

# Improving the security of lithium ion battery by adding MgO nanoparticles into cathode

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Owing to its high thermal and chemical stability, inorganic metal oxides are widely considered as a good candidate for improving the security of lithium ion battery (LIB). Especially, MgO nanoparticles is one of the effective way for overcoming the reaction between cathode and electrolyte during the charge/discharging cycles. Herein, in this study, we have focused on synthesis of MgO by a modified carbonization method by employing CO<sub>2</sub> gas as carburizer. Through investigating the influences of molar ratio, reaction temperature, reaction time and reaction solution pH on the crystal structure and morphology of target materials, the relationship between the structure and battery performance was concluded on the basis of various characterization results. Based on the characterization results and the enhanced security of as-assembled LIB cell, the mechanism was concluded.