

smart textiles & materials

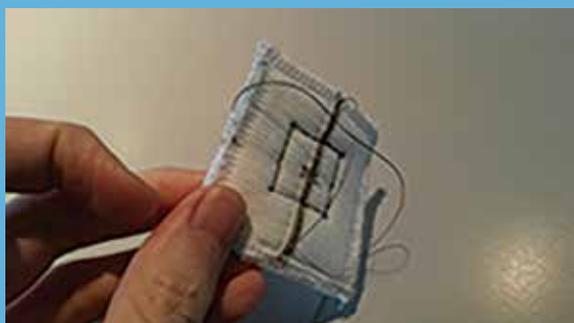


from prototype to
ready-to-market smart products

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. Smart textiles can generate and store energy, and protect construction works against environmental hazard and natural disasters.



laminated flexible electronic circuit



active button made by a fully integrated textile structure

Expertise

Centexbel supports the industry with scientific and technological knowledge and advice on:

- textile-embedded sensors and solar cells
- textile pressure sensors (keyboards)
- communication
- smart textile products (carpets, clothing, ...)
- light emitting textiles
- energy generating and storing yarns
- conductive polymer-based coatings & finishes
- stimuli-sensitive materials: phase change materials (PCM) and shape memory alloys/polymers, hydrogels, thermochromic, photochromic, electrochromic materials and self-healing coatings

Centexbel is a leading research centre in the development of smart textiles. The latest realisations include the development of yarns capable of generating and storing solar energy and of light emitting coated textiles.

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.



Monitoring textiles

Validated smart knee brace capable of measuring knee angles during physical activities, such as sports or rehabilitation exercises.

Centexbel development in collaboration with Mobilab (BE), Fraunhofer IZM (DE), FKT (DE). Funded by IWT in Flanders (BE) and Aif (DE) through the international CORNET funding channel

The majority of Centexbel's research and innovations in smart textiles is carried out 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.



Smart wheelchair

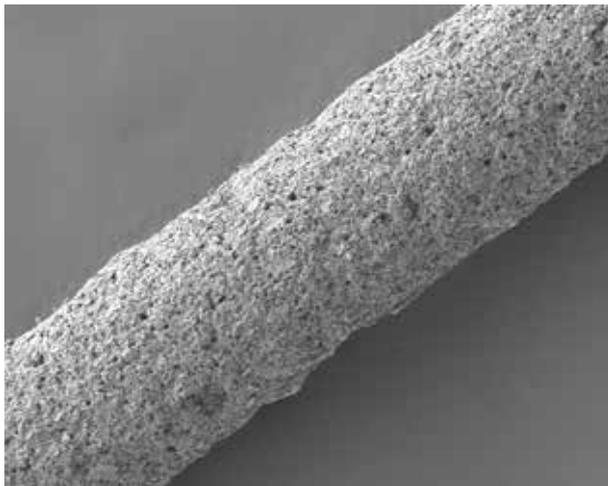
Centexbel and partners developed a new portable and non-invasive system in the form of a wheelchair prototype to prevent and early detect the risk of Pressure Ulcer (PU) development

PUMA was co-funded by the European Union 7FP under grant agreement n° 315114

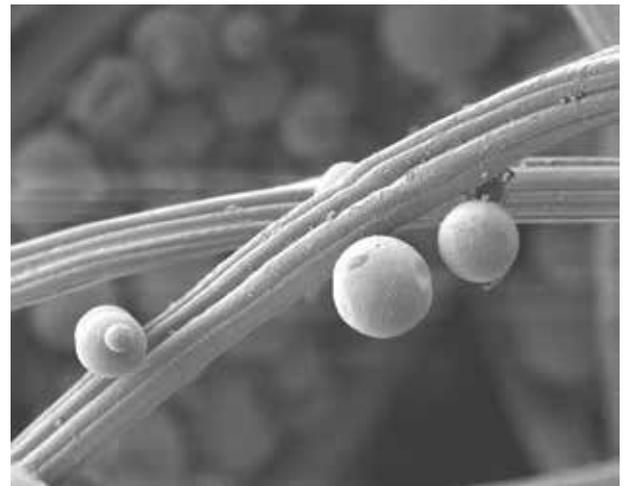
1. PU risk zone (pressure is measured and wirelessly transmitted)
2. wireless transmission to:
3. distributed actuation zones to alternate the pressure and prevent the formation of bedsores

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

The laboratory disposes of a powerful SEM microscope to inspect products and materials on a nano level.



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



mattress ticking with incorporated PCM for thermoregulation

Services

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

certification of smart protective clothing

semi-industrial application platforms for product development and trial runs

fully equipped testing labs for product assessment and trouble-shooting

(in-company) training, seminars and workshops

technology watch and patent search

dissemination of information through newsletters and website



Centexbel & VKC-Centexbel support the textile and plastic processing supply chains in the development and introduction of novel materials, innovative products and technological processes.



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