

"Nanotechnology and nanomaterials"

Investigation of electrical conductivity of nanofibers (PAN) containing nanoparticle (nano Al₂O₃) produced by Electrospinning Method

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In this study, electrical conductivity of nanofibers reinforced by nanoparticles will be investigated. In accordance with this purpose, polyacrylonitrile/dimethylformamide (PAN/DMF) solutions will be primarily prepared in various percentages (8%, 9%, 10%, 11%, 12%, 13%) by weight. From the prepared solutions, the nanofibers will be produced by electrospinning process. The diameters of the produced nanofibers will be analyzed by scanning electron microscopy (SEM) to determine the best weight percentage. Different nanoparticle (nano Al₂O₃) will be added to the PAN/DMF solution at various percentages (1%, 3% and 5%) to be prepared at the specified weight percent. Using these solutions, PAN nanofibers containing nanoparticle will be produced. The morphological structures, nanofiber diameters, and electrical conductivities of PAN nanofibers containing nanoparticle will be analyzed. The electrical conductivities PAN nanofibers containing nanoparticle will be measured using advanced laboratory techniques.