

Mass production for smart  
composite

**EOPROMFLEX**



# IDENTIFIED NEED: functionalization of composites



## Strong growth composite fabrics :

- 8MM€ (+30% in 2026)
- 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

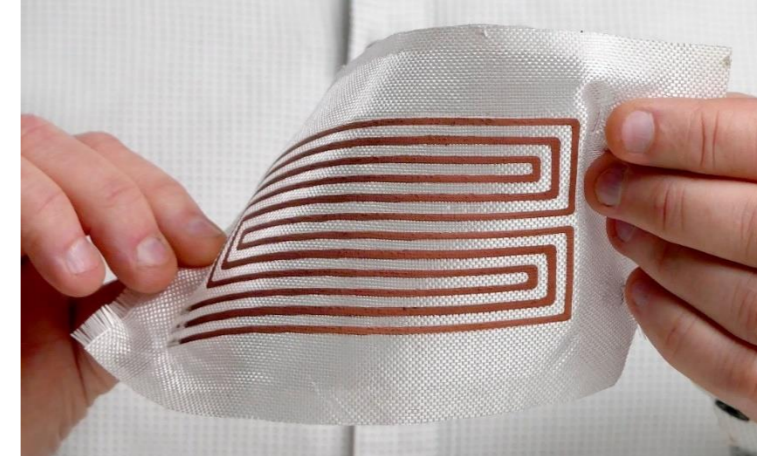
## Weakness in Wind Energy : intermittent and random load factor of 0.25 to 0.40 :

- Icing causes production stoppages: between 4% and 15% of potential
- different weight between the 3 blades => mechanical breakage

**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**

High added value

- Main addressable function: Heating – Transfert data – energy harvesting- PZE sensors



- Possible to integrate several functions into the composite structure in only one step.



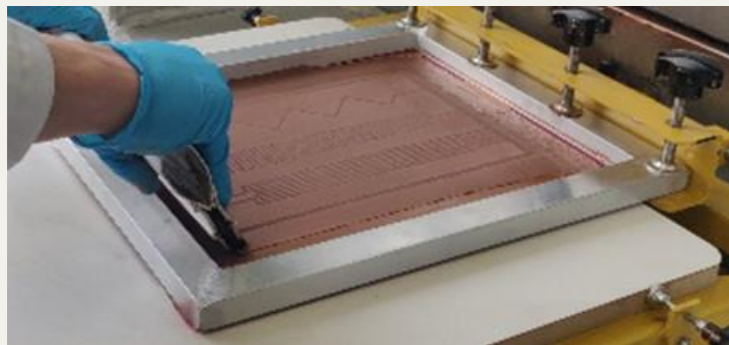
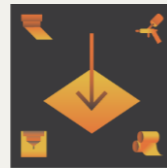
# OUR PROCESS

## 3 STEPS

01

### EOPROM<sup>®</sup> PASTE DEPOSIT

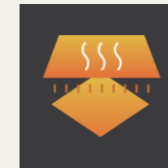
Printing / Screening  
Spraying / R2R



02

### DRYING & CURING

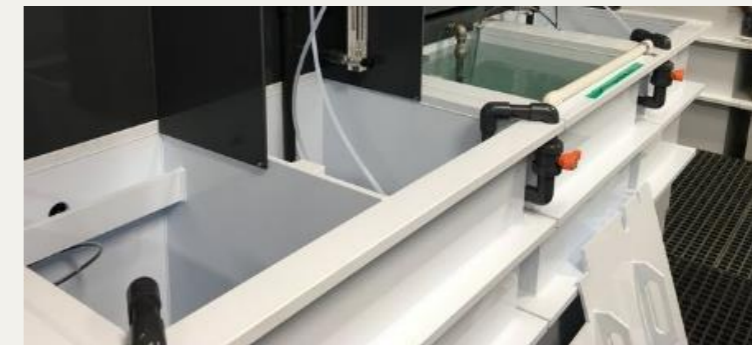
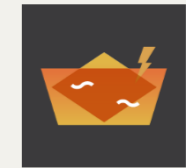
Strong adhesion  
Flexible



03

### PLATING BATHS

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



# 2 Pillars Technology :

## FORMULATION

Knowhow

→ EOPROM® Paste



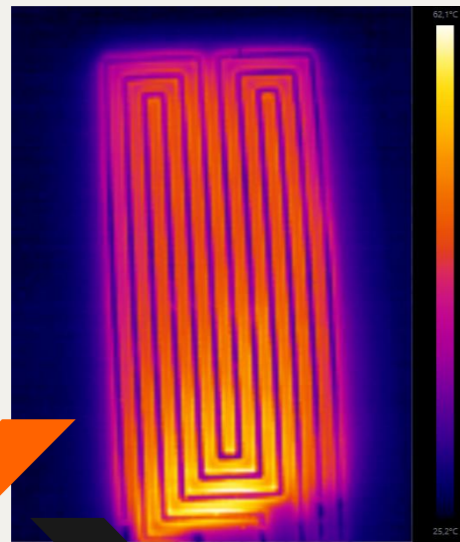
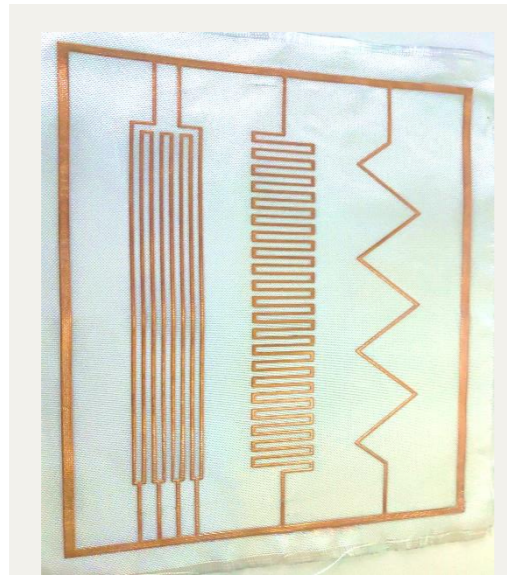
## R2R Process

Flow process (Roll to Roll)



# EOPROMFLEX

# NEW : Fiberglass fabric for composite



## Thermoplastic composites

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

## Functionalization

- Sensor
- Antenna
- Tactile surface
- Heating

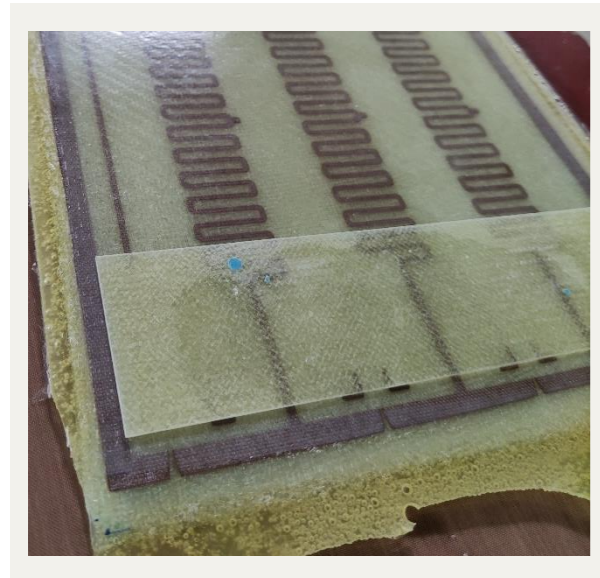
## Implementation

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

→ Smart composite



# SMART COMPOSITE



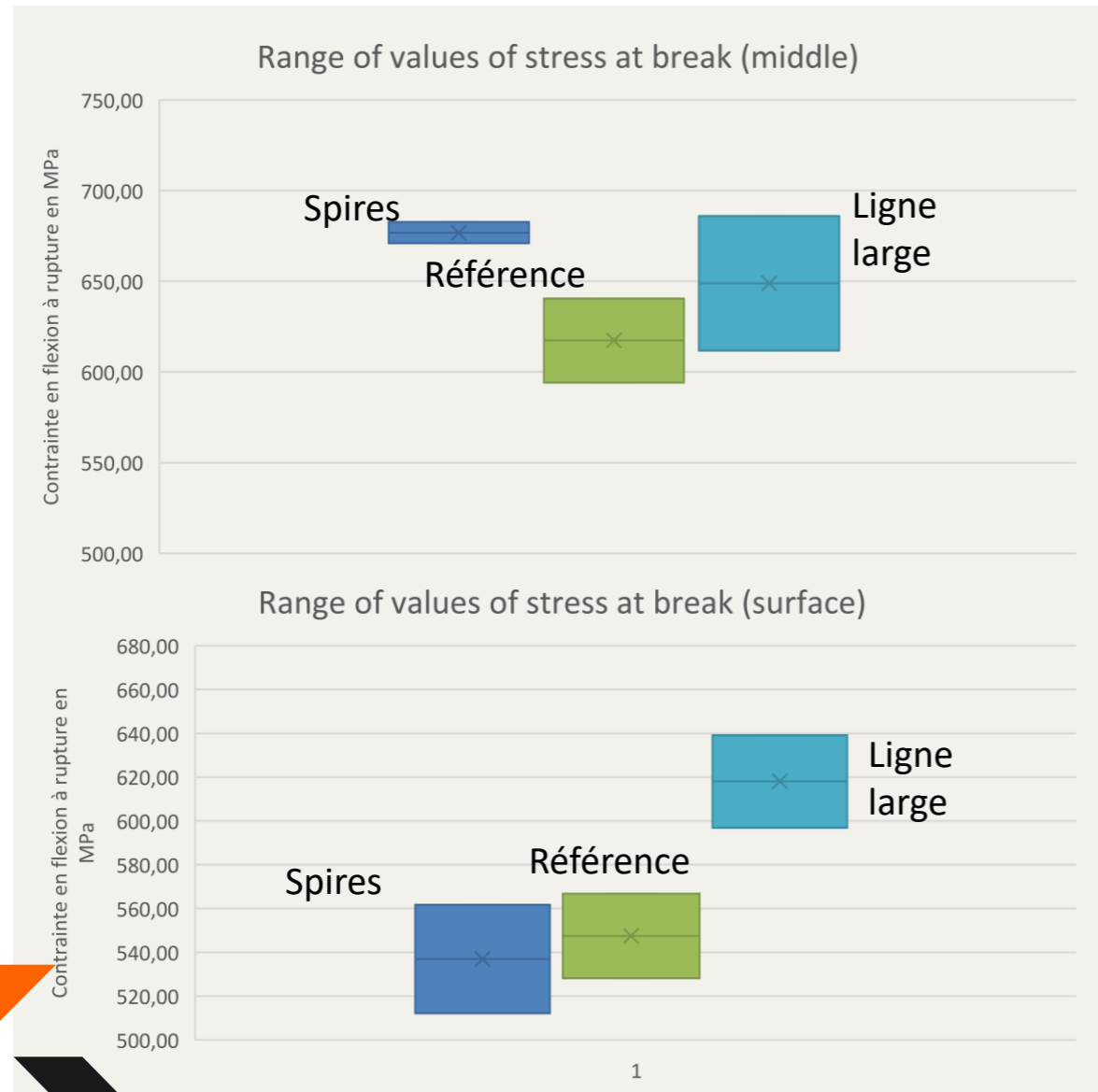
Production of composite specimens



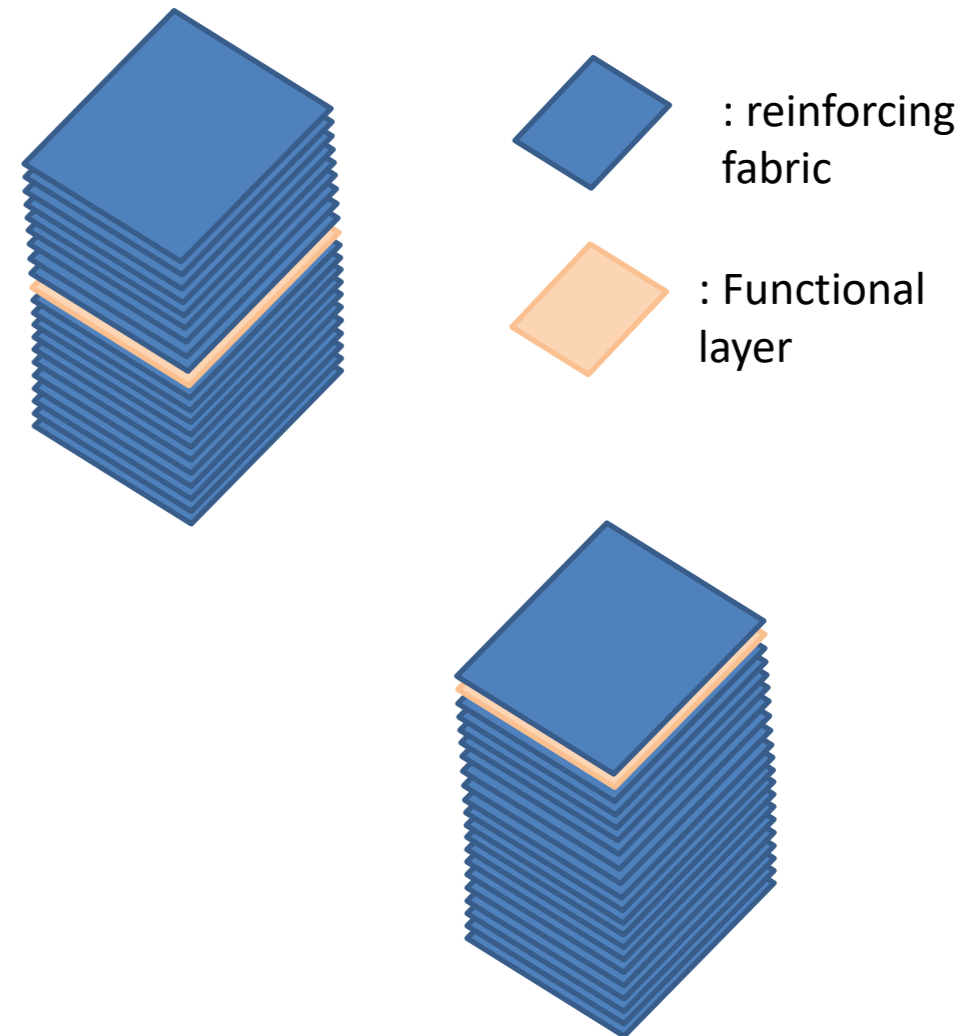
Characterization of the effect of embedded Cu tracks



# SMART COMPOSITE

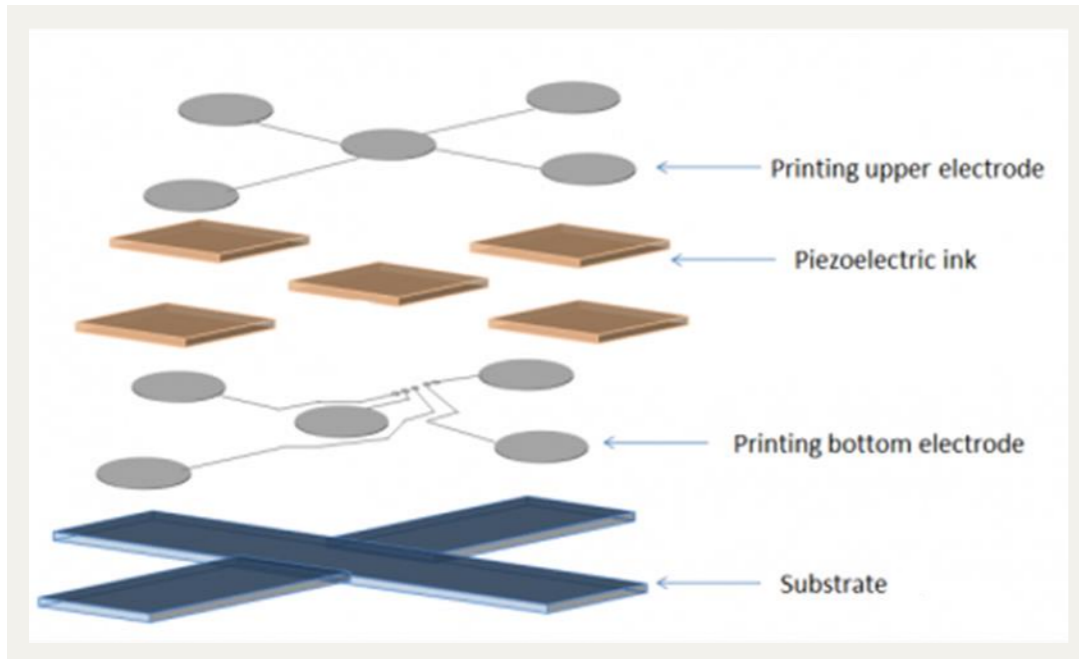


Bending stress at break  $\sigma_{fM}$ :  
Norme ISO 14125





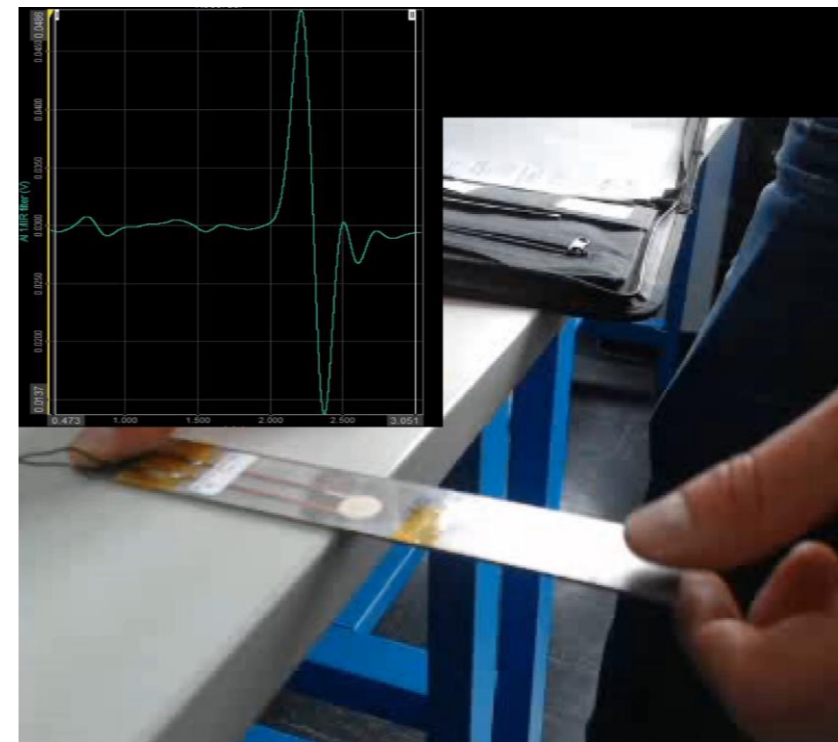
# PZE system



Sensor network integrated into the composite fabrics

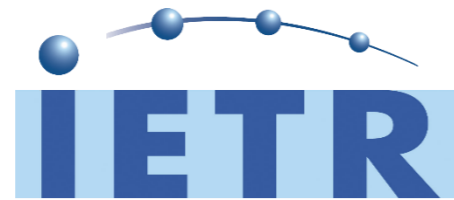
Active sensors already during processing steps

→ Smart SHM



# PARTNERSHIP

## ACADEMIC PARTNERS AND NETWORKS

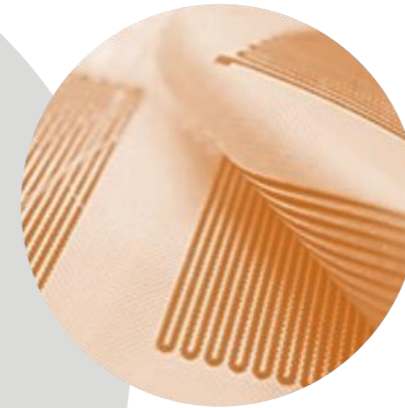


# KEY POINT

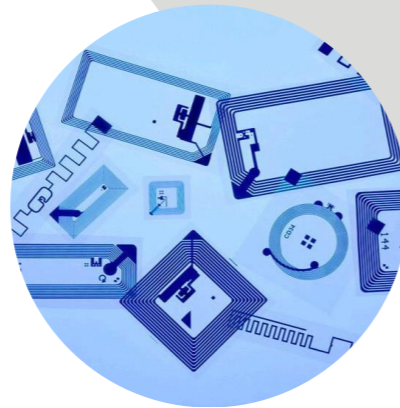
Wiring



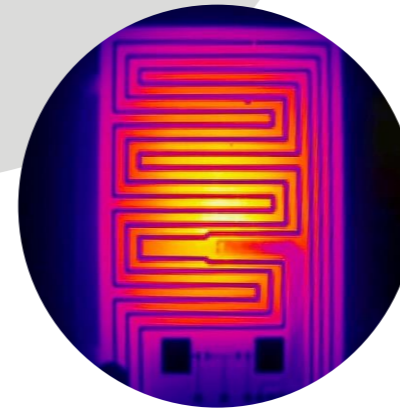
SHM



Communication



Heating



**MC  
VE**  
TECHNOLOGIE

# EOPROMFLEX®



**INDUSTRIAL**



**FLEXIBLE**



**INNOVATION**





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