Synthesis of MnO₂/ZSM-5 Molecular Sieve Composites activated by CO₂ as Electrode Material for Supercapacitors

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The high-performance electrode materials is a major issue in the development of large-scale supercapacitors. Here, we prepared a high capacity supercapacitor electrode material MnO₂/ZSM-5-CO₂ by CO₂ activated the support of molecular sieve (ZSM-5). The results show that the MnO₂/ZSM-5-CO₂ particles have obvious leafy structure, and uniform dispersed on the surface of the ZSM-5-CO₂. The specific capacitance of the MnO₂/ZSM-5-CO₂ materials is calculated to be 650.62 F g⁻¹ higher than that of the ZSM-5-CO₂, MnO₂/ZSM-5-N₂. The MnO₂/ZSM-5-CO₂ electrode material, and also displayed great reversibility and stability long-term cycle life in repetitive charge-discharge cycling.

Keywords: MnO₂, molecular sieve, supercapacitor, CO₂ activation.

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