

Lithium Polymer Battery with PVDF-based Electrolyte Doped with Copper Oxide Nanoparticles: Manufacturing Technology and Properties

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Received: September 09, 2021

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Abstract. An overview of electrolyte materials for lithium polymer batteries and the prospects for adding metal oxide nanoparticles to the electrolyte are presented in this paper. A procedure for the synthesis of a gel polymer electrolyte based on polyvinylidene fluoride doped with copper oxide nanoparticles is also described, and the ionic conductivity is measured by the electrochemical impedance spectroscopy. Cells with the synthesized electrolyte and LiFePO₄ electrode have been assembled and cycled at different currents. Stable cycling and high capacity have been exhibited by the cell with electrolyte doped with copper oxide nanoparticle (wt. 0.1%).

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