Short Communication

A Novel Bipolar Plate Design for Vanadium Redox Flow Battery Application

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A novel design of bipolar plate (BP) was proposed for vanadium redox flow battery (VFB). The BP was prepared by injecting molten polyethylene into micropores of carbon fibers (CF) *via* molding method (simplified as MBP), which behaved high conductivity and great mechanical strength due to its special morphologies of conductive network structure uniform distribution made the fibers connecting with each other compared to the BP prepared by extrusion method (simplified as EBP). The electrochemical tests also showed the VFB with the composite MBP behaved better battery performance with higher voltage efficiency which could be attributed to the lower resistance of MBP consisting of conductive CF networks.

Keywords: Carbon materials; Electrical properties; Energy storage and conversion;

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