

Carbon Nanotubes-Embedded Electrospun Nanofibers

김현석, 성준희, 진인주, 최형진, 진형준*
인하대학교 나노시스템공학부 고분자신소재전공
(hjjin@inha.ac.kr*)

Electrospinning is a fast and simple process driven by the electrical forces on the surface of the polymeric fluids, producing polymer filaments using an electrostatic force. This electrospinning technique can serve various purposes, such as fine control of the fiber diameters, production of defect-free or defect-controllable fiber surface, and continuous single nanofibers. In this work, multi-walled carbon nanotubes (MWNTs) were embedded and aligned in poly (methyl methacrylate) (PMMA) nanofibers via an electrospinning process. The dispersion characteristics were improved via a bulk polymerization of PMMA in the presence of MWNTs. Contrary to the previous works on electrospinning using a simple blend of CNT with polymeric materials, we incorporated CNTs as nanoscale fillers by in-situ polymerizing MMA. We also investigated morphology and the electrical conductivity of the electrospun nanofibers with aligned MWNTs in PMMA.