

Intelligent multi-reactive textiles in integrating nano-filler based CPC-fibres

In order to cope with competition from low-wage countries and to improve the international competitiveness of the European textile industry, new technical textiles with high-added-value need to be developed. The overall objective of the INTELTEX project is to develop a radically new approach to obtain intelligent textile combining three innovative functions:

- continuous measurement of mechanical stresses applied to the textile structure
- thermal self regulated textile surfaces
- detection of chemicals (toxic volatile solvents...).

This multi-sensitivity will be ensured by the integration of Conductive Polymer Composite (CPC) in textiles fibres. This new multifunctional textile will be used for many important applications with customised properties tailored to the following applications:

- Building application: wall fabric to detect cracks and temperature changes / industrial floors for leakage control and volatile solvent detection
- Medical application: medical wear for monitoring body temperature
- Protective clothing: combination of the three functionalities in fire-man clothing : monitoring near skin temperature, exterior temperature, mechanical stress (detection of an impact) and toxic volatile solvents such as carbon monoxide in fire.

The latest results regarding different sensing properties of CPC from Inteltex project will then be reviewed and discussed.