

Electrical conductive polymer composite based on Polyolefin-based polymers by extrusion conditions and filler dispersion

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In recent years, a great deal of attention has been paid to the electrical properties of such polymers composites, given the great promises that these materials hold as multifunctional materials in the area of electronics, sensors, and actuators.

To make good conductive polymer composite and also to get a uniform resistance value on all surfaces of polymer composite, dispersion of filler is important. The formation of channels through which electricity can flow is evenly spread so that there is no difference in resistance value by matrix materials, filler contents and extrusion condition.

Therefore, in this study, we used polyolefin-based polymers and confirmed the dispersion of the filler using two types of carbon-based fillers including MWCNT and pitched carbon fiber. The experiment was conducted by changing the extrusion temperature, L/D, and screw combination of the extruder, and the results were compared by measuring the surface resistance under each condition. A chemical analysis was conducted to determine the degree of dispersion and this is to be reported.