

Ion conducting behaviors of mixed organic electrolyte solutions for electrical double layer capacitors.

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The performances obtained with mixture of ethylene carbonate (EC) and dimethylcarbonate (DMC) were investigated for supercapacitor electrolyte. The usage of ethylene carbonate (EC) and dimethylcarbonate (DMC) as organic solvent, it can solve some problems of acetonitrile (AN). The general aim of present paper is compare to properties of electrolyte/electrode interfacial based on two mixed organic electrolyte. The morphology of the electrode cycled in prepared electrolytes was investigated by scanning electron microscopy (SEM). The surface characterization of electrodes cycled in prepared electrolytes investigated using energy dispersive x-ray spectroscopy (EDS). The ionic conductivity, viscosity, and electrochemical performances of EC/DMC/TEABF₄ mixtures were determined. The ionic conductivity of the electrolytes was measured by AC impedance, and the electrochemical performances of the electrolytes were evaluated by using cyclic voltammetry. Cyclic voltammetry (CV) was performed within -0.5-1.5 V by changing scan rates of 5 mV s⁻¹, 10 mV s⁻¹, 30 mV s⁻¹ and 50 mV s⁻¹.