THE EFFECT OF SINTERING DAYS ON ELECTRICAL CONDUCTIVITY IN SOLID ELECTROLYTE

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ABSTRACT

THE EFFECT OF SINTERING DAYS ON ELECTRICAL CONDUCTIVITY IN SOLID ELECTROLYTE

Solid state batteries are playing a vital role in the development of science and technology, from portable electronics on one extreme to electric vehicles to backup power sources in aircraft. Solid electrolytes have been quite attractive because they free from leaks and available in different geometries. In this work, the effect of sintering days on electrical conductivity in compound of $Li_3 PO_4$ - $AL_2 O_3$ has been studied. The samples are prepared by using low sintering method. The samples are prepared in different compositions with a fixed temperature, 100°C at different numbers of days. Impedance Spectroscopy or IS are used to measure the electrical conductivity in each samples. The maximum conductivity was obtained when the sample contained 40% Li_3PO_4 and 60% Al_2O_3. This sample was heated for 3 days at 100°C. The conductivity was 9.39535 x 10^{-8} $S.cm^{-1}$. The Fourier-Transport Infrared (FTIR) method was used as an extra technique for looking the types of bonding exist in the samples. The samples in this experiment can be measure under the scanning electron micrograph (SEM) in order to look out what is exactly happen to the molecules and bonding in the samples.