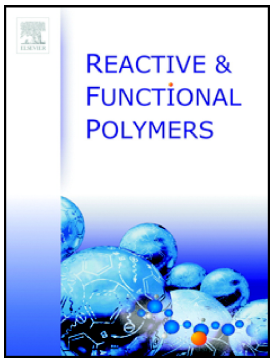

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Increasing the resistivity and IFSS of unsized carbon fibre by covalent surface modification

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Abstract: Carbon fibre presents many attractive quality such as high strength to weight ratio and suitability in a variety of light weighting applications. One of the major practical limitation for processing carbon fibres are their electrical conductivity and their ability to short circuit electrical equipment through airborne fibres and other carbon fibre detritus. In this work we investigate the ability to reduce the conductivity of carbon fibres using an electrochemical grafting strategy. In this study unsized carbon fibres were electrochemically functionalised with a variety of small molecules, increasing the resist of carbon fibres by up to 200%. In addition, using this strategy we have also increased the interfacial shear properties of these fibres in epoxy resin systems (+19%) relative to the control fibres.

Keywords: Carbon Fiber, Interfacial Adhesion, Surface Modification, Resistance.

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