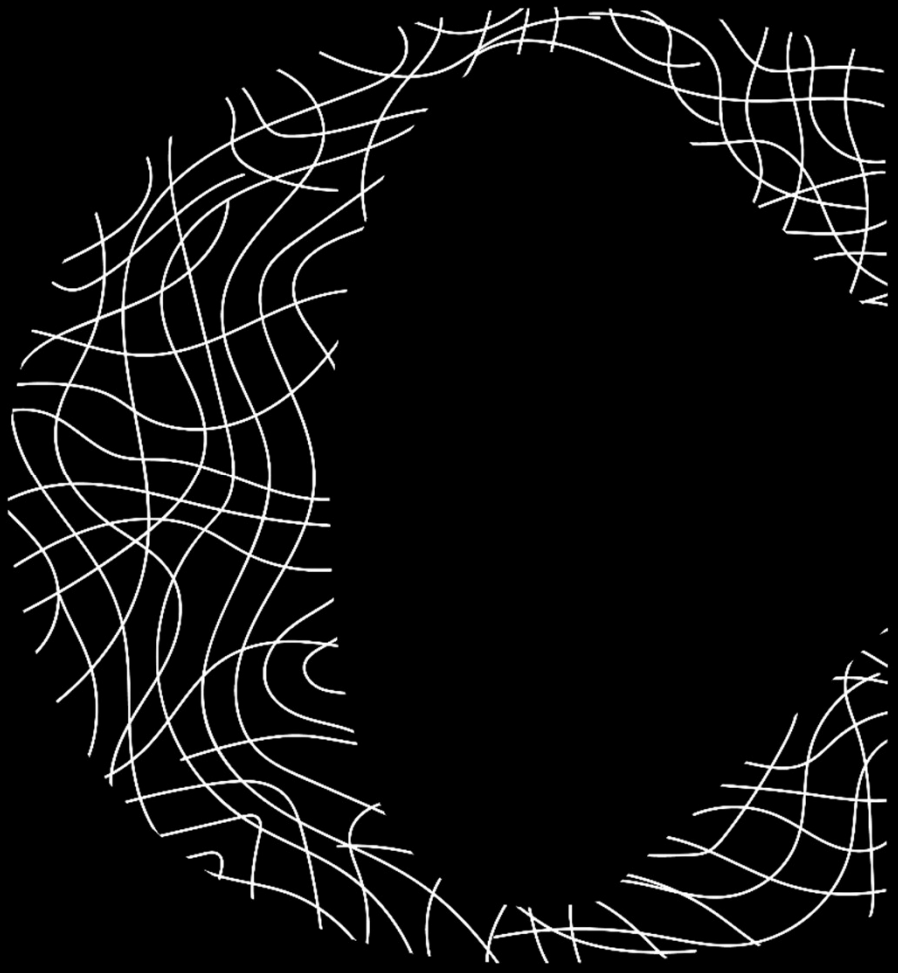


PRIVATE CENTER FOR APPLIED RESEARCH AND INNOVATION FOR A SUSTAINABLE TEXTILE INDUSTRY

Our expertise in innovation and sustainability

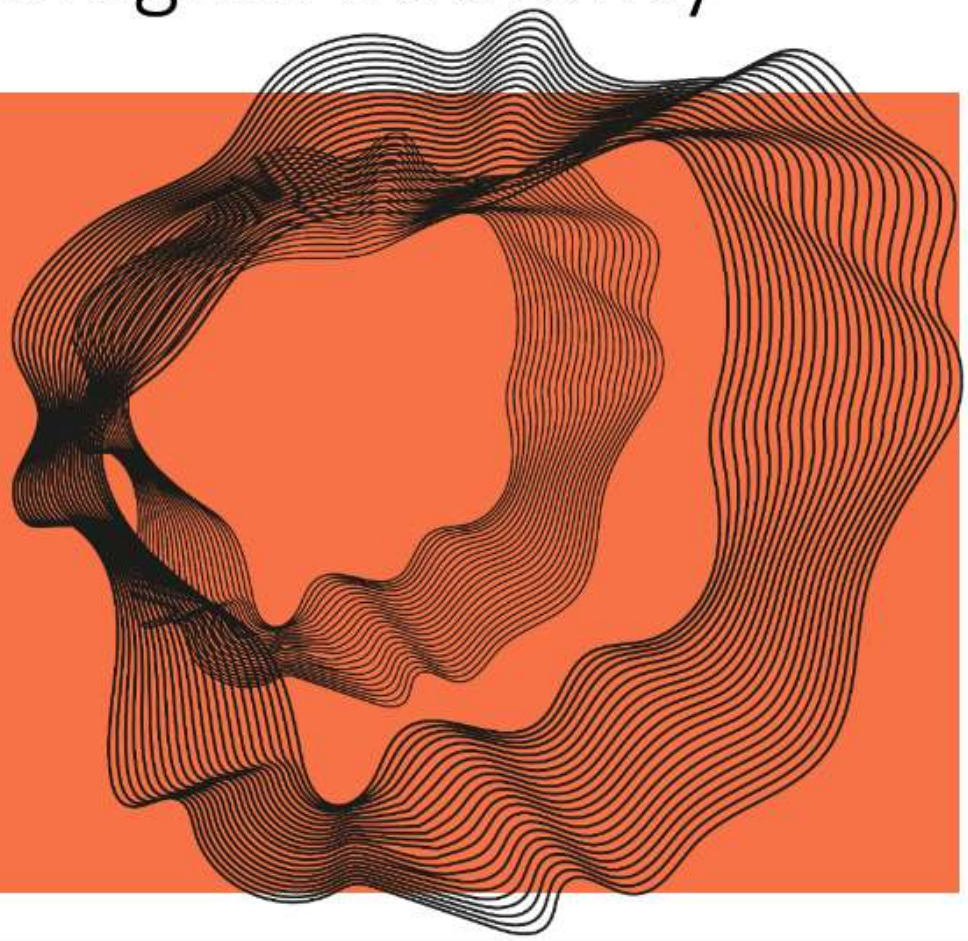
Ceti TRANSFORMATIVE TEXTILES

CETI : creative and technological authority

A unique collaborative place of **60 000 sq.ft dedicated to creativity, engineering and prototyping**,

Innovating under confidentiality for 10 years **with leading brands** of technical textiles, professional equipments, sports, fashion and luxury,

Helping **to accelerate the digital and sustainable transformation of textile industry**.



Supporting the circular and digital transition of textile industries

A **passionate & engaged team dedicated to tailor-made projects support** comprising of technical profiles (engineers, PhD), business experts (product managers, brand strategists, CSR experts)




World class network

ETP

CIRFS
EUROPEAN MAN-MADE FIBRES ASSOCIATION

edana

IVGT

UNIDO

EuraMaterials

techtera

FET
FIBRE EXTRUSION TECHNOLOGY

EREMA
PLASTIC RECYCLING SYSTEMS

coperion

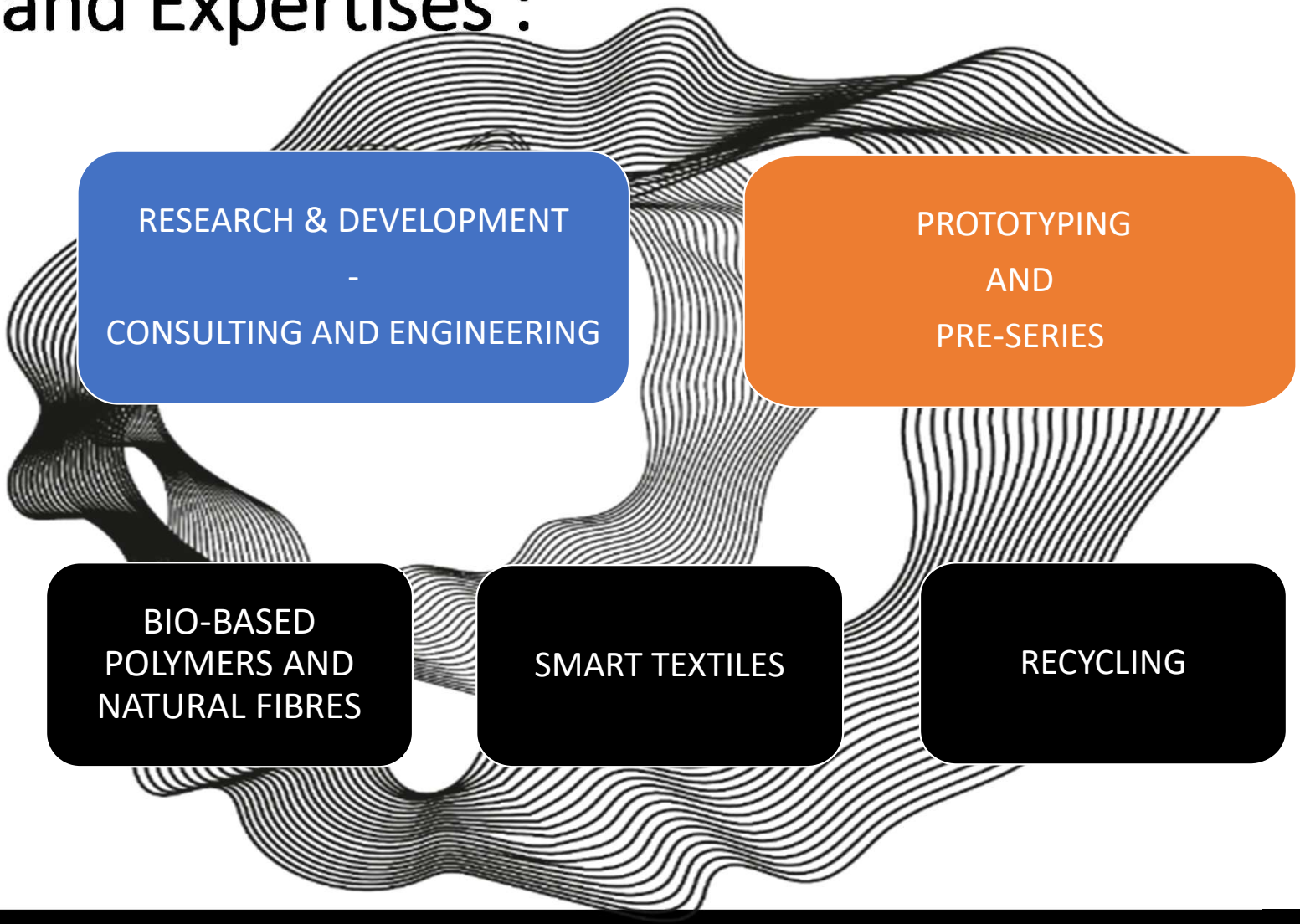
HILLS INC.

DIENES

ANDRITZ

LECTRA

Services and Expertises :



Our unique expertise

TRL 1-2

Design of Innovation

- State of the art
- Design thinking workshop

TRL 2-4

Knowing transmission

- Knowledge transfer *Textile Engineering*
- Skills development *Training course*

TRL 4-8

Prototyping

- Material & product development
- Econological Modeling of products
- 3D Modeling
- Modelling of on-demand production
- Process optimization

TRL 7-9

Industrial Transfer

- Projection of technology implementation
- Industrial layout design
- Launching of industrial line

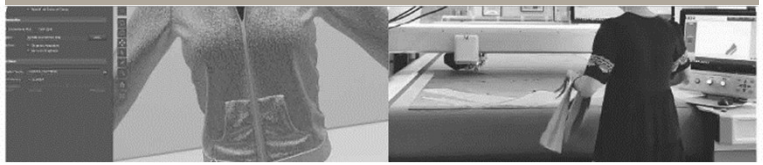
Ceti TRANSFORMATIVE TEXTILES

6 prototyping and industrialization platforms

ECODESIGN

MATERIAL & SHAPE DESIGN
3D SIMULATION

PRODUCTION DESIGN
CUTTING & TAYLORING



NONWOVENS

SPUNLAID

DRYLAID

FIBRES & FILAMENTS

COMPOUND

MELT SPINNING

TEXTILE TO TEXTILE RECYCLING

MECHANICAL
CUTTING & FRAYING

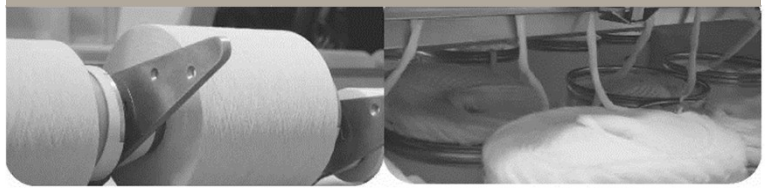
THERMOMECHANICAL
DENSIFICATION & PELLETIZING

YARN & FABRICS

YARN SPINNING

WEAVING

KNITTING

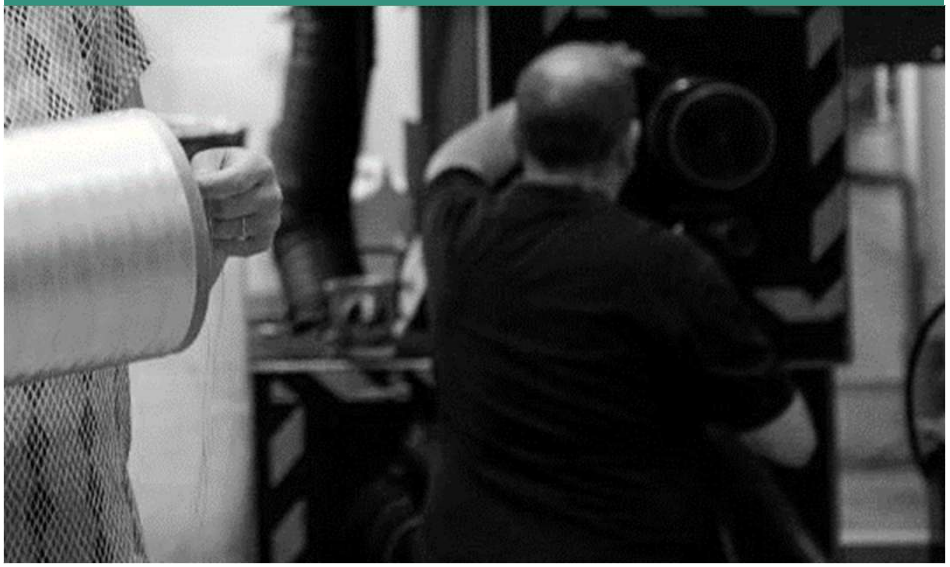


WETSPINNING

MAN MADE FILAMENT
CELLULOSIC OR PROTEINIC

MAN MADE FIBRES
CELLULOSIC OR PROTEINIC

Fibres /Filaments /Resins

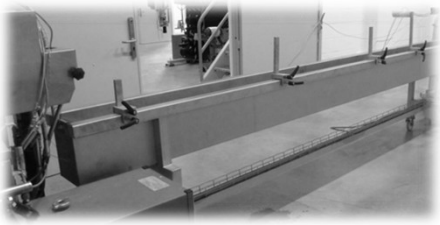


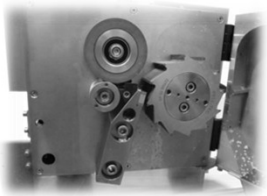
Ceti TRANSFORMATIVE TEXTILES

Compound & rheology platform

Measurement of rheological properties :

- Residence time
- Degradation Temperature
- Thermal stability
- Polymer compatibility

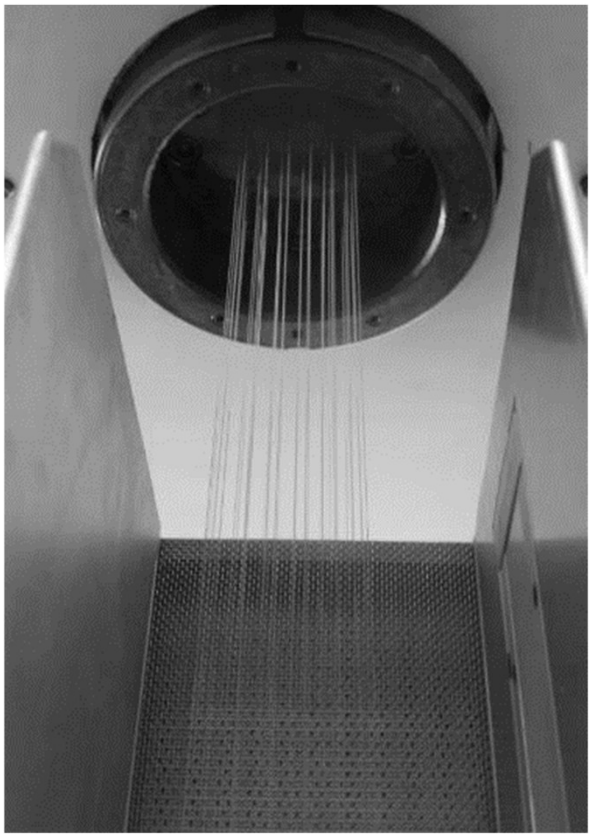


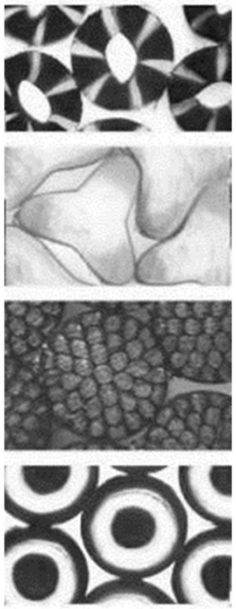


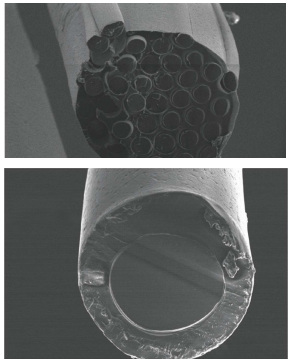
Advanced polymer compounding applications

- Fillers as SiO_2, TiO_2 & Carbon-based composites
- Formulation of both **Bio-Based and Biodegradable materials** (e.g., **PLA, PHA, PBAT,** etc)
- Thermoplastic Elastomer (**TPE**)
- Fluoropolymer compounding (e.g., **PTFE**)
- Halogen Free Flame Retardant (**HFFR**)
- **Viscosity** adaptation by mixing virgin and recycled polymer (**PA6 or PET**)
- Polymer mixing for enhanced filaments propertie
- Short natural fibers compounding (flax / PLA)

From polymers to multifilaments and fibres

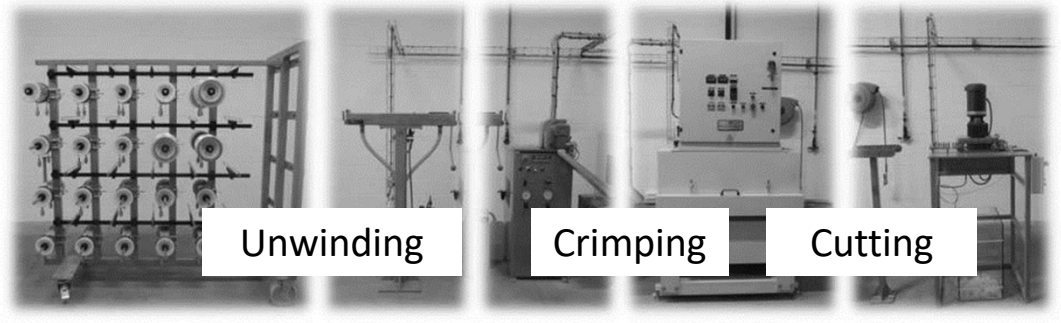






- Evaluation of polymers
- Development of filaments from **Bio-Based and Biodegradable materials** (e.g., **PLA, PHA, PBAT,** etc)
- Development of filaments from **Recycled materials**
- Developement of functionnalized filaments
- Converting onto staple fibers
- Development of high temperature filaments

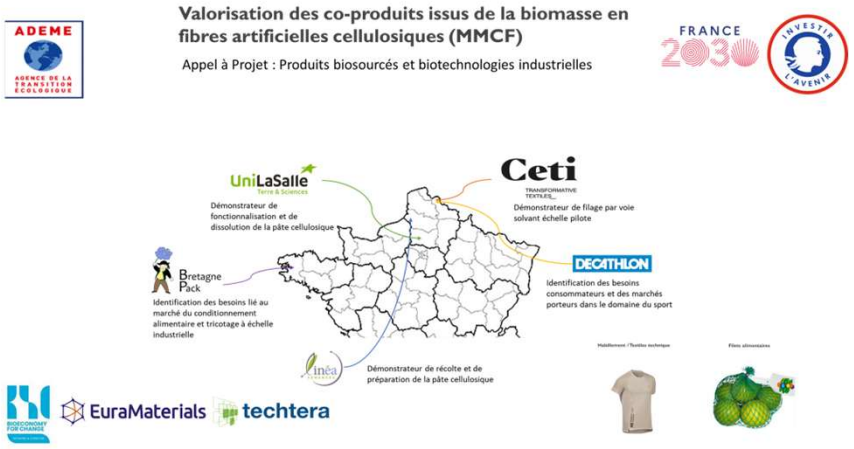
From filament



To staple fibres

From Biomass to filaments

This platform enables us to develop and industrialize innovative solutions for converting **agricultural waste and other biomass sources** into new textile materials.



Fabrics & nonwovens transformation

Ceti TRANSFORMATIVE TEXTILES

Nonwoven facilities with high flexibility

MECHANICAL BONDING

HYDRO-ENTANGLEMENT

THERMAL BONDING

EMBOSSING CALENDER

OMEGA AIR-THROUGH OVEN

SPUNLAID WEB FORMING

BiCO SPUNBOND

BICO MELTBLOWN

THERMAL BONDING

FLAT AIR-THROUGH OVEN

DRYLAID WEB FORMING

CARD

DRYLAID WEB FORMING

AIRLAY

CROSS LAPPER

More than 90% of bonding technologies for nonwovens

THERMAL BONDING

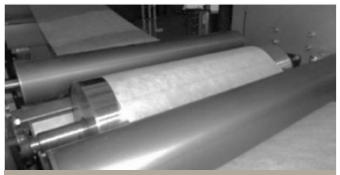
HIGH-LOFT AIR-THROUGH OVEN

MECHANICAL BONDING

NEEDLE LOOM

More than 150 combinations

NONWOVEN POST-TREATMENT



KISS-ROLL

FOULARD

SMOOTH CALENDER

Nonwoven facilities

Spunbond & Meltblown technologies :
From polymers to fabrics

Card & Airlay technologies :
From fibers to fabrics

From fibres to yarn and fabrics

Blending, carding, open-end & ring spinning, weaving and lab-knitting

FROM FIBRES — **TO FABRICS**

Blending, Carding and spinning	Lab-knitting	Weaving
		

Textile Recycling system

Mechanical

Thermomechanical

Ceti TRANSFORMATIVE TEXTILES

Our short fibre mechanical recycling platform

Transformation of all types of stream: used clothing, industrial wastes, leftovers, dead stocks, ...

FROM FABRICS — **TO FIBRES**

Sorting & cutting	Sizing & Fraying	Into fibre bale compactor

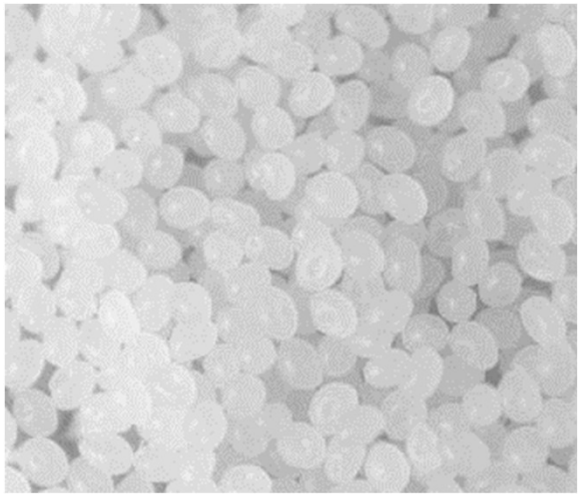
Fibres carding and yarn spinning process

Our thermo-mechanical Recycling platform

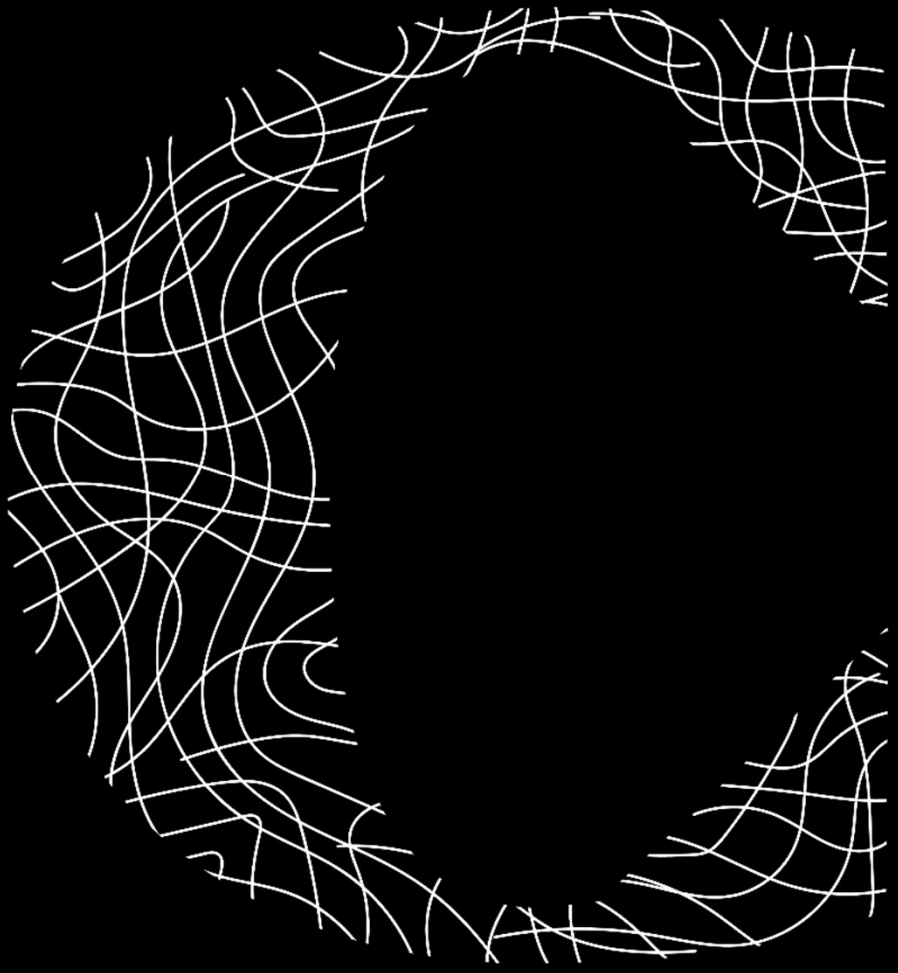
Transformation into High Performance Recycled Polymers (rPP, rPET, rPA,…)

FROM FABRICS ——— **TO PELLETS**

Material preparation	Densification	Compounding



Compactor / Shredder	Extruder	Degazing/Filtration	Granulator



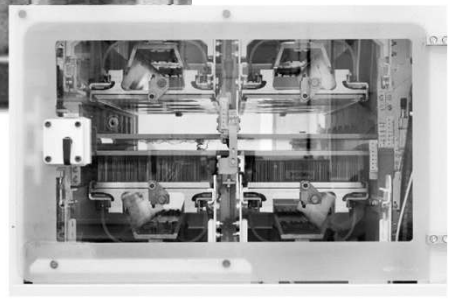
SUCCESS STORIES

Ceti TRANSFORMATIVE TEXTILES

Local wool valorization

BIO-BASED POLYMERS AND NATURAL FIBRES

Drylaid nonwovens platform



Nonwovens made of local wool :

- for padding / insultation for sportswear
- for packaging

BIO-BASED POLYMERS AND NATURAL FIBRES

Seabiocomp

- Developement and demonstration of sustainable biosourced composites for the marine environment.
- Thermal recycling of biobased polymers

Development of an innovative mooring net made from biodegradable polymers,
with a lower environmental impact on the marine ecosystem.

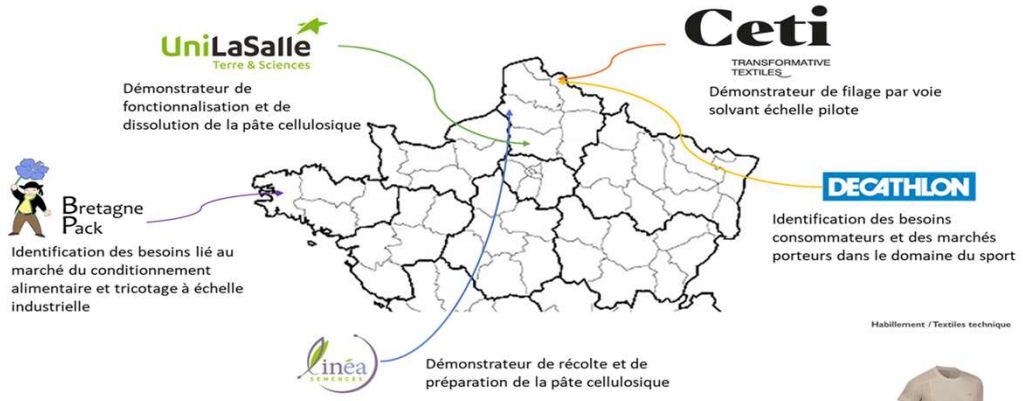
Fonds européen pour les affaires maritimes, la pêche et l'aquaculture (FEAMPA)
Programmation 2021-2027

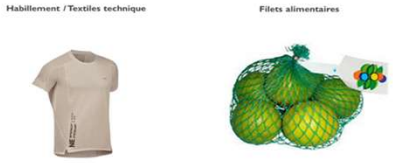
OZOCELL

BIO-BASED POLYMERS AND NATURAL FIBRES

Valorisation des co-produits issus de la biomasse en fibres artificielles cellulosiques (MMCF)

Appel à Projet : Produits biosourcés et biotechnologies industrielles





SMART TEXTILES

Multi-component spinning for the development of innovative and functional fibrous materials. Air filtration applications

Wine clarification process more ecological and economical by developing more porous fibrous membranes, doubling microfiltration yields, and reducing plant size

Soil-repellent and antimicrobial textiles for sustainable construction and architectural applications

Odor control textiles for fashion and bedding applications

For 2019 : Mechanical recycling

RECYCLING

Creating a new life for outdoor acrylic fibre waste

Vers une mode circulaire

Textile to textile, vêtements de travail

Developing and improving the mechanical,

SCIRT.

SMART TEXTILES

RECYCLING

Alternatives to elastane
Mechanical recycling,
Thermo- mechanical recycling

Objectives :

* Deliver a closed-loop recycling solution for discarded textiles.
* Create new business opportunities by boosting textile value chain activity.
* Stimulate and encourage conscious design as well as production practices.
* Raise awareness of the environmental and social impacts of buying clothes

Achieved Recycled Material Blends :

- 50% recycled cotton/50% virgin cotton for T-shirts.
- 75% recycled denim/25% lyocell for jeans.
- 75% recycled cotton/25% virgin cotton for sweaters.
- 50% recycled viscose/50% lyocell for sweaters.
- 30% recycled wool/70% recycled polyester for pants.

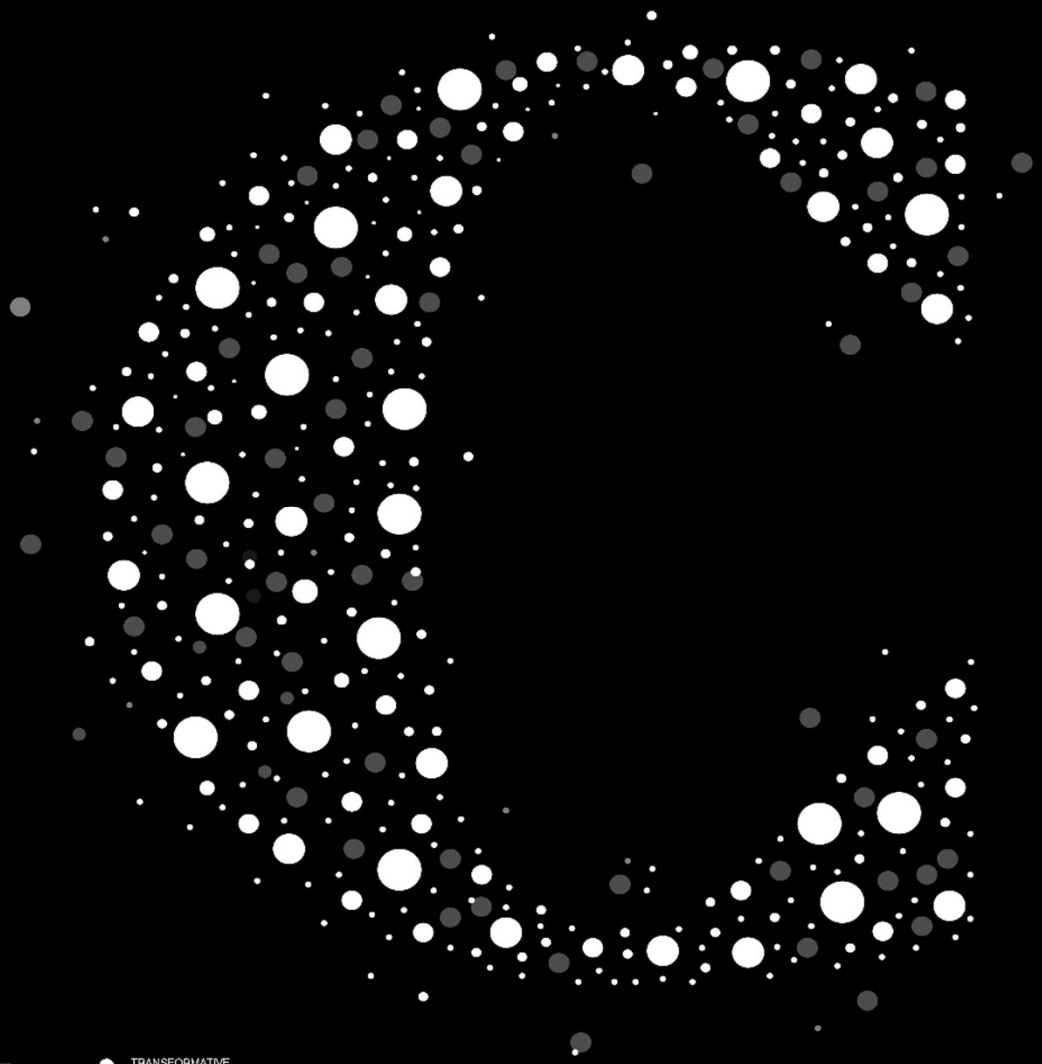
This project has received funding from the Horizon 2020 Programme

RECYCLING

Re-Breathe

Thermo mechanical recycling of sanitary masks :
A demonstrator for the development and production of 100% recyclable and recycled sanitary masks.





THANK YOU

Contact us :

melanie.monceaux@ceti.com
C.O.O & Project leader

contact@ceti.com

www.ceti.com

Ceti TRANSFORMATIVE TEXTILES