



RECICLAGEM POR PIRÓLISE DE
PRÉ-IMPREGNADOS DE RESINA
FENÓLICA/FIBRA DE CARBONO
E INCORPORAÇÃO DE
POLIPIRROL PARA ELETRODOS
DE SUPERCAPACITORES

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Abstract

This work consists of recycling phenolic/carbon fiber prepregs discards and converting it into carbon/carbon fiber composite (P-C/FC) from pyrolysis process for applications as electrochemical capacitors electrodes. The resulting structure of this process determines interesting properties for these applications due to its high surface area and capacitive and conductive properties. The polypyrrole (PPi) incorporation from chemical synthesis of pyrrole is proposed focusing in increase of capacitive contribution from the pseudocapacitives processes. The results from the morphological, structural and electrochemical characterizations showed the formation of a conducting and porous turbostratic graphite interface which determined a high surface area. The polypyrrole incorporated in P-C/FC structure increased on specific capacitance and the values were limited by deposited Ppi content. Specific capacitance, power and energy densities were very close to those verified for conventional electrochemical capacitors.

Key words: composite recycling, phenolic/carbono fiber prepregs, polypyrrole, electrochemical capacitors.