

Abstract Submitted
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Improvement of Electrical Properties of PAFC Separator Material by Carbon Black Addition¹ YERI CHUN, SANG-MIN LEE, HYO-CHANG KIM, YOUNG-MIN HWANG , Kumoh National Institute of Technology, Materials Science and Engineering, GIBEOP NAM, Kumoh National Institute of Technology, Advanced Material Research Center, JAE-SEOUNG ROH, Kumoh National Institute of Technology, Materials Science and Engineering — This study was improved electrical conductivity and mechanical properties by adding carbon black to the matrix for polymer base conductive composite. The produced composites were characterized using electrical non-resistance tests, Raman Spectrometers, scanning electron microscope (SEM), optical microscope (OM), X-Ray Diffraction (XRD), three-point bending tests, and specific gravity test. When the additive ratio of carbon black increased from 0 wt.% to 3.0 wt.%, densities and electrical non-resistance were reduced, and the amount of carbon black particles exposed to the surface of the grain in fluorinated ethylene-propylene (FEP) increased. Also, there was about 30% improvement in bending strength when carbon black was added 2.0 wt.% compared to 0 wt.%. Overall, the method of adding carbon black to the matrix of conductive composite material can be a simple method of improving mechanical properties while improving electrical conductivity.

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