

Supercritical Hydrothermal Synthesis of Lithium Iron Phosphate (LiFePO₄) Particles and their Electrochemical Properties

홍승아¹, 김수진^{1,2}, 김재훈^{1,*}, 정경윤¹

¹한국과학기술연구원; ²고려대학교

(jaehoonkim@kist.re.kr*)

Continuous supercritical hydrothermal synthesis (SHS) has been developed for nanosized, cathode active material synthesis for large-scale lithium secondary battery applications. In this study, we present electrochemical performances of lithium iron phosphate (LiFePO₄) nanoparticles synthesized at various conditions. The object of this study is to prepare single-phase, nanosized and single-crystal LiFePO₄ particles using the SHS process. The LiFePO₄ nanoparticles were characterized in detail using X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), Brunauer, Emmet, and Teller (BET) analysis, and charge-discharge testing.