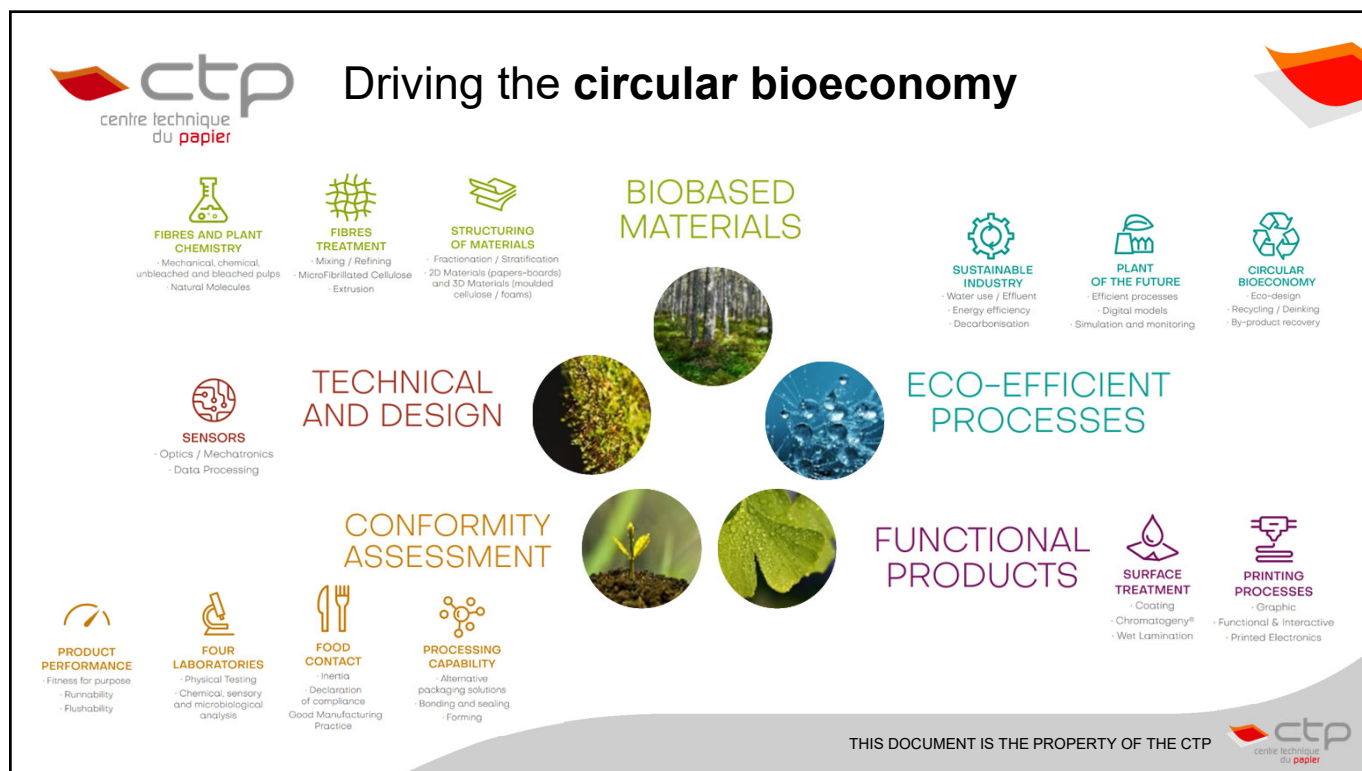
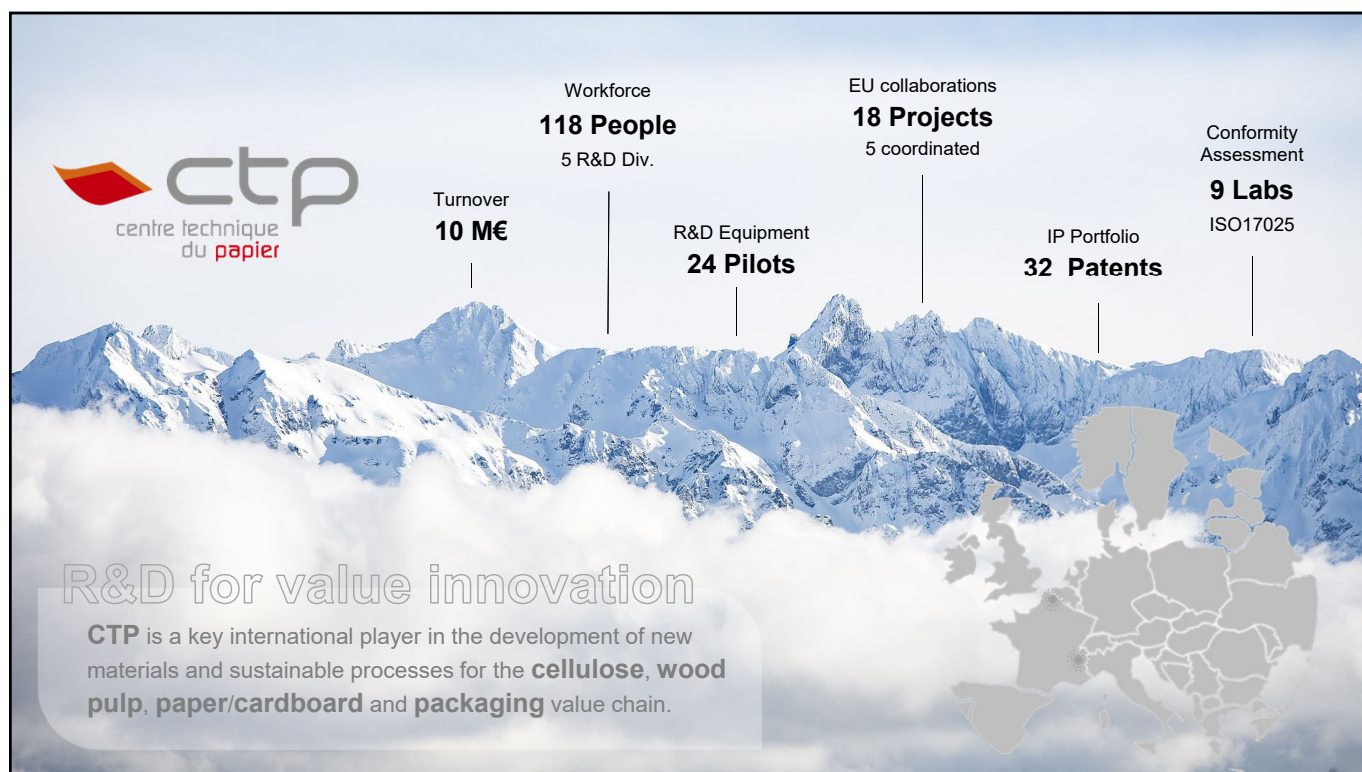




Pilot-scale equipment that makes a difference



Twin screw extrusion



Functional coating



Micro-fibrillated cellulose



Molecules extraction



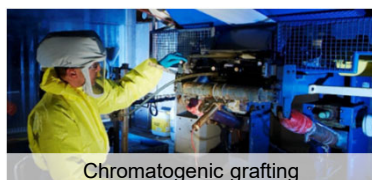
Screening and fractionation



Fibres functionalization



Technical lignins



Chromatogenic grafting



MFC wet lamination

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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

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.



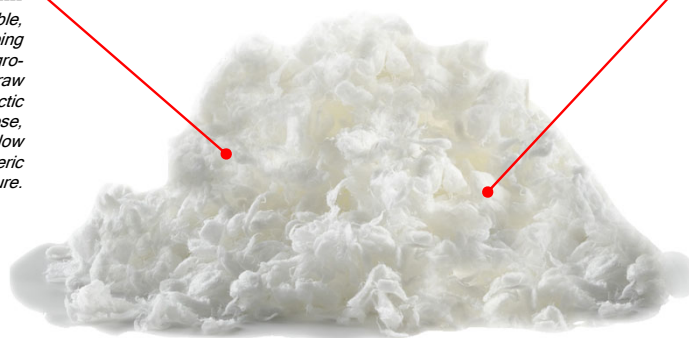
WOODZYMES

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

2018-2021

H2020-BBI-JTI

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.



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Sustainable micro- & nano-engineered bio-materials

BIO-BASED MATERIALS AND PROCESSES

SUNPAP

"Scale-up nanoparticles in modern papermaking"

2009-2012

H2020-NMP

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.



Cellulose fibre

Microfibril bundle

Microfibril

Elementary fibril

Cellulose chain

BIONANOPOLYS

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

2021-2024

H2020-NMBP-TO-IND

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.



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Sustainable manufacturing bio-based industry

RESOURCE-EFFICIENT PROCESSES

SORT IT

"Recovered paper sorting with innovative technologies"

2008-2011

FP7-ENV

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

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

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



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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

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

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

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



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Sustainable electronics

PRINTED ELECTRONICS ON PAPER

A3PLE

"Autonomous Printed Paper products for functional Labels and Electronics"

2011-2015

Coordinator

FP7-NMP

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

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



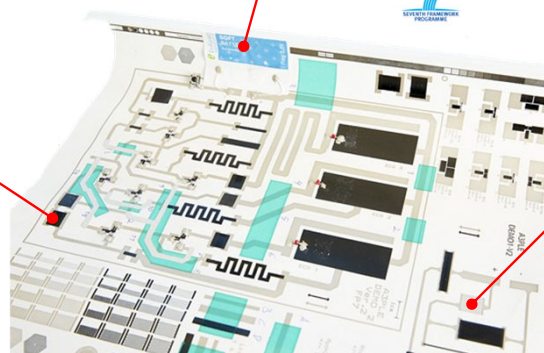
GREENANOFILMS

"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.



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AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



Research & Innovation Action (RIA)

- **CBE-2025-RIA-01** *Valorisation of untapped forest biomass*

Flagship

- **CBE-2025-IAFlag-03** *Circular-by-design fibre-based packaging with improved properties*

Innovation Action (IA)

- **CBE-2025-IA-01** *Sustainable macroalgae systems for innovative, added-value applications: cultivation and optimised production systems*
- **CBE-2025-IA-02** *SSbD bio-based solutions to replace hazardous conventional chemicals for textiles production*

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AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



Research & Innovation Action (RIA)

CBE-2025-RIA-01 *Valorisation of untapped forest biomass*

CTP's differentiating technologies & industrial applications

- Valorization of unexploited lignocellulosic forest biomass (hedges, coppices, knots, bark) for the production of bio-sourced additives such as MFC or dissolved cellulose
- Molded cellulose, dry fibre-packaging manufacturing
- 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

CTP's 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 the production of MFC
- Characterization of biomass (lignin content, resin content, etc.) by NIR and chemical analyses.
- Ongoing partnerships with leading industrialists in the forestry sector.
- Capabilities for laboratory scale tests or semi-industrial pilots

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AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



Innovation Action (IA)

CBE-2025-IA-01 *Sustainable macroalgae systems for innovative, added-value applications: cultivation and optimised production systems*

CTP's differentiating technologies & industrial applications

- Super hydrophobic surface treatment (chromatogeny patent) to be applied on alginate for a fully bio-sourced barrier solution.
- Biomass treatment processes for the extraction of compounds of interest

CTP's technical capabilities & scientific expertise

- Implementation and use of algae-derived products for Pulp & Paper sector
- Bio-sourced barrier layers for paper and cardboard packaging
- Multiple deposition techniques (blade coating, bar coating, spray, dip-coating, etc.)
- Evaluation of barrier properties (oxygen, grease, water, water vapor)
- 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, 2D and 3D, laboratory scale or semi-industrial pilots
- Use of algae as filler/binder/pigments/additive for various properties in formulations (e.g dry strength)
- Production of algae-based micro-fibrillated cellulose (MFC)

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AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



Innovation Action (IA)

CBE-2025-IA-02 *SSbD bio-based solutions to replace hazardous conventional chemicals for textiles production*

CTP's differentiating technologies & industrial applications

- Super hydrophobic bio-based surface treatment on textiles, for the replacement of PFAs
- 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
- New pretreatment technology for the preparation of dissolved cellulose pulp with a small amount of hemicellulose
- Grafting of multi-functional molecules
- Cellulose-grafted for multi-functional applications (e.g. fire-retardant)

CTP's technical capabilities & scientific expertise

- Implementation of roll-to-roll deposition processes on a textile support (all printing or coating technologies)
- Recycling of cellulosic textiles (sorting, fractionation, fiber characterization technologies, etc.)
- Capabilities for laboratory scale tests or semi-industrial pilots

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AWP2025

SELECTED TOPICS OF INTEREST FOR CTP

Flagship

CBE-2025-IAFlag-03 *Circular-by-design fibre-based packaging with improved properties*

CTP's differentiating technologies & industrial applications

- Among the various possibilities, our following technologies have reached a technological maturity compatible with a flagship demonstrator:
- Chromatogeny that provides hydrophobicity (CBE CELLUWIZ project - Food contact approved by BFRXXXVI in 08/2024)
- Production and deposition of high-consistency MFCs on/into paper, cardboard or molded cellulose for excellent barrier properties to grease, gases and contaminants but also to improve physical properties
- Recycling technologies for new challenges: decontamination, improvement of physicochemical properties, assessment of recyclability and reduction of discharges.

CTP's technical capabilities & scientific expertise

- Capabilities for laboratory scale tests or semi-industrial pilots

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Cluster 6

AWP2025

SELECTED TOPICS OF INTEREST FOR CTP

Innovation Action (IA)

- **CL6-2025-01-CIRCBIO-11** *Demonstration of reduced energy use and optimised flexible energy supply for industrial bio-based systems*



Innovation Action (IA)

- **CL6-2025-01-ZEROPOLLUTION-04** *Towards a comprehensive European strategy to assess and monitor aquatic litter including plastic and microplastic pollution*
- **CL6-2025-01-ZEROPOLLUTION-07** *Reducing pollution from the food and drink industries*
- **CL6-2025-01-ZEROPOLLUTION-01-two-stages** *Substances of concern and emerging pollutants from bio-based industries and products: mapping and replacement*

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Cluster 6

AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



IA → TRL6-7

CL6-2025-01-CIRCBIO-11 *Demonstration of reduced energy use and optimised flexible energy supply for industrial bio-based systems*

CTP's differentiating technologies & industrial applications

- Integrate our various energy reduction strategies into an overall paper mill project
- Compression refining technology and its impact on energy consumption.
- Integration of heat pumps with different strategies for using recovered energy.
- Looking at the impact of enzymatic treatments prior to compression refining.

CTP's technical capabilities & scientific expertise

- Capabilities for laboratory scale tests or semi-industrial pilots

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Cluster 6

AWP2025

SELECTED TOPICS OF INTEREST FOR CTP



IA

CL6-2025-01-ZEROPOLLUTION-04 *Towards a comprehensive European strategy to assess and monitor aquatic litter including plastic and microplastic pollution*

CTP's differentiating technologies & industrial applications

- In the field of industrial water and wastewater treatment plant discharges, we can characterize and quantify micro-plastics. micro-plastics.
- We have developed a measurement method, involving preparation, identification and automatic characterization by NIR analysis and automation.
- In the case of complex samples, we need to work on isolating micro-plastics from other fibrous elements.

CTP's technical capabilities & scientific expertise

- Capabilities for laboratory scale tests or semi-industrial pilots

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Cluster 6

AWP2025

SELECTED TOPICS OF INTEREST FOR CTP

IA → TRL6-7

CL6-2025-01-ZEROPOLLUTION-07 *Reducing pollution from the food and drink industries*

CTP's differentiating technologies & industrial applications

- Development of a method for the determination of micro-plastics and (NIAS) Non-Intentionally Added Substances in foodstuffs. Evaluation of food migration in contact with plastic packaging or paper-cardboard/PE(T) complexes.
- Management of pulper output waste streams or deinking sludge For food packaging recycling.
- Decontamination of 'persistent chemicals' from microbial contamination brought by food residues in the packaging, on process wells and paper products.

CTP's technical capabilities & scientific expertise

- Capabilities for laboratory scale tests or semi-industrial pilots

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Cluster 6

AWP2025

SELECTED TOPICS OF INTEREST FOR CTP

IA → TRL6-7

CL6-2025-01-ZEROPOLLUTION-01-two-stages *Substances of concern and emerging pollutants from bio-based industries and products: mapping and replacement*

CTP's differentiating technologies & industrial applications

- PFAS replacement solution: PVOH layer and patented chromatogenic grafting (food contact accreditation)
- Barrier coating solutions for paper/cardboard packaging to replace fluorine.
- Need to replace phthalates in adhesives Glue-free paper/board assembly using ultrasonic technology. Analysis of unintentionally added migration compounds (on PVOH layer, cellulose micro-fibril layers). Application to wood, paper and cardboard packaging.
- Assessment of substances of concern and pollutants in packaging for recycling: which substances? which transmission vectors? Development and evaluation of decontamination techniques applied to paper processes / products.

CTP's technical capabilities & scientific expertise

- Capabilities for laboratory scale tests or semi-industrial pilots

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