

Effect of substituent and dopant on properties of LiMn_2O_4 as cathode materials for lithium ion secondary batteries

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Abstract : Spinel cathode material LiMn_2O_4 is currently studied as a promising cathode material for lithium ion secondary batteries for future applications because of it is low cost, easy to be prepared and capable to be operated in high voltage range. However as a cathode material, LiMn_2O_4 performs a poor capacity retention which leads to short cycle life. In this study, stoichiometric LiMn_2O_4 was synthesized with granulation method with ion substitution to stabilize its structure and niobium doping to improve its conductivity. These well-mixed powders were calcined at 850°C for 6 hours and its properties were investigated. Correlations of dopant and electrochemical properties were examined as well.

Keyword : LiMn_2O_4 , dopant, substitution, granulation