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Effect of carbonization and multi-walled carbon nanotubes on polyacrylonitrile short carbon fiber polymer composites**Vijay Kumar Srivastava**

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The present work deals with the characterization of multi-walled carbon nanotubes (MWCNTs) filled and unfilled short carbon fibre reinforced epoxy resin composites. Short carbon fibres (10 mm) were selected at various processing stages such as i) white colour polyacrylonitrile fibres (PAN), ii) pre-carbonized carbon fibres (precarbonized CF), iii) oxidized carbon fibres (OPF), iv) fully carbonized carbon fibres (CF-low) and v) sized carbon fibres (CF Sized). The investigated composites were characterized by three points bending test, hardness test, dynamic mechanical thermal analysis, electrical conductivity test, thermogravimetric analysis and scanning electron microscopy. The results show that the mechanical and electrical properties of the investigated materials markedly depend on the type of short carbon fibres and on the presence of MWCNTs

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