Antje Potthast, BOKU Wien



PROJECT

GRETE - GREEN CHEMICALS AND TECHNOLOGIES FOR THE WOOD-TO-TEXTILE VALUE CHAIN

Project lead

VTT Technical Research Center of Finland

BBI JU contribution

€ 2,555,243.75

Duration

01.05.2019 – 30.04.2023

Type of action

Research & Innovation Action

Feedstock origin

Forest-based

Feedstock type

Lignin & wood residues



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Bio-based Industries Joint Undertaking: a €3.7 billion partnership between the EU and the Bio-based Industries Consortium

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GRETE

Green chemicals and technologies for the wood-to-textile value chain

Summary

The GRETE project aims to develop new and better technologies for wood pulp modification, cellulose dissolution and fibre quality generation complying sustainability requirements and market needs.

Currently the raw material base to produce man-made cellulose fibres is limited, as only dissolving grade wood pulps are used commonly. The project will tackle this by widening the sustainable raw material basis for man-made cellulose fibres by including paper grade pulps. In addition, the solvent systems used to produce commercial man-made cellulose fibres are based on toxic and explosive chemicals; the GRETE processing technologies will increase safety, sustainability and feasibility of man-made cellulose fibre manufacturing.

The issues addressed by the project play a significant role in developing sustainable and green technologies for the European industry. The partners of the project are strongly committed to face the challenge and achieve the ambitious results, supported by a dedicated stakeholder group with the aim to foster strategic decision-making.

Objectives

Impacts

GRETE

Web site
<https://www.greteproject.eu/>

Results

Project's achievements on the EU research results portal.

Project details

Type of action:	Research & Innovation Action
Feedstock origin:	Forest-based
Feedstock type:	Lignin & wood residues
Start date:	01 May 2019
End date:	30 April 2023
BBI JU contribution:	€ 2,555,243.75

OVERCOMING THE BOTTLENECKS OF THE WOOD-TO-TEXTILE VALUE CHAIN

Tackle the challenges of

sustainable production of cellulose-based man-made fibres

by developing innovative technologies for **wood pulp** modification, **cellulose dissolution** and **fibre generation**, thus radically improving the wood-to-textile value chain.





CONSORTIUM



1 RTO



3 HEIs



1 SME



2 Large Companies

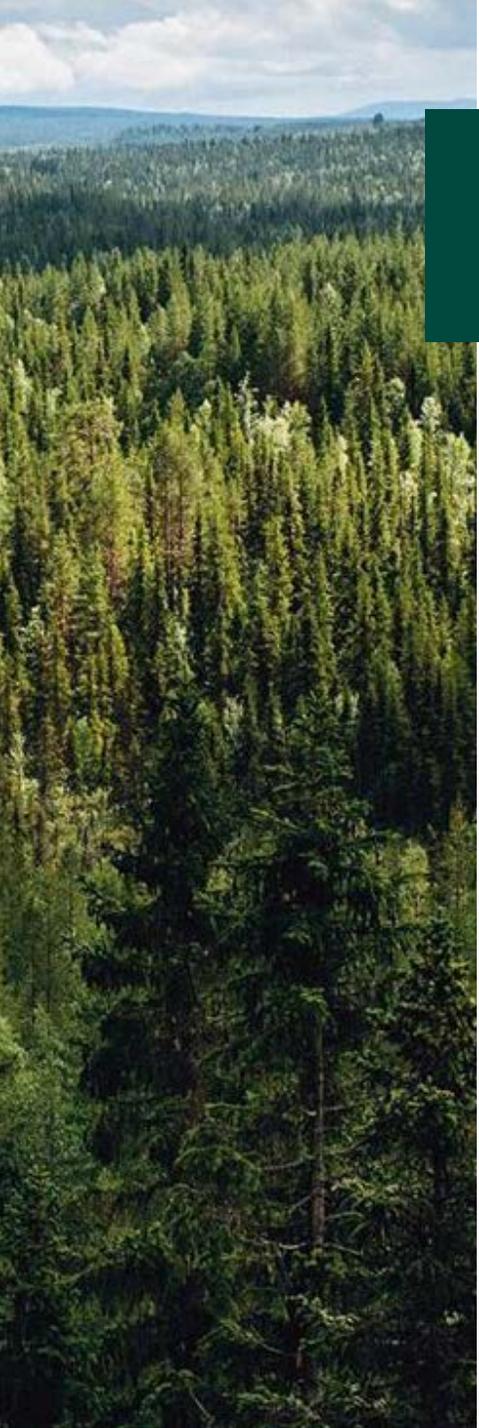
EXCELLENCE CONNECTING EUROPE'S NORTH TO THE SOUTH

The GRETE project is implemented by a consortium of a total of **seven partners**, connecting **four countries** from Europe's North to the South: Finland, Austria, Italy, and Portugal, bringing together institutions from **Research, Consultancy and Industry**.

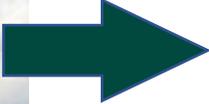


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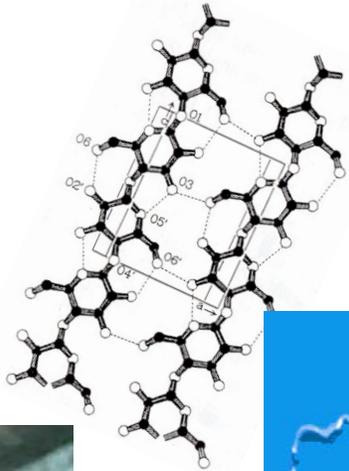
From Wood to Fibers



Pulp

Fibers

Dissolution



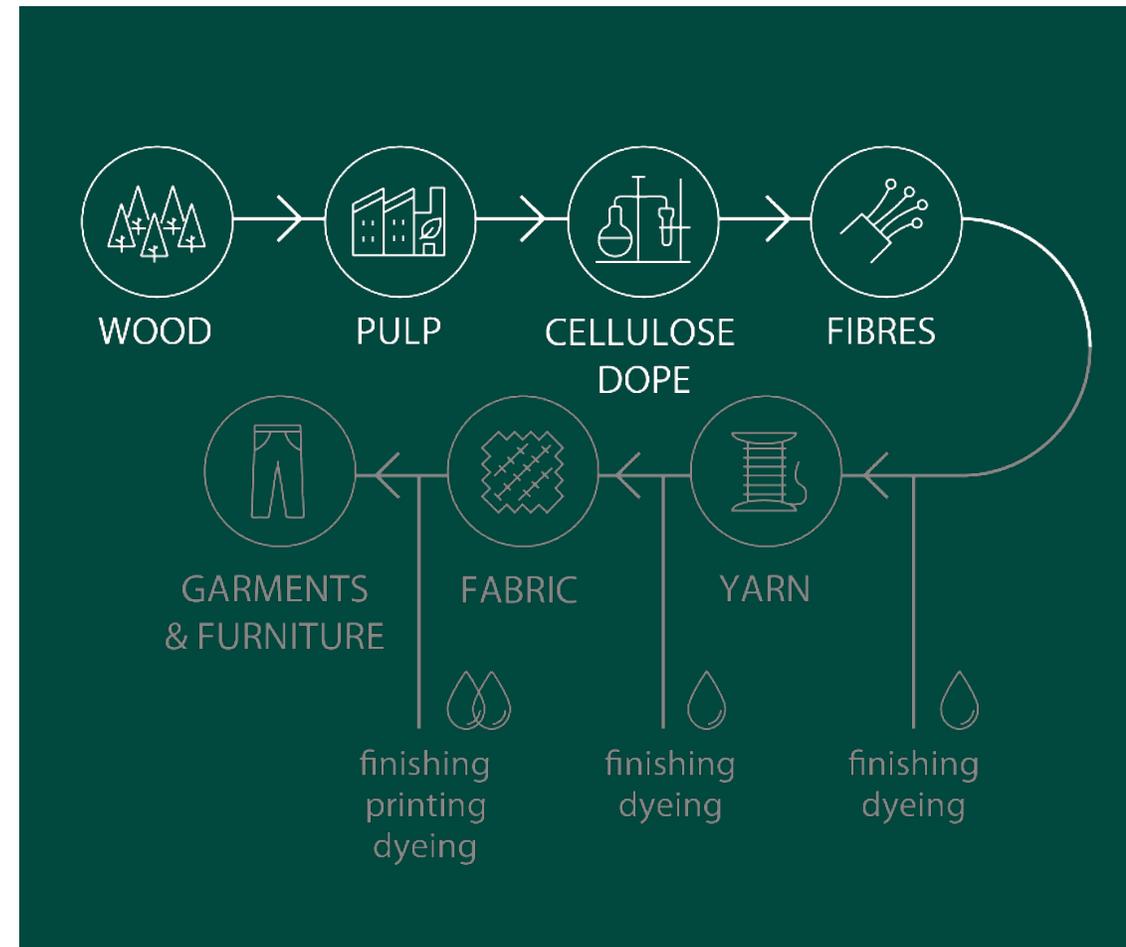
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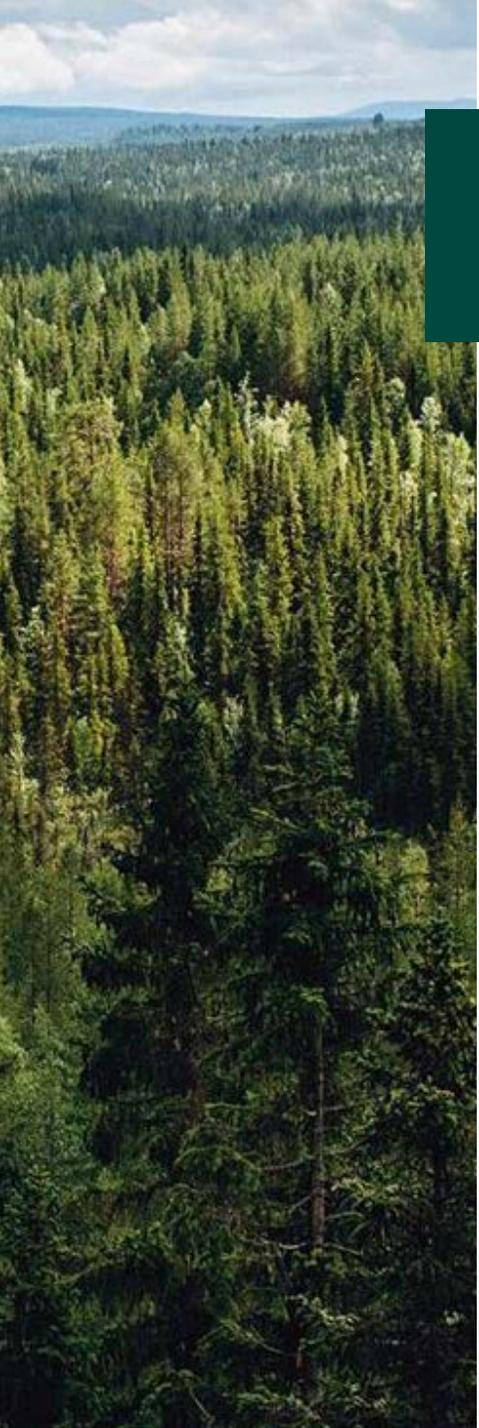


Horizon 2020 European Union Funding for Research & Innovation

IMPROVING THE EXISTING TEXTILE VALUE CHAIN THROUGH TECHNOLOGICAL INNOVATION

- **new raw material** based on European paper grade pulps,
- **novel solvent systems** based on ionic liquids,
- feasible and **sustainable modification** procedures for cellulose **dissolution** and **regeneration**.





PROCESS



Pulp



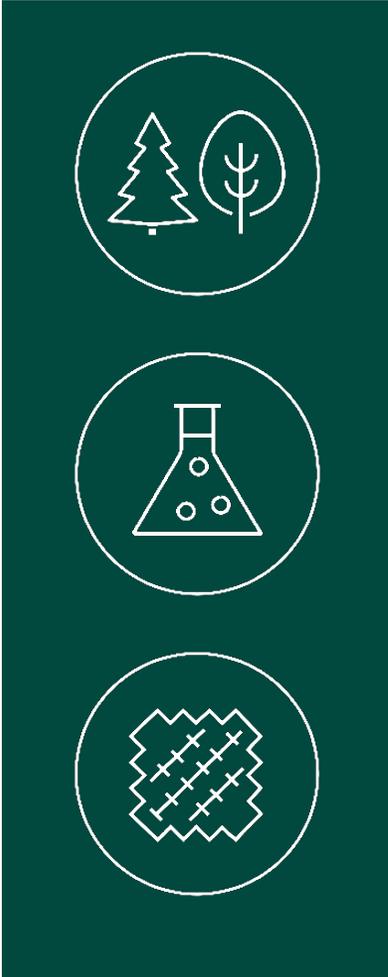
Ionic liquid



Spinning dope



Fibers

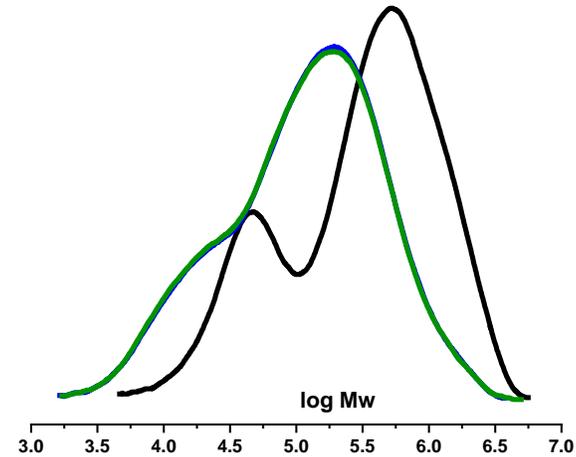


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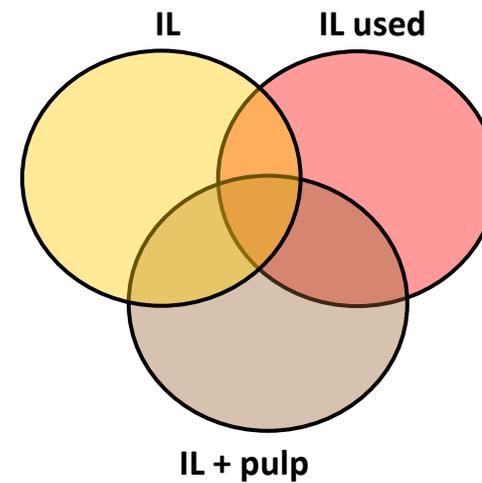




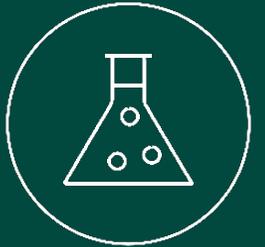
Pulp/Fibers/Modifications

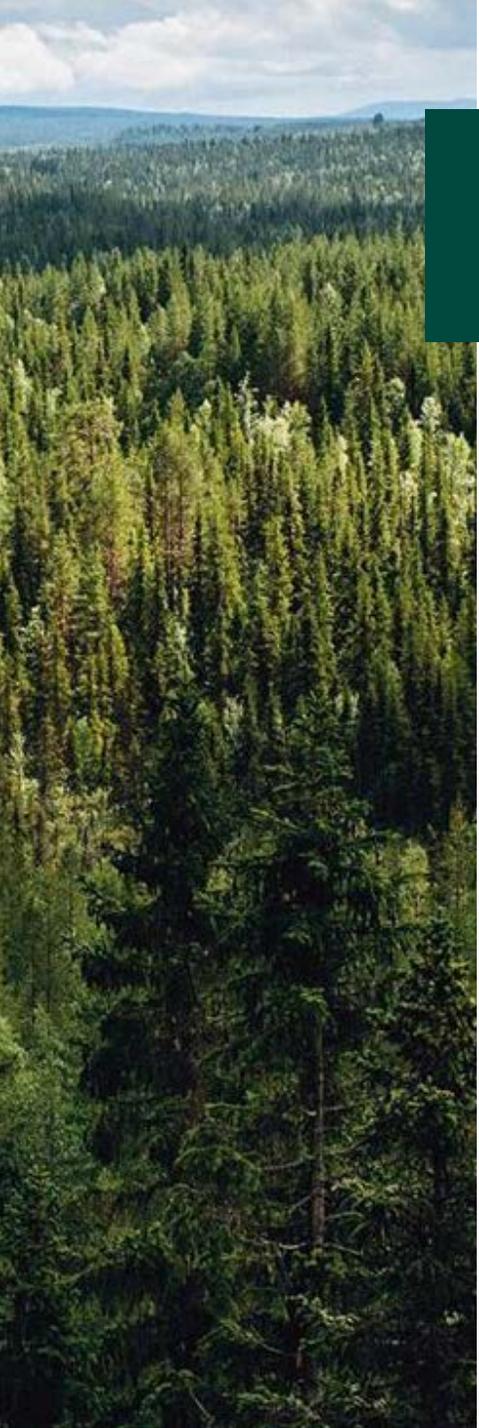


Ionic liquid



Side reactions / chromophores





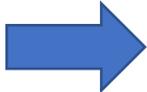
BOKU: Analysis



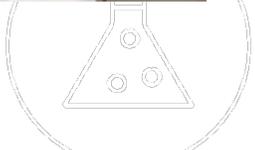
Fibers



Washing cycles



Analysis by qToF-MS



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Create new jobs and offer working opportunities in less populated rural areas of the EU

Forest-based industries provides income to around 16 million forest owners in the EU and help maintain employment and wealth generation in rural areas

Possibility to use forest-based raw materials free from herbicides and insecticides





Thank you!
Vielen Dank!

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