

Preparation and Characteristics of Carbon Nanotube/Carbon Fiber Composite Paper

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Carbon nanotube paper (CNTP) has considerable potential in multi-functional nanocomposites for electrical and thermal applications. In this study, we confirmed the manufacturing possibilities of the CNTP by coagulation and dispersion. Multi-walled carbon nanotube (MWNT)/carbon fiber (CF) composite paper for the enhanced electrical properties was prepared using a homogeneous precipitation method in accordance with the ratio of MWNT and CF.

SEM observations showed that most of the MWNTs were deposited directly on the outside surface of the CF. The mechanical properties of MWNT/CF papers showed higher tensile strength than 100% MWNT paper and it was increased with increasing content of CF. Also, the electric conductivity of the MWNT/CF papers was increased with increasing content of CF except papers of pitch based CF.

In addition, the Results of the mechanical and electrical analysis in accordance with the types and contents of the CF indicated that the PAN-based MWNT/CF paper has more excellent properties than Pitch-based.