

Electrical Conductivity and Electrical Percolation Threshold of Polycarbonate/MWCNT Nanocomposites

한미선, 이윤균, 이현상¹, 김우년*
고려대학교; ¹동아대학교
(kimwn@korea.ac.kr*)

The dimensions of CNTs, such as length and external diameter, can be varied and thus so can their electrical, rheological, mechanical, and thermal properties in the polymer matrix. Two-dimensional and three-dimensional CNT networks may have good electrical conductivity and a high electromagnetic interference (EMI) shielding efficiency in polymer/CNT nanocomposites. In this work, we employed different ultrasonic methods to disperse MWCNT in a polycarbonate matrix and found that MWCNT was better dispersed when a combination of horn type and bath type sonication was used compared to application of only the horn type sonication or bath type sonication. Electrical conductivity and electrical percolation threshold of PC/MWCNT nanocomposites strongly depended on the MWCNT shape.

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