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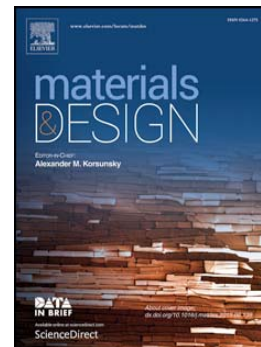
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Facile preparation of high-strength polyaniline/polyvinyl chloride composite film as flexible free-standing electrode for supercapacitors

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Abstract

A facile strategy has been developed to prepare the high-strength polyaniline/polyvinyl chloride (PANI/PVC) composite films as flexible free-standing electrode for supercapacitors with high comprehensive electrochemical performance, via *in-situ* chemical oxidative polymerization of aniline in sulfuric acid solution in the presence of polyvinyl chloride (PVC) film. The electrochemical performance of the PANI/PVC composite films was analyzed with galvanostatic charge-discharge (GCD), cyclic voltammetry (CV) and cyclic stability tests in 1.0 mol/L sulfuric acid electrolyte. It was found that the feeding amount of aniline and [APS]/[Aniline] molar ratio would affect the properties of the resultant PANI/PVC composite film and the highest electrical conductivity and specific capacitance were 12.6 S/cm and 528 F/g at the current density of 1 A/g, respectively. Due to the advantages of scalable synthesis and easy to shape of the developed method, as well as excellent mechanical strength and flexibility, good electrochemical performance of the product, the PANI/PVC

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