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Titulo / Title: Synthesis and characterization of conducting textiles of polyester covered with polypyrrole.

Conducting textiles of polyester covered with a conducting polymer have been produced in a laboratory scale. This layer of conducting polymer allows the flow of the current through the polypyrrole chains. Pyrrole was chemically polymerized onto the textile in aqueous media. During the polymerization, positive charges are created in the chains of polypyrrole. To maintain the electroneutrality principle, negative charges are needed; these negative charges are provided by a counter ion. Two types of counter ion have been employed:

- An organic dopant or counter ion (anthraquinone sulfonic acid, AQSA) commonly employed in the production of conducting textiles.
- An inorganic dopant (phosphotungstate, $PW_{12}O_{40}^{3-}$) not employed to our knowledge for this purpose. This molecule has a high molecular size that makes difficult its expulsion from the polymer structure.

Fourier Transform Infrared Spectroscopy (FTIR) has been used to characterize the layers of polypyrrole. The morphology of the layers of polypyrrole has been studied by Scanning Electron Microscopy (SEM). Measures of superficial conductivity (dry measure) and Electrochemical Impedance Spectroscopy (EIS) (in different pH solution and without solution) have been done to study the electrical properties of the layers of polypyrrole. Cyclic Voltammetry (CV) in different aqueous media has been used to characterize and check the electrochemical behaviour of the conducting textile with the applied voltage. Additionally friction and washing assays have been performed with the textile covered with polypyrrole/ $PW_{12}O_{40}^{3-}$ to evaluate the resistance of the conducting polymer layer to these factors. The superficial conductivity was measured before and after the assays to quantify the loss of electrical properties. SEM was employed to observe the morphology of the layers after these assays.