

Control of pore structure in carbon nanofiber using viscosity difference

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Porous carbonaceous materials have been used in many areas, including water and air purification, gas separation, catalysis, chromatography, and supercapacitor electrode materials. The aim of this study is to determine the morphology development of PAN/PMMA blend fiber webs using viscosity differences. PAN and PMMA were selected as a blend due to their immiscible blend phase. The 10wt% PAN and 15/20/25/30wt% PMMA solutions were dissolved in DMF and PAN/each PMMA blends were prepared in 75:25 weight ratio. PAN/PMMA blend nanofiber webs were fabricated by electrospinning process and PMMA was removed at a high temperature in N₂ atmosphere. The morphology and diameter of fibers were investigated using SEM. As changed a viscosity of PMMAs, the morphology of blend fiber webs were controlled in various forms.