Short Communication

The Effect of Morphology and Temperature on the Electrochemical Capacitive Performance of Mesoporous Carbons Synthesized Using Reverse Copolymers

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Five kinds of mesoporous carbons (disordered mesoporous carbons (DMCs) which contain ink bottle (DMC-1) and cylinder structure (DMC-2), ordered mesoporous structure (OMCs) including lamellar (OMC-1), hexagonal (OMC-2) and cubic structure (OMC-3)) were selected to study the morphology and temperature on the electrochemical capacitive performance. Cyclic voltammetry and galvanostatic charging–discharging measurements are performed, and the results show that the OMC-2 has the best integrated electrochemical performance owing to synergistic effects of the hexagonal mesostructured and ordered pore arrangement. Moreover, the temperature on the pore structure and electric performance of DMCs was also studied, and the results show that too high temperature (1600°C) would result in disruption of pore structure which would further lead to the worse electric performance.

Keywords: Mesoporous carbons; Pore morphology; Temperature; Electrochemical performance

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