

Synthesis and characterization of zinc sulfide for the application to ionic conductor

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Recently, nanostructured metal-oxide materials with ordered porosity have attracted research interest to ionic conductor. However, the strong interaction between oxygen and lithium ion results in a decreasing ionic conductivity. Here, we suggest porous zinc sulfide and describe the synthetic route of zinc sulfide with various pore sizes. The synthesized zinc sulfide was characterized by X-ray diffraction (XRD), high-resolution transmission electron microscopy (HRTEM), thermal gravimetric analysis (TGA), fourier transform infrared (FT-IR) spectroscopy and Brunauer-Emmett-Teller surface adsorption analysis (BET). The zinc sulfide possessed a high surface area with an average pore diameter of 2~3nm and the nanocrystallites of ~3nm. A systematic analysis was carried out to find the role of nanostructured zinc sulfide into ionic conductor.