



Workforce  
**118 People**  
5 R&D Div.

Turnover  
**10 M€**

R&D Equipment  
**24 Pilots**

EU collaborations  
**18 Projects**  
5 coordinated

IP Portfolio  
**32 Patents**

Conformity  
Assessment  
**9 Labs**  
ISO17025

## R&D for value innovation

**CTP** is a key international player in the development of new materials and sustainable processes for the **cellulose, wood pulp, paper/cardboard** and **packaging** value chain.



# Driving the circular bioeconomy



## FIBRES AND PLANT CHEMISTRY

- Mechanical, chemical, unbleached and bleached pulps
- Natural Molecules



## FIBRES TREATMENT

- Mixing / Refining
- MicroFibrillated Cellulose
- Extrusion



## STRUCTURING OF MATERIALS

- Fractionation / Stratification
- 2D Materials (papers-boards) and 3D Materials (moulded cellulose / foams)

## BIOBASED MATERIALS



## SUSTAINABLE INDUSTRY

- Water use / Effluent
- Energy efficiency
- Decarbonisation



## PLANT OF THE FUTURE

- Efficient processes
- Digital models
- Simulation and monitoring



## CIRCULAR BIOECONOMY

- Eco-design
- Recycling / Deinking
- By-product recovery



## SENSORS

- Optics / Mechatronics
- Data Processing

## TECHNICAL AND DESIGN

## ECO-EFFICIENT PROCESSES

## CONFORMITY ASSESSMENT

## FUNCTIONAL PRODUCTS



## PRODUCT PERFORMANCE

- Fitness for purpose
- Runnability
- Flushability



## FOUR LABORATORIES

- Physical Testing
- Chemical, sensory and microbiological analysis



## FOOD CONTACT

- Inertia
- Declaration of compliance
- Good Manufacturing Practice



## PROCESSING CAPABILITY

- Alternative packaging solutions
- Bonding and sealing
- Forming



## SURFACE TREATMENT

- Coating
- Chromatogeny®
- Wet Lamination



## PRINTING PROCESSES

- Graphic
- Functional & Interactive
- Printed Electronics

# Pilot-scale equipment that makes a difference



Twin screw extrusion



Functional coating



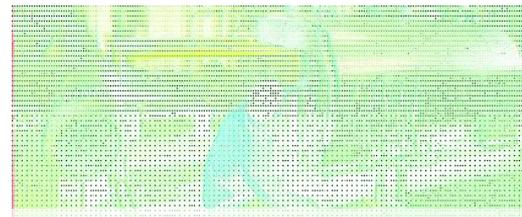
Micro-fibrillated cellulose



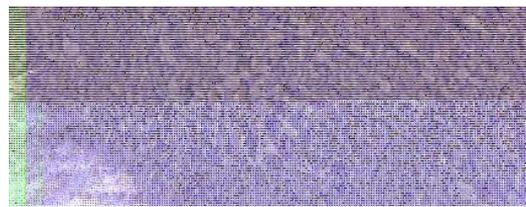
Molecules extraction



Screening and fractionation



Fibres functionalization



Technical lignins



Chromatogenic grafting



MFC wet lamination

# Sustainable wood- & plant-based materials

## BIO-BASED MATERIALS AND PROCESSES

### PROVIDES

"PROcesses for Value added fibres by Innovative Deep Eutectic Solvents"

**2015-2018**

H2020-BBI-JTI

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*Create a sustainable, economically feasible pulping technology for wood and agro-based lignocellulose raw materials using deep eutectic solvents, for lignin, hemicellulose, and cellulose fractionation at low temperatures and atmospheric pressure.*



### WOODZYMES

"Extremozymes for wood based building blocks: From pulp mill to board and insulation products"

**2018-2021**

H2020-BBI-JTI

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*Develop enzymes for wood processing, tolerant to extreme pH and temperature, to selectively valorize underutilized lignin and hemicellulose fractions, providing high-quality bio-equivalents of petroleum-based chemical building blocks.*



# Sustainable micro- & nano-engineered bio-materials

## BIO-BASED MATERIALS AND PROCESSES



### SUNPAP

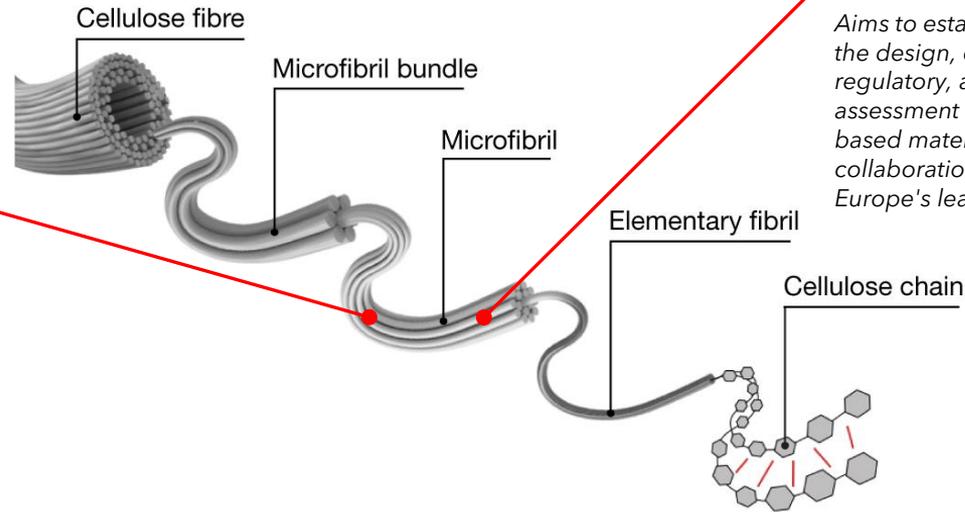
"Scale-up nanoparticles in modern papermaking"

**2009-2012**

H2020-NMP

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*The goal was to deploy M/NFC in various papermaking applications, focusing on high-performance goods, ecologically friendly production processes, and high-value fiber-based products with unique features, such as graphics papers and packaging boards.*



### BIONANOPOLYS

"Open innovation test bed for developing safe nano-enabled bio-composites for multifunctional and new advanced applications"

**2021-2024**

H2020-NMBP-TO-IND

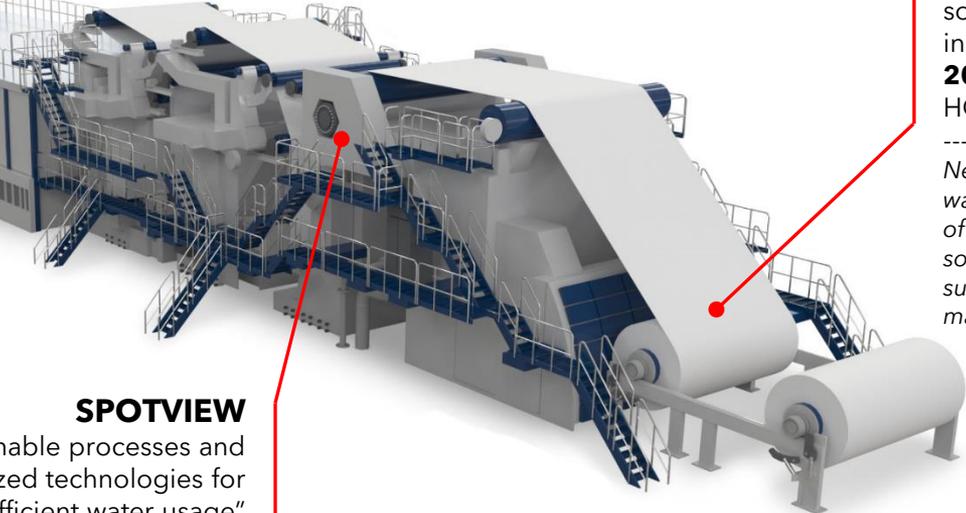
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*Aims to establish an open test bed for the design, development, testing, regulatory, and environmental assessment of nano-enabled bio-based materials, fostering collaboration and innovation to secure Europe's lead in this growing field.*



# Sustainable manufacturing bio-based industry

## RESOURCE-EFFICIENT PROCESSES



### **SORT IT**

“Recovered paper sorting with innovative technologies”

**2008-2011**

FP7-ENV

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*Efficient and cost-effective sorting of paper and cardboard: NIR spectrometry, image processing & sorting robots.*



### **SPOTVIEW**

“Sustainable processes and optimized technologies for industrially efficient water usage”

**2016-2020**

Coordinator

H2020-BBI-JTI

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*Innovative, efficient, and sustainable technologies to optimise the use of natural resources, particularly water.*



### **CORNERSTONE**

“Combined technologies for water, energy and solute recovery from industrial process streams”

**2023-2027**

HORIZON-CL4

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*New technologies using waste heat can recover 90% of wastewater energy and solutes, enhancing sustainable industrial water management in Europe.*



# Sustainable flexible & rigid fibre-based packaging

## BIO-BASED MATERIALS AND PROCESSES

### SHERPACK

"Innovative structured polysaccharides based materials for recyclable and biodegradable flexible packaging"

**2017-2020**

Coordinator

H2020-BBI-JTI

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*Recyclable, biodegradable and renewable paper-based material with increased rigidity to replace flexible plastic and aluminium packaging.*



### FORMCELL

"Flexible tool making process for wet moulding of cellulose"

**2016-2018**

H2020-EUROSTARS

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*Flexible, economical and fast process for manufacturing tooling assemblies for industrial wet cellulose molding.*



### CELLUWIZ

"Process developments for a recyclable and compostable all-cellulose multilayer material for packaging"

**2019-2022**

Coordinator

H2020-BBI-JTI

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*Production of renewable, recyclable and biodegradable all-cellulose packaging to replace multi-material and multi-layer plastics.*



# Sustainable electronics

## PRINTED ELECTRONICS ON PAPER

### A3PLE

“Autonomous Printed Paper products for functional Labels and Electronics”

**2011-2015**

Coordinator

FP7-NMP

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Sustainable, low-cost, large-area, hybrid organic and inorganic printing technologies for the manufacture of autonomous paper-based products.



### MARS-EV

“Materials for Ageing Resistant Li-Ion High Energy Storage for the Electric Vehicle”

**2013-2017**

FP7-NMP

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*Industrial prototype assembly of sustainable and safe electrolytes materials for high energy electrode.*



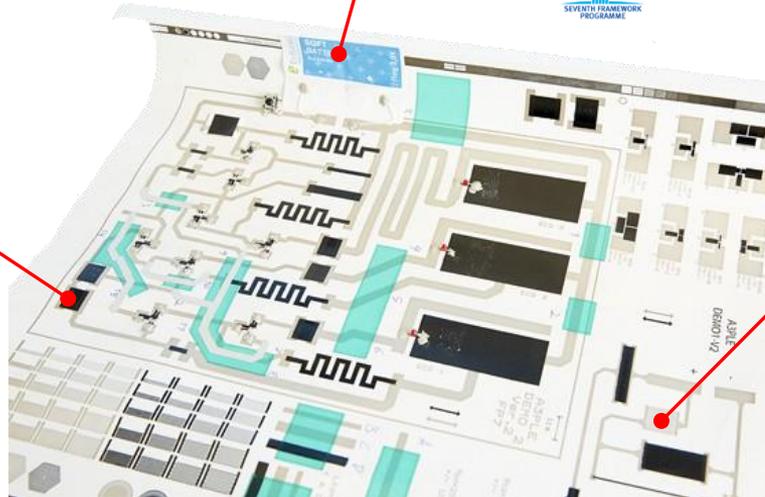
### GREENANOFILMS

“Development and application of ultra-high resolution nano-organized films by self-assembly of plant-based materials for next generation opto- and bio-electronics”

**2014-2017**

FP7-NMP

-----  
*Cellulose nanocrystals and nanofibres for ultra-high resolution nanostructured organic photovoltaics, nanolithography and biosensors.*





# AWP2026

## SELECTED TOPICS OF INTEREST FOR CTP



### Research & Innovation Action (RIA)

- **HORIZON-CL6-2026-01-CIRCBIO-07**  
Advancing the European bio-based innovation enabled by biotechnology and biomanufacturing concepts
- **HORIZON-CL6-2026-01-CIRCBIO-08**  
Supporting pre-normative research for standardization of the bio-based products

### Innovation Action (IA)

- **HORIZON-CL6-2026-01-CIRCBIO-02**  
Advancing recycling technologies for mixed post-consumer textiles waste from blended products

## Advancing recycling technologies for mixed post-consumer textiles waste from blended products

Proposals should:

- address textile consumer products made of fibre blends (e.g. polycotton, or other blends of multiple materials in combination such as bio-based and non-biobased);
- develop and advance novel and marketable solutions for post-consumer textile waste (apparel and home textiles) to enable its effective end-of-life collection, sorting and recycling (fibre-to-fibre), possibly including biotech solutions;
- **develop innovative techniques for effectively disassembling complex products, separating** multi-material layers and fibre blends and removal of non-textile components, coatings or contaminants to facilitate efficient recycling processes;
- assess the recyclability limits of textiles by determining the number of recycling cycles a fibre can undergo. When further fibre-to-fibre recycling is no longer viable, **alternative applications should be explored to extend the material's value**. Solutions should address recycling of blended products from both natural fibres (e.g., cotton) and synthetic polymers, ensuring optimal resource efficiency and minimizing waste throughout the textile lifecycle;
- characterize post-consumer textile waste in order to define appropriate management practices in particular if the technology is developed within an industrial and urban symbiosis;
- **advance recycling technologies that remove persistent chemicals (e.g. PFAS) from post-consumer textile waste that may harm human health and the environment.**

- **CTP's technical capabilities & scientific expertise**
  - Alternative application when recyclability limits are reached: using small fibres to produce paper, molded cellulose or Microfibrillated cellulose (MFC)
  - 2 industrial companies are already interested (an equipment manufacturer and a paper producer)
    - ✓ Paper and MFC production at lab and pilot scale and characterization
    - ✓ Expertise in separating, cleaning, bleaching ... "fibres" if needed
  - Cellulosic textile fiber obtained by a patented process of dissolution/regeneration of cellulose, less polluting and less energy-intensive (at room temperature) than the viscose process
  - Mechanical disassembling steps/ equipment through the manufacturer

## Advancing the European bio-based innovation enabled by biotechnology and biomanufacturing concepts

Proposals should:

- address textile consumer products made of fibre blends (e.g. polycotton, or other blends of multiple materials in combination such as bio-based and non-biobased);
- develop and advance novel and marketable solutions for post-consumer textile waste (apparel and home textiles) to enable its effective end-of-life collection, sorting and recycling (fibre-to-fibre), possibly including biotech solutions;
- **develop innovative techniques for effectively disassembling complex products, separating** multi-material layers and fibre blends and removal of non-textile components, coatings or contaminants to facilitate efficient recycling processes;
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- **advance recycling technologies that remove persistent chemicals (e.g. PFAS) from post-consumer textile waste that may harm human health and the environment.**

- **CTP's technical capabilities & scientific expertise**
- End-user on this type of project, as we are looking for:
  - ✓ Need for new enzymes able to weaken cellulose without impacting Dp (Cellulose Degree of polymerization) in order to produce MFC (microfibrillated cellulose) to bring excellent and permanent grease properties to paper packaging all along the entire life cycle.
  - ✓ Need for enzymes to decontaminate sludge/discharge from papermaking processes in order to remove substances of concern (mineral oils, phthalates, bisphenols, PFAS, or PE/PP microplastic)

For both points CTP own pilotes at right TRL and expertise to test the enzyme efficiency

# HORIZON-CL6-2026-01-CIRCBIO-08 (RIA)

## Supporting pre-normative research for standardization of the bio-based products

Proposals should address the following activities:

- support development of Ecodesign applicable to the selected bio-based sectors/industry , aiming at overall high sustainability and environmental benefits, as well considering the economic feasibility, for high quality of final products;
- identify specific gaps in standardization research pipeline, for bio-based products, followed by pre-normative R&D tasks, aiming at high socio-economic and environmental impact, allowing the development and deployment of safe, sustainable, circular bio-based value chains/products;
- engage with relevant stakeholders from bio-based industry and standardisation bodies, as well as policy makers and authorities at national and European level, creating community of practice, aiming at transparency and inclusiveness, for subsequent market uptake of innovative and competitive solutions.

### • **Compétences CTP**

- ✓ **Coordination**
- ✓ **Consortium under construction**
- ✓ **Looking for partners able to work on SSH and Ecodesign**



### Research & Innovation Action (RIA)

- **CBE-2026-RIA-01** Addressing separation and purification challenges in biorefineries
- **CBE-2026-RIA-02** SSbd bio-based polymers from alternative sources
- **CBE-2026-RIA-03** Develop breakthrough and sustainable bio-based textile fibres

### Innovation Action (IA)

- **CBE-2026-IA-01** Biotech routes for valorisation of residual biomass
- **CBE-2026-IA-03** Bio-based chemicals and/or materials from woody residues
- **CBE-2026-IA-05** Films and coatings for circular packaging

### Flagship

- **CBE-2026-IAFlag-01** Boosting biorefinery competitiveness through biotech



## Differentiating technologies & industrial applications

- Use of energy efficient and solvent-free extraction of bio-based products by twin screws technology in biorefineries (lab (1 to 2 kg /h dry) and pilot scale (5 to 20 kg/h dry))



## Differentiating technologies & industrial applications

- WP leader as end-user in paper making industry :
  - ✓ Test the suitability of obtained bio-based polymers in circular-by-design final applications such as packaging for example: Coating / spray / printing of these polymers on paper (lab and pilot scale)
  - ✓ Application of super hydrophobic bio-based surface treatment (chromatogeny) to apply in combination with these polymers
  - ✓ Test the suitability of obtained bio-based polymers in bulk (to bring wet strength...)
  - ✓ Characterization of barrier properties (oxygen, grease, water, water vapor), mechanical properties
  - ✓ Taking into account regulations for packaging recycling (PPWR) and suitability for food contact
  - ✓ Testing of suitability for converting and sealing (glue, ultrasonic welding)
  - ✓ Capabilities for flexible and rigid packaging (pouch/sachet, trays), laboratory scale or semi-industrial pilots
  - ✓ Recycling in pulp and paper sector
  - ✓ Proof of concept production



#### Differentiating technologies & industrial applications

- Cellulosic textile fiber obtained by a patented process of dissolution/regeneration of cellulose, less polluting and less energy-intensive (at room temperature) than the viscose process

#### Technical capabilities & scientific expertise

- Production of dissolved cellulose pulp (100g to 2 kg/h)



#### Differentiating technologies & industrial applications

- Use of energy efficient and solvent-free extraction of bio-based products by twin screws technology in biorefineries (lab (1 to 2 kg /h dry) and pilot scale (5 to 20 kg/h dry))

#### Technical capabilities & scientific expertise

- Biomass treatment and pre-treatment processes for the extraction of compounds of interest
- End-user to test of developed bio-based chemicals as additives in suitable paper making applications : molded cellulose, MFC production, injection products...



#### Differentiating technologies & industrial applications

- Biomass treatment processes for the extraction of compounds of interest
- Valorization of unexploited lignocellulosic forest biomass (hedges, coppices, knots, bark) for the production of bio-sourced additives such as MFC or dissolved cellulose
- Valorisation in molded cellulose, injection
- Extraction of high value-added compounds (turpentine, soap, fatty acids, resin acid, polyphenols, etc.) by different solvent-free extraction techniques (e.g. twin screw) preserving the values/properties of the fibers for papermaking

#### Technical capabilities & scientific expertise

- Depending on the unexploited forest biomass, different scenarios can be considered:
- < 100 tons/day: decentralized mini-mill concept for the versatile production of pulp, for example to the production of molded cellulose packaging or tissue paper (local production, decarbonization, drying energy savings)
- > 100 tons/day: integrated plants for the economic production of bleached pulp and production of MFC
- Characterization of biomass (lignin content, resin content, etc.) by NIR and chemical analyses (fiber morphologies)
- Ongoing partnerships with leading industrialists in the forestry sector
- Capabilities for laboratory scale tests or semi-industrial pilots (cooking, bleaching, twin-screw extruder...)



#### Differentiating technologies & industrial applications

- Implementation of bio-based coatings for molded cellulose packaging using multi-layer technology (hyper-refined pulps and microfibrillated cellulose). Provides barrier properties, improve mechanical strength and reduce weight ( $\gt 50\text{g/m}^2$ ), control surface finish and dust release.
- Chromatogeny treatment that provides hydrophobicity (CBE CELLUWIZ project - Food contact approved by BFRXXXVI in 08/2024)

#### Technical capabilities & scientific expertise

- Application of new bio-based coatings to packaging papers using all coating and printing technologies (blade, spray, size press, printing, etc.).
- Printability expertise : assessment and recommendation for main industrial printing processes (offset, flexo, gravure, inkjet and screen) using several specific pilot presses and trials in industrial conditions
- Needs for new bio-based coatings for sealing the sheet structure and porosity, for high-performance barriers (water, vapor, gas, contaminants), and for bonding (hot-melt, cold-set, ultrasonic).

We would be happy to discuss potential collaboration...



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# Successful transfers from R&D to industry

CTP collaborates closely with more than **800 industrial** partners in **Pulp & Paper** and **related industries** printing, packaging, converting, end-users, suppliers, equipment manufacturers, food and drugs, luxury, textile, building

