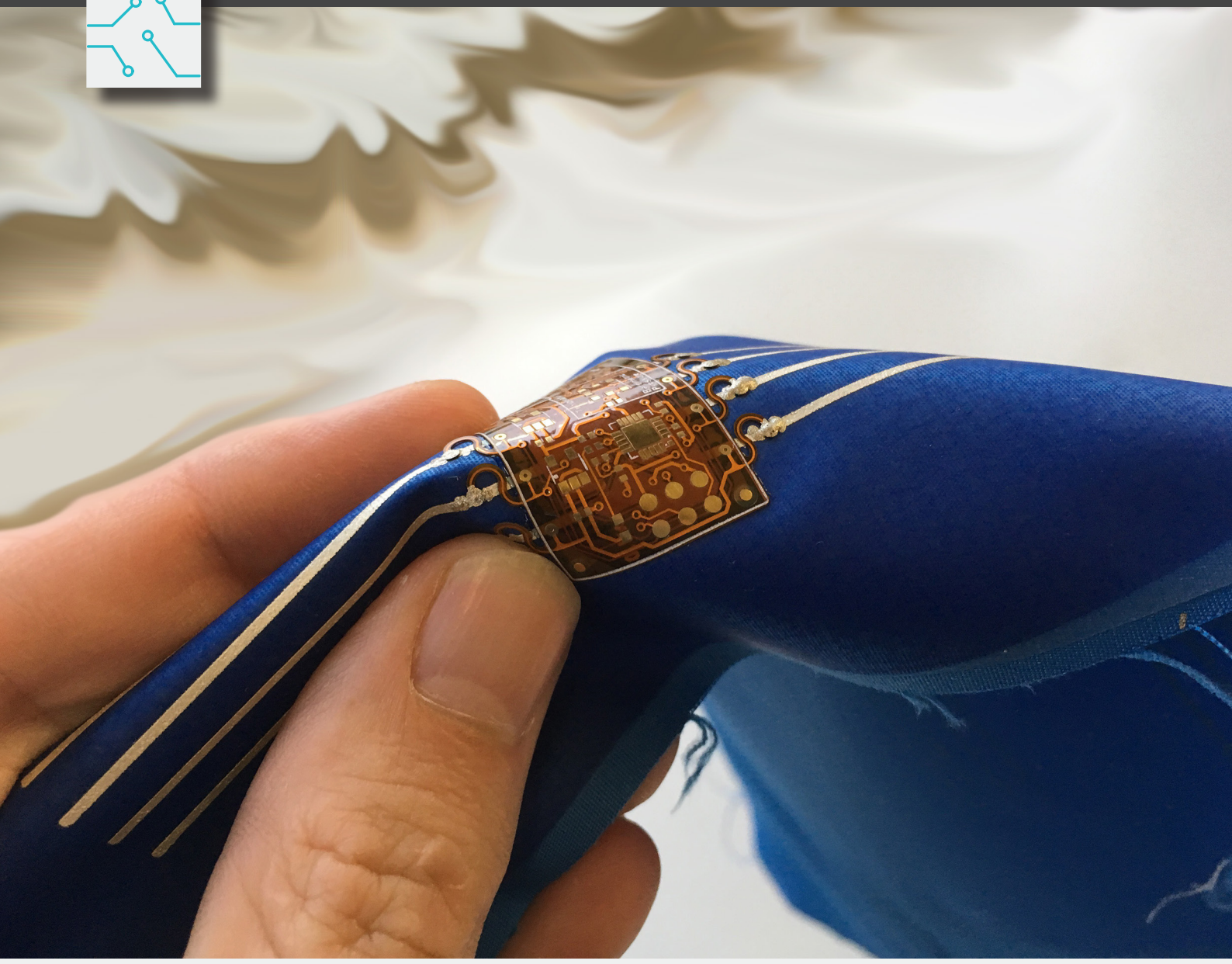
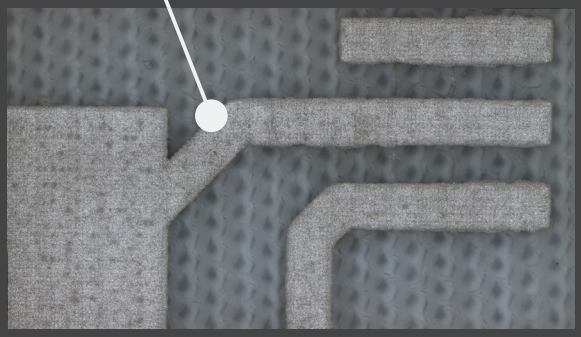
smart textiles & materials



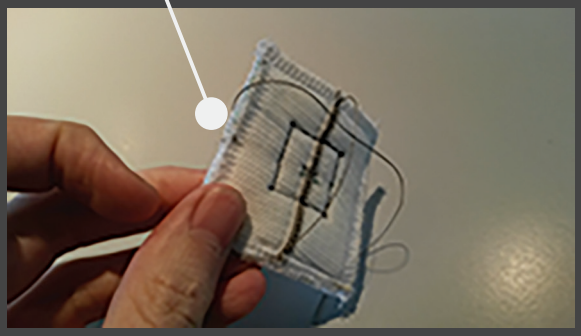
CENTEXBEL

from prototype to ready-to-market smart products

FLEXIBLE ELECTRONIC CIRCUIT ON KNITWEAR

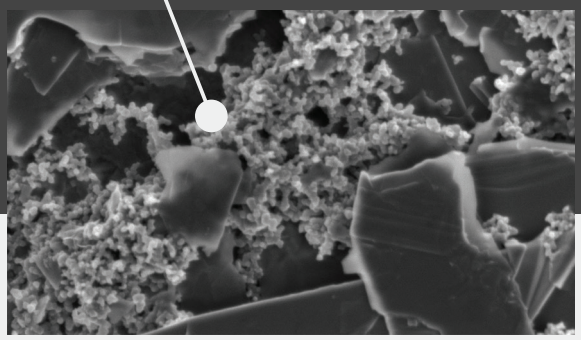


INTEGRATED TEXTILE STRUCTURE - ACTIVE BUTTON



STRETCHABLE CONDUCTIVE INK BASED ON CNT

GRAPHITE WITH CARBON BLACK



Knowhow and expertise in:

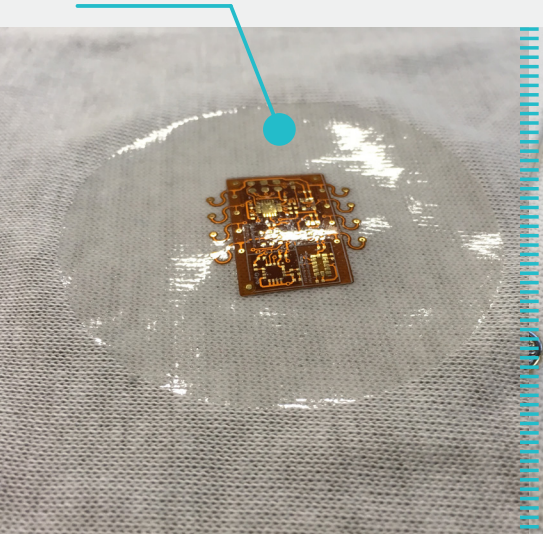
- textile-embedded sensors and solar cells
- textile pressure sensors
- light emitting textiles
- energy capting, storing and generating yarns
- conductive polymer-based coatings & finishes
- conductive nanomaterials, inks
- stimuli-sensitive materials: phase change materials (PCM) and shape memory alloys/polymers, hydrogels, thermochromic, photochromic, electrochromic materials and self-healing coatings
- encapsulation of electronic parts
- flexibility and washability

Smart textiles interact with their environment; they change colour, light up, give warning sounds, regulate the body temperature, measure health and other parameters and communicate with databases.

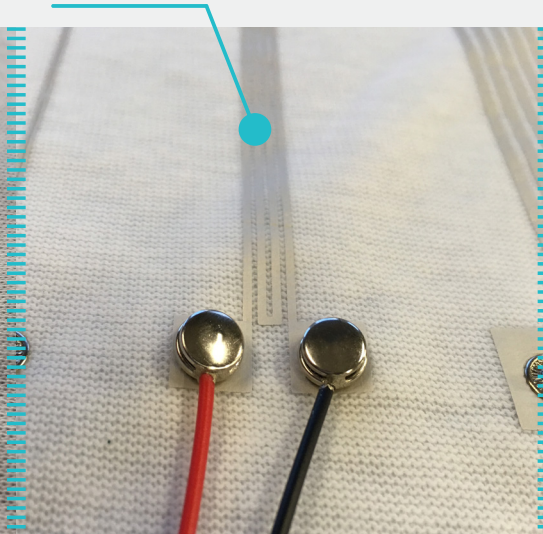
They can generate and store energy, or protect construction works against environmental hazard and natural disasters.

Although smart textiles are typically associated with active sportswear or military apparel, their application field includes so much more, including medical, healthcare, fashion, civil engineering, energy, transportation, and anti-counterfeiting.

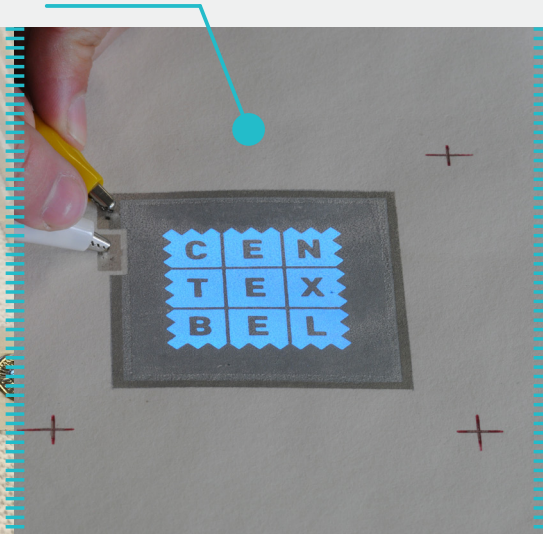
ENCAPSULATION OF ELECTRONICS



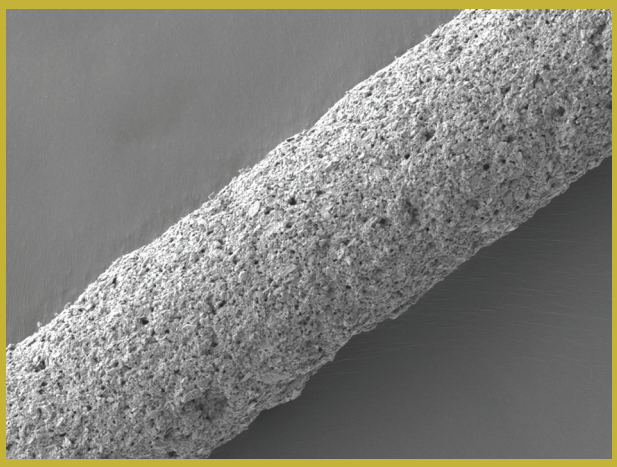
PRINTED CONDUCTORS



LIGHT EMITTING PRINT



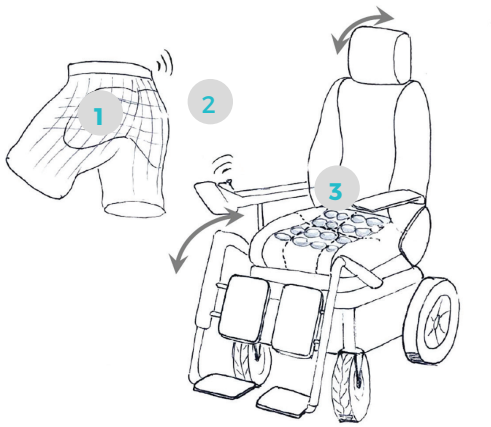
The smart textile prototypes are realised in the Centexbel-VKC technological platforms for weaving, knitting, braiding, embroidery, composite pressing, plastic processing, textile and yarn coating, screen printing and yarn formulations. All prototypes and material samples are tested in the Centexbel-VKC laboratories.



multilayer yarn coating for the creation of energy generating and storing textiles

mattress ticking with incorporated PCM for thermoregulation

Centexbel's innovations in smart textiles take place in the framework of research projects in collaboration with industrial partners and colleague research centres, universities and university hospitals and funded by regional and European authorities.



Working principle:
(1) PU risk zone: pressure is measured and (2) wirelessly transmitted to (3) actuation zones to alternate the pressure and prevent bedsore formation.

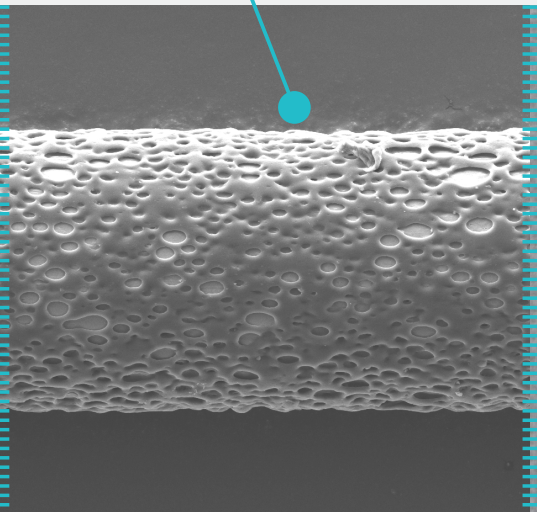
Smart wheelchair

Centexbel and partners developed a new portable and non-invasive system in the form of a wheelchair prototype to timely detect and to prevent the risk of Pressure Ulcer (PU) development.

Acknowledgement:
Development in the framework of the PUMA project, co-funded by the European Union 7FP under grant agreement n° 315114

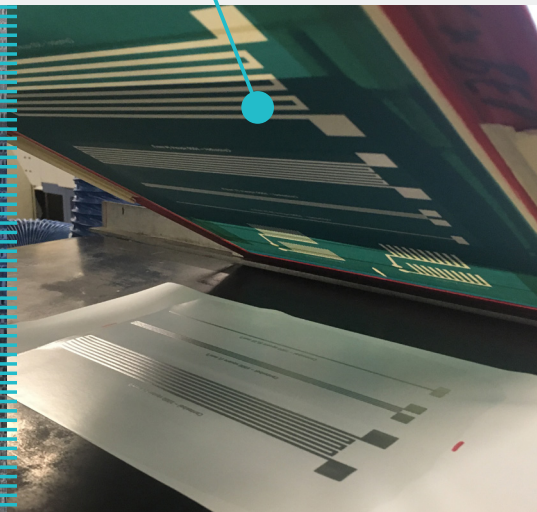
Centexbel presides the technical workgroup CEN/TC 248 WG 31 "Smart Textiles" that is developing standards for smart textiles in order to facilate their rapid intake in the market.

YARN COATING - CONDUCTIVE LAYERS



LED-TEXTILE LAMP SHADE

SCREEN PRINTING

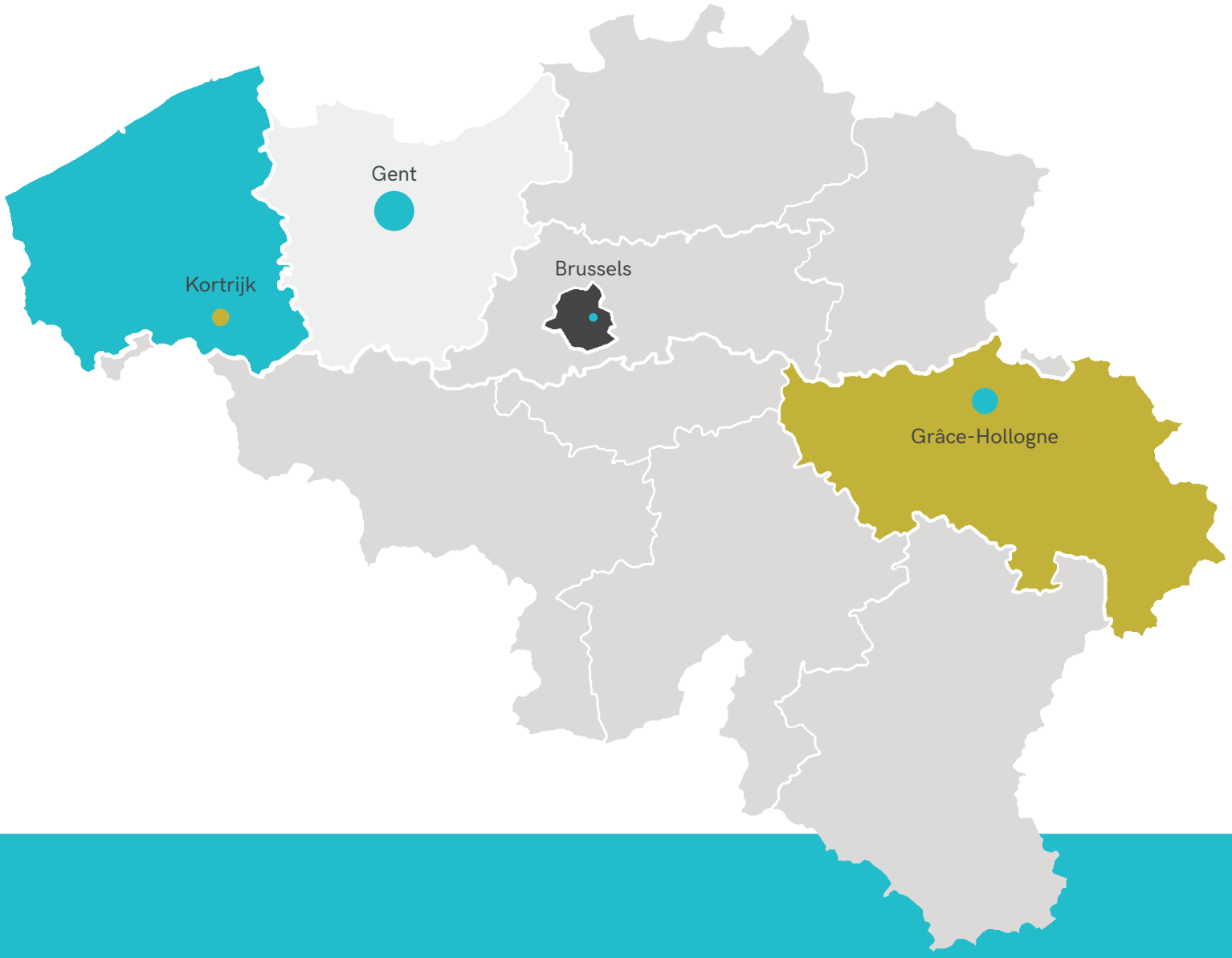


CREATE

CONNECT

INSPIRE

SOLVE



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