

Low interfacial resistance with $\text{Li}_{1.3}\text{Al}_{0.3}\text{Ti}_{1.7}(\text{PO}_4)_3$ /PAN Gel Polymer based Li-CO₂ battery

김희웅, 김재광†

청주대학교

(jaekwang@cju.ac.kr†)

Li-CO₂ batteries have high energy density by using lithium metal as an anode, and are very promising and attractive in the future battery market. However, the main task of Li-CO₂ batteries is the safety and longevity of Lithium metal. In this study, a Li-CO₂ battery with a stable and reduced interfacial resistance was studied using a gel polymer electrolyte and a solid electrolyte. It was measured in a CO₂ atmosphere. LATP pellets have high electrochemical stability and help lithium ions as a solid electrolyte. However, since solid electrolytes generate high interfacial resistance between lithium metals, we reduced interfacial resistance and increased the stability of Li-CO₂ cells by using PAN gel polymer electrolyte in the middle. The structure and characteristics of the battery were confirmed through measurements such as Electrochemistry measurement, X-ray diffraction (XRD), and Field Emission Scanning Electron Microscope (FE-SEM).

KEYWORDS

Lapt ceramic, pan gel polymer electrolyte, li-co₂ battery, lithium metal