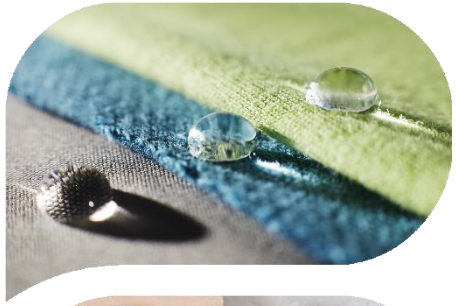
Celluwiz



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

Philippe Martinez

Grenoble, June 11th 2021

RIA project - TRL3 to TRL 5
June 2019 – Nov 2022

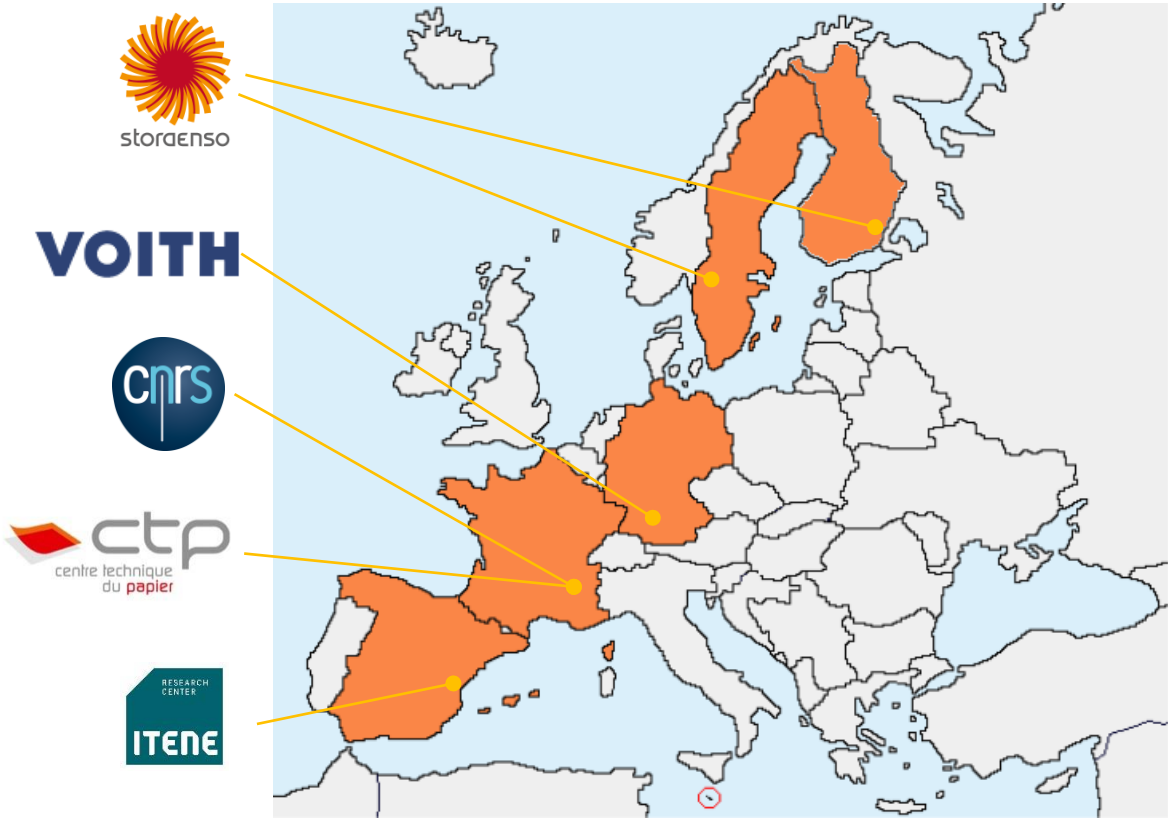
Bio-based Industries Consortium

Horizon 2020
European Union Funding
for Research & Innovation

BBI JU

CelluWiz Partnership

- Two industrialists
  - Stora Enso
  - Voith
- Two research centers
  - CTP
  - ITENE
- Two public laboratories
  - CNRS - Cermav
  - CNRS – 3SR



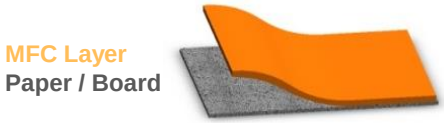
CelluWiz Objective

Develop two technologies to produce High Barrier All-Cellulose Packaging Materials

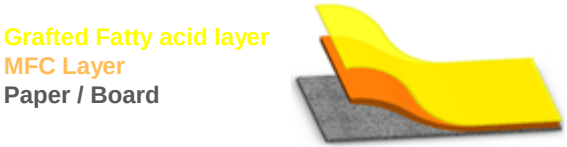
- Competitive with current plastic based materials
  - Same barrier performances
- But Recyclable and Biodegradable
  - Recycled in paper stream
  - Biodegradable in compost medium and in marine environment

CelluWiz Key Technologies

- MFC wet lamination technology
  - To bring barrier to grease, oxygen, contaminants



- Chromatogeny grafting
  - To protect MFC layer from moisture
  - To bring water and water vapour barrier

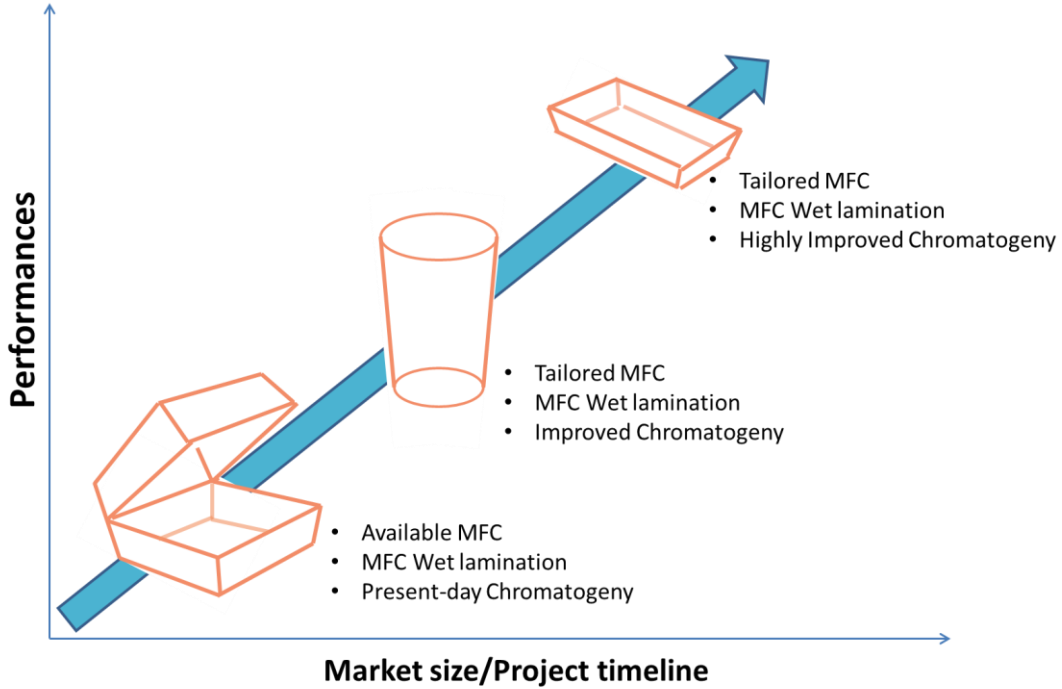


Both technologies preserve

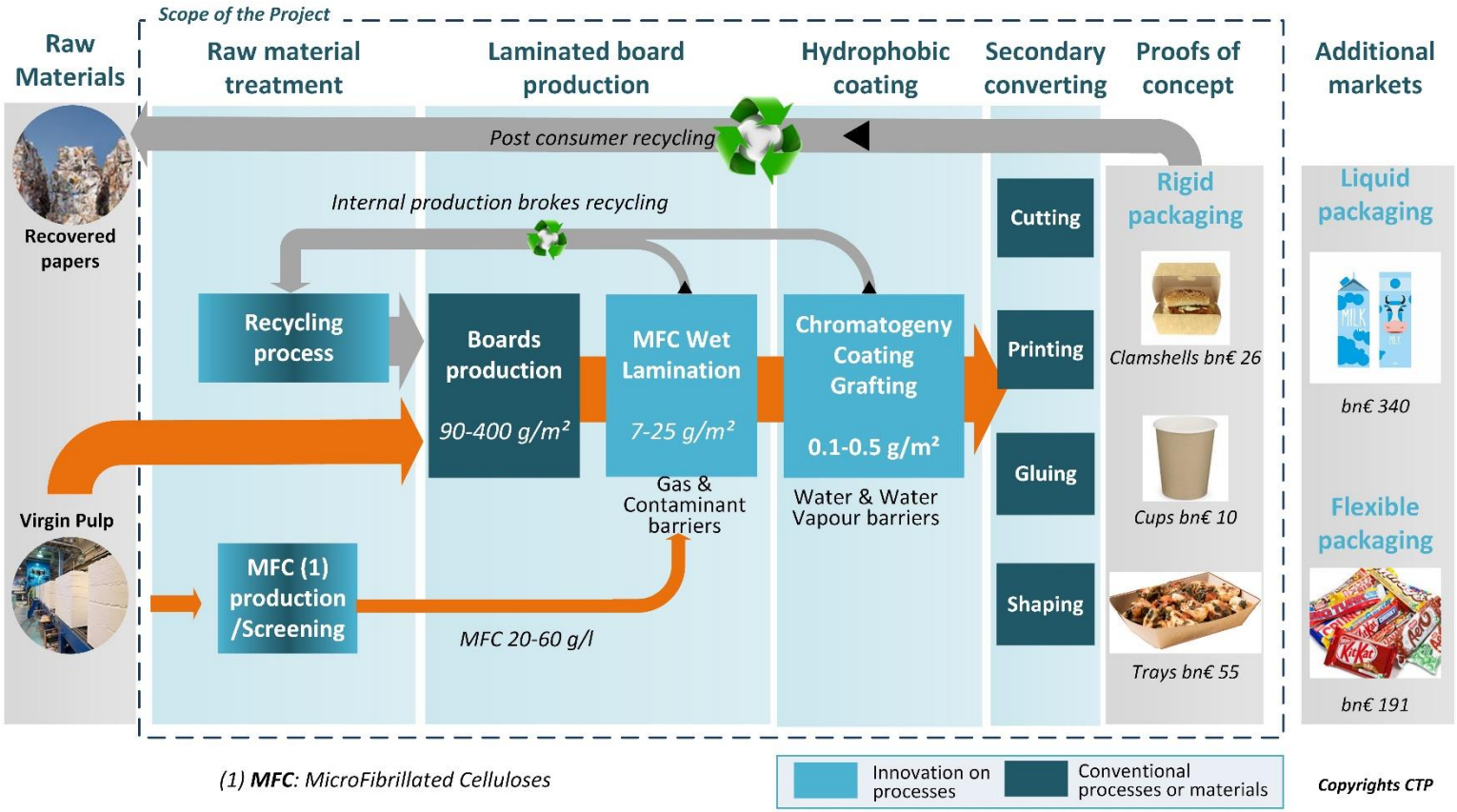
- Recyclability
- Biodegradability

CelluWiz Proofs of Concept

- 3 proofs of concept with increasingly demanding requirements



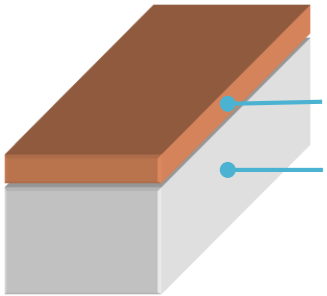
Project concept



Chromatogeny applied to MFC wet laminated board

MFC wet laminated board

- Barrier performances
  - Grease ✓
  - Oxygen ✓
  - Water ✗
  - Water vapour ✗
- End of life
  - Recyclable ✓
  - Biodegradable ✓

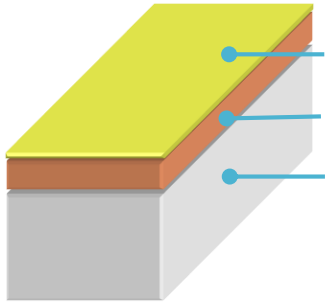


MFC layer : 15 to 30g/m²
Barrier to grease, O_2

Board
Mechanical performances
Dimensional stability

Chromatogeny on MFC wet laminated board

- Barrier performances
  - Grease ✓
  - Oxygen ✓
  - Water ✓ ✓
  - Water vapour ✓ ✓
- End of life
  - Recyclable ✓
  - Biodegradable ✓



Chromatogeny : 4 passes
Barrier to water & water vapour
MFC layer: 15 to 30g/m²
Barrier to grease, O_2

Board
Mechanical performances
Dimensional stability

→ **All cellulosic packaging material**

RIA project - TRL3 to TRL 5
June 2019 to Nov. 2022

Celluwiz

High Barrier All-Cellulose Packaging Materials

Recyclable - Biodegradable

See www.celluwiz.eu for more information

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