MC VE
TECHNOLOGIE

Mass production for smart composite EOPROMFLEX

IDENTIFIED NEED: functionalization of composites

Strong growth composite fabrics :

- Aeronautic, Energy, Automotive, Building, Sport, Defence

Current market weakness :

- Structural control of composite materials
- Existing technologies side by side, not homogeneous and not optimized
- Breakdown of installations
- Human intervention

The challenge for the industry: integrating functions to obtain smart composites

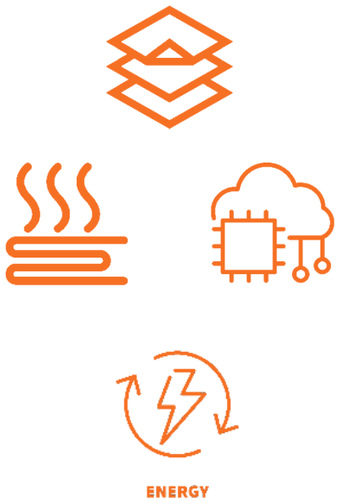
Our industrial process innovation

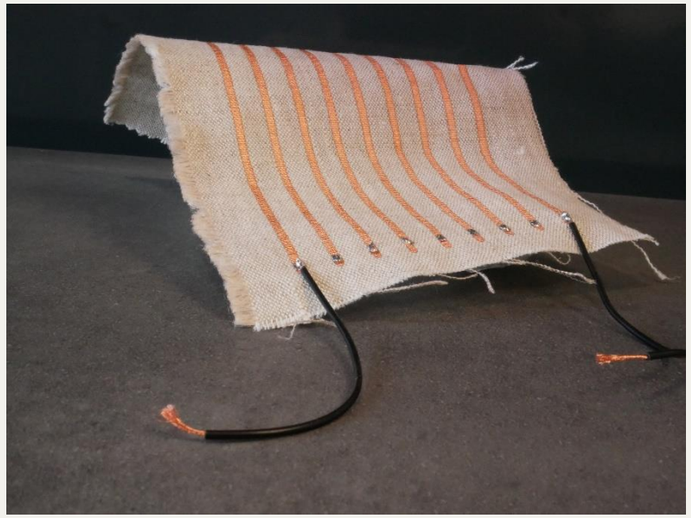
Printing circuitry integrate into composites fabrics

EOPROMFLEX® : Additive process using Roll to Roll to pattern Copper circuitry on fabrics for composite

Une seule opération pour intégrer toutes les fonctions de nos tissus intelligents.

- Optimising the customer's manufacturing process
- Facilitate production without having to go through complex steps
- Simplified quality management with fewer steps to manage
- Relocate electrical functions to unconventional areas





Fiber Glass or Flax fabric sample with electronic circuit with soldered connection

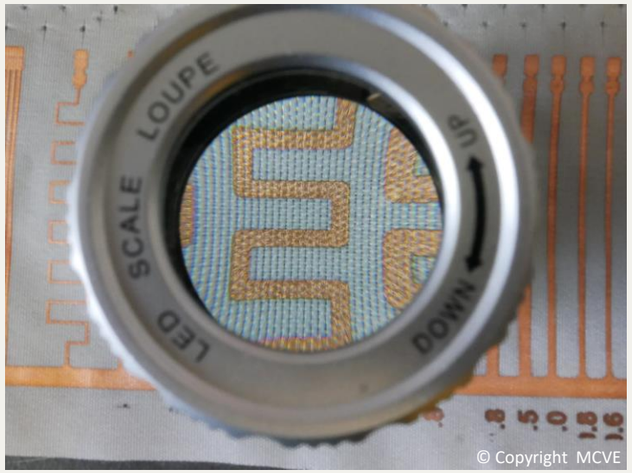
OUR PROCESS

3 STEPS

01

EOPROM®
PASTE DEPOSIT

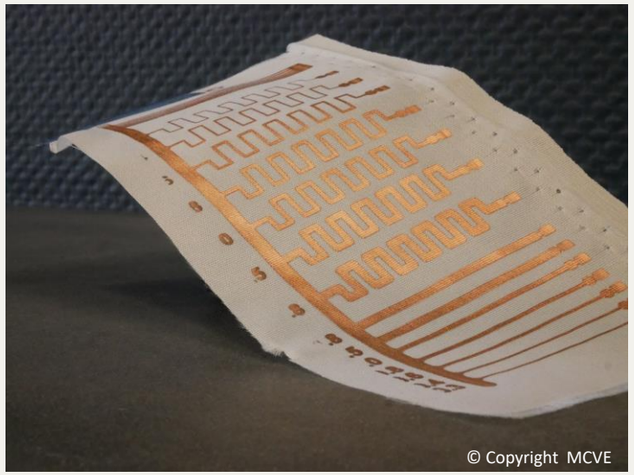
Printing / Screening Spraying / R2R



02

DRYING
& CURING

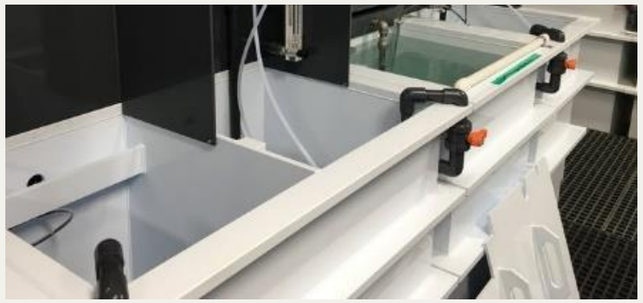
Strong adhesion
Flexible



03

PLATING BATHS

Electroless,
electrochemical copper,
Ni, Sn, Au, ...



2 Pillars Technology :

FORMULATION

Knowhow

➔ EOPROM® Paste

+

R2R Process

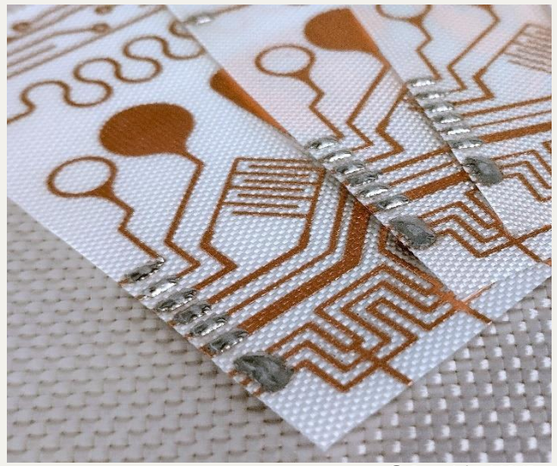
Flow process (Roll to Roll)

=

EOPROMFLEX®

Industrial

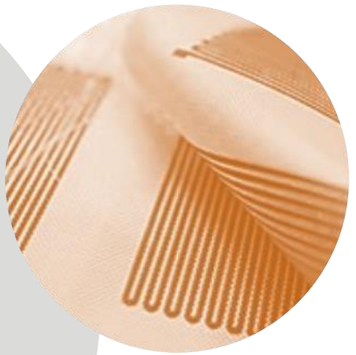
Innovation



KEY POINT

Wiring

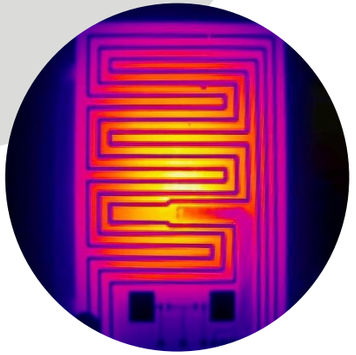
SHM



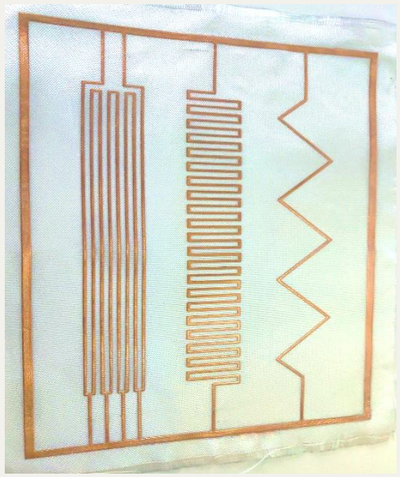
MCVE TECHNOLOGIE

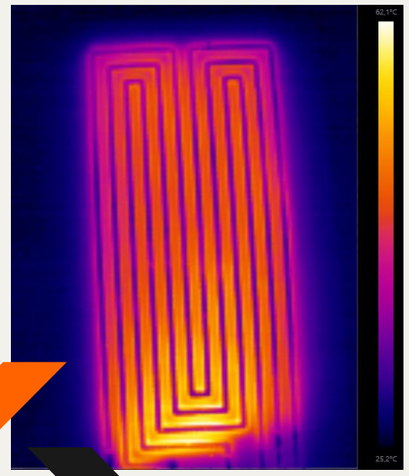
Communication

Heating



NEW : Fiberglass fabric for composite





Thermoplastic composites

- Lightweight materials
- Alternative to steel
- Thermoforming for 3D structure

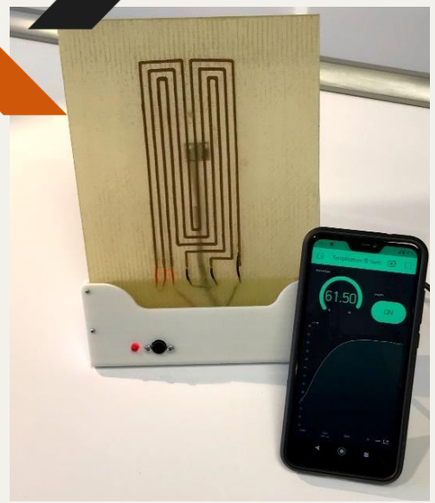
Functionalization

- Sensor
- Antenna
- Tactile surface
- Heating

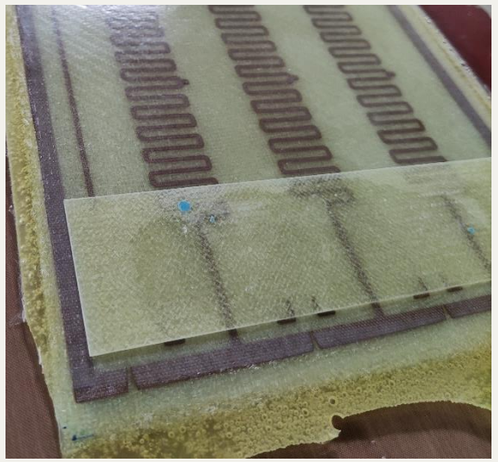
Implementation

- Integrated function on fiberglass fabric
- Standard process for the composite manufacturing
- Monitoring during polymerization ?

➔ **Smart composite**



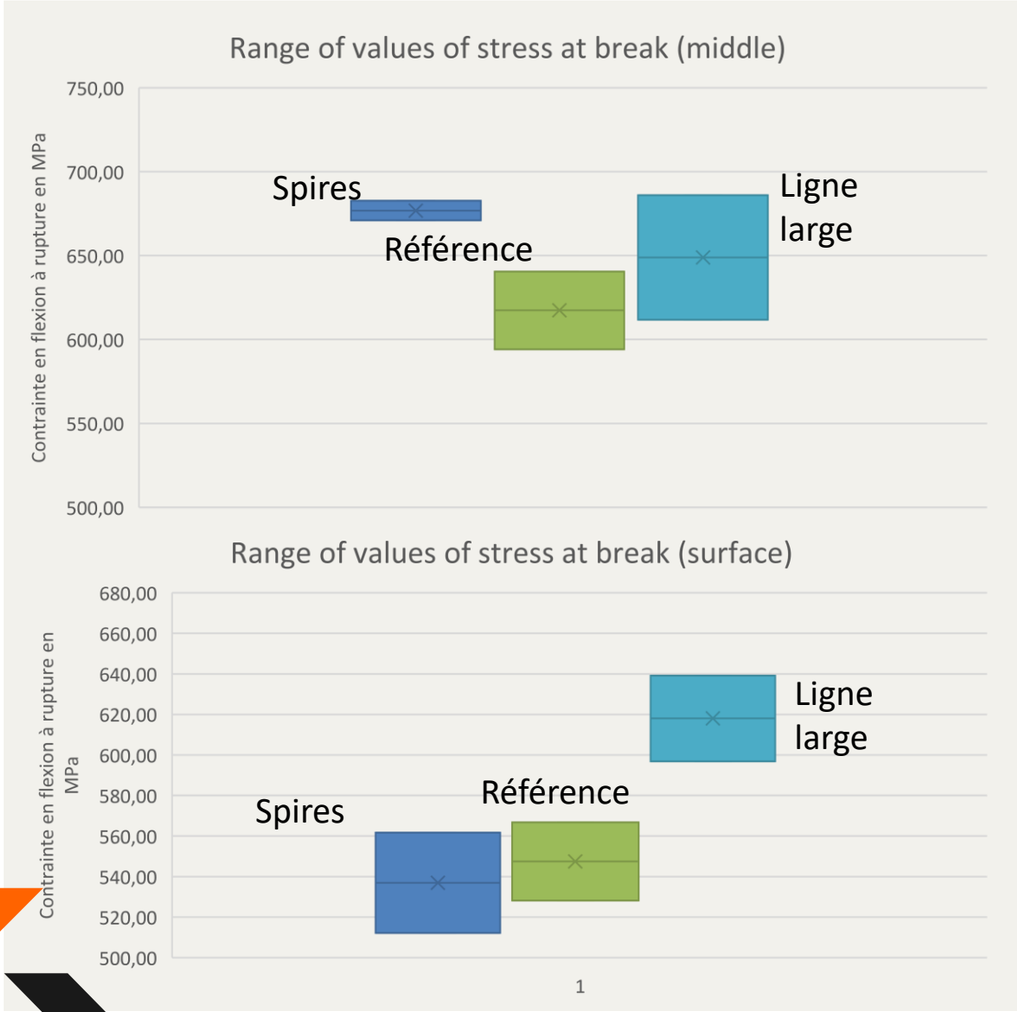
SMART COMPOSITE



- Production of composite specimens

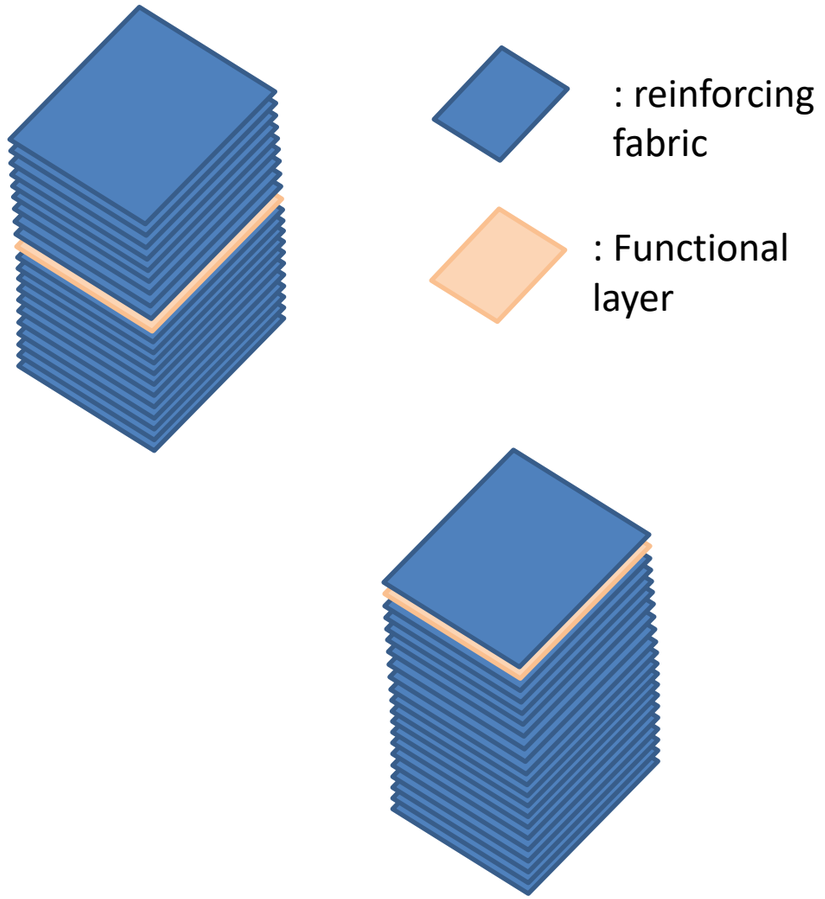
- Characterization of the effect of embedded Cu tracks

SMART COMPOSITE



Bending stress at break σ_{fM}:

Norme ISO 14125

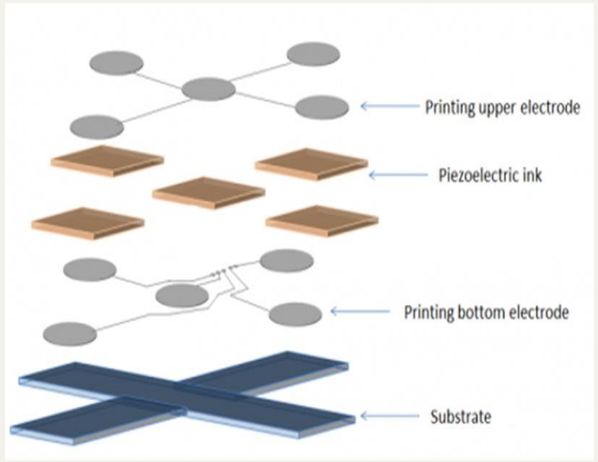


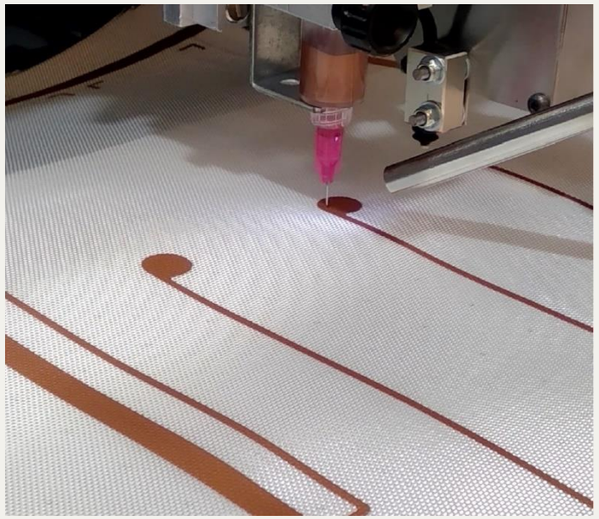
INNOVATIVE ORGANOSHEET – Electronic Molded Integration by MCVE

Organosheet PA with printed circuit Cu tracks by MCVE

- More sustainable industrial solution
- A game-changer for the industry
- Opportunities to integrate electronics into composite products
- Mixing structural part with electronics for mass production
- Functionalized composite parts with no impact on production rate
- No impact on manufacturing costs
- Added value with electronic function
- Implementation with bio-sourced fiber

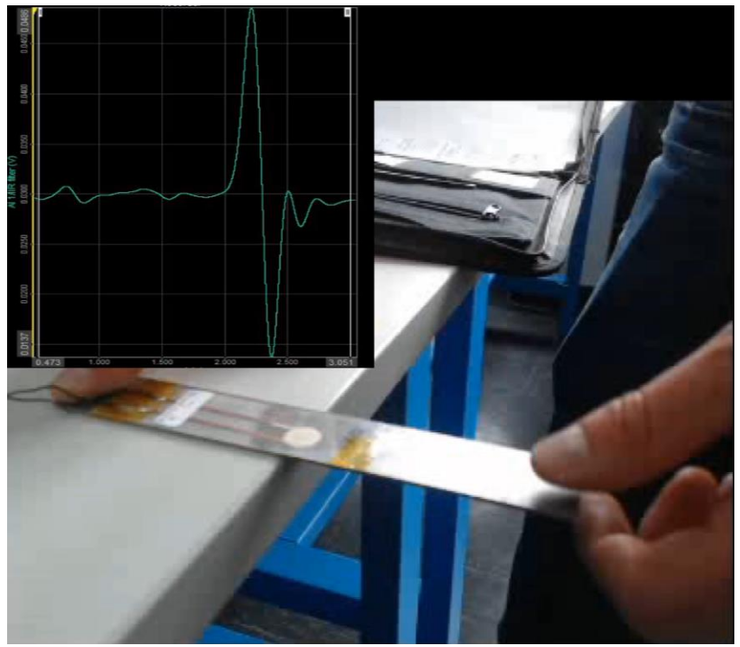
PZE system





- Sensor network integrated into the composite fabrics
- Active sensors already during processing steps

→ **Smart SHM**



PARTNERSHIP

Validation

Promotion

Support

TEAM

Christian Weisse, BE, CEO

22+ years of experience in industrialization and development of the product range and managing large-scale projects.

Laura Mazzara. PhD, Scientific Manager

5+ years of experience in electrodeposition and characterization of materials, allowing MCVE Technologie to have its own metallization process.

Claude Labro, MSc, CMO

15+ years of experience in Marketing management of new product strategies on printed electronics.
Former European Growth Account Director - Micro Circuit Materials at Dupont de Nemours

Raphaël Vuillaume, BE, Technical Manager

13+ years of experience in manufacturing processes of printed circuits.
Responsible for the production of the EOPROM® product line.

EOPROMFLEX®

INDUSTRIAL

FLEXIBLE

INNOVATION

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