

Ordered Mesoporous Tungsten Oxide–Carbon Nanocomposite for Anode in Lithium Ion Battery

Dao Ha Anh, 조창신, 이진우*
POSTECH
(jinwoo03@postech.ac.kr*)

Lithium ion batteries (LIBs) have been received much attention due to their wide applications in portable electronic devices and electric vehicles. Many researchers have studied various nano-structured materials to maximize the performance of electrode materials. In this study, we synthesized the ordered mesoporous tungsten oxide–carbon composite (m-WO_x-C). As an anode, the m-WO_x-C electrode exhibited high initial lithiation capacity (1150 mA h/g) and delithiation capacity (720 mA h/g, coulombic efficiency: 63%). The electrode also showed a good cycle performance. The m-WO_x-C electrode exhibited better electrochemical performance compared to mesoporous tungsten oxide (m-WO₃) and bulk tungsten oxide–carbon composite (bulk-WO_x-C). We conclude that the enhanced performance of m-WO_x-C electrode was probably attributed to the combination of ordered mesoporous structure effect and transition metal oxide–amorphous carbon composite effect.