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Preparation and electrochemical properties of uniform spherical lithium rich materials xLi2MnO3·(1-x)LiMn1/3Ni1/3Co1/3O2

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Abstract

The lithium-rich materials xLi2MnO3·（1-x）LiMn1/3Ni1/3Co1/3O2, with uniform spherical shape of 1 μm are successfully prepared via a hydrothermal method combined with calcination process. The content of Li2MnO3 is tuned by adjusting the content of Li, which also affects their electrochemical performances. When the stoichiometry of Li is 1.05 (noted as Li 1.05), the obtained content of Li2MnO3 in the materials by XRD refinement is determined to be 59.94 wt%. It exhibits a relatively good electrochemical performance. At 1 C rate, the discharge capacity is 191.1 mAh g−1, and the capacity retention rate is 83.9% after 100 cycles.