

Synthesis of Silica-coated MWNTs for Mechanical Reinforcement of Polymers by Spray Pyrolysis

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Carbon nanotubes are good candidates as advanced filler materials in composites with their excellent mechanical, thermal and chemical properties. Some drawbacks such as aggregation and low compatibility with the other substances, however, make it hard to use carbon nanotubes as reinforcing fillers. To solve these problems we coated multi-walled nanotubes with silica by spray pyrolysis, which will eliminate the attractive interactions between nanotubes and allow their well-mixing with polymer matrix. Silica-coated MWNTs were infiltrated into commercialized polyester resin through stirring and sonication successfully. The morphology and mechanical properties of the composite were characterized by SEM, TEM and Universal testing machine.