

Facile synthesis of β -MnO₂ to LiMn₂O₄ nanorod for aqueous lithium ion battery cathode박재민, 김준수, 박호석[†]

성균관대학교

(phs0727@skku.edu[†])

Nowadays, Lithium ion battery (LIB) has been advanced for applying to Electric Vehicle (EV) or Energy Storage System (ESS) energy storage device. However, kinetics limit from organic electrolyte offsets the power density of lithium ion battery, which hinders commercialization of electric charging station and EV. So the aqueous system was selected to improve the power density of lithium ion battery with stable LiMn₂O₄ (LMO) cathode materials. Unfortunately, commercial LMO has low cycle stability in aqueous system, so newly synthesized LiMn₂O₄ nanorod was introduced to improve cycle stability in aqueous electrolyte with enhanced power density. LiMn₂O₄ nanorod was synthesized with facile hydrothermal synthesis and thermal treatment. The electrochemical performance test was proceeded with various electrolyte, and compared with commercial LMO. LMO nanorod showed enhanced cycle stability and capacity retention compared to commercial LMO, also, power density was improved.