

A Li-rich Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O₂ Cathode Material in situ Coated with Polyaniline

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A Li-rich Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O₂ cathode material coated with polyaniline (PANI) was prepared by a chemical in situ polymerization method. PANI is evenly coated on the surface of particles of the Li-rich material Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O₂ to form a good electrical conductive layer. The samples were characterized using X-ray diffraction (XRD), scanning electron microscopy (SEM), cyclic voltammetry (CV) and electrochemical impedance spectroscopy (EIS). When the PANI coating content was 6%, the Li-rich material exhibited a regular morphology and optimal electrochemical properties. The initial specific discharge capacity of the Li-rich material Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O₂/PANI was 262.0 mAh g⁻¹ at 0.1 C, and that after 50 cycles was 243.7 mAh g⁻¹, representing a capacity retention of 93% after 50 cycles.

Keywords: Li[Li_{0.2}Ni_{0.2}Mn_{0.6}]O₂; Polyaniline; Li-rich materials; Cathode materials.

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