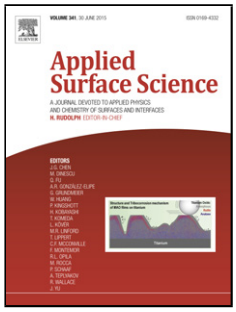

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The deposition of globular polypyrrole and polypyrrole nanotubes on cotton textile

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HIGHLIGHTS

1. Cotton textile was coated with globular and nanotubular polypyrrole.
2. The globular type yields a higher conductivity due to higher coating thickness.
3. The conductivity of such textiles is stable after the chemical cleaning.

ABSTRACT

Cotton textile was coated with polypyrrole *in situ* in the during the oxidation of pyrrole with iron(III) chloride in aqueous medium. Such polymerization results in the globular polypyrrole coating of fibres. In the presence of methyl orange, the coating with polypyrrole nanotubes was obtained. Nanotubular polypyrrole is more conducting and more stable towards the loss of conductivity after deprotonation than globular form. On the contrary, when deposited on cotton, the surface conductivity with the globular form was higher and stability with respect to washing better. This is due to the fact, that the coating with globular form is considerably thicker compared with the deposited nanotubes. This is visible by the difference in colour, black and brown for the globular and nanotubular forms, respectively, and also confirmed by infrared and Raman spectroscopies. The reduction in conductivity after repeated washing is