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Preparation of Li Ion Conductive Ceramics via Liquid Process

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Abstract : Li1.5Al0.5Ti1.5 (PO4)3(LATP) has received much attention as a solid electrolyte for lithium batteries. In this study, the LATP solid electrolyte is prepared by the co-precipitation method using Li3PO4 as a Li source. The LATP is successfully prepared and the Li ion conductivities of bulk (inner crystal) and total (inner crystal and grain boundary) are 1.1 × 10-3 and 1.1 × 10-4 S cm-1, respectively. These values are comparable to the reported values, in which Li2C2O4 is used as the Li source. It is conclude that the LATP solid electrolyte can be prepared by the co-precipitation method using Li3PO4 as the Li source and this procedure has an advantage in mass production over previous procedure using Li2C2O4 because Li3PO4 is lower price reagent compared with Li2C2O4.

Keywords : co-precipitation method, lithium battery, NASICON-type electrolyte, solid electrolyte
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