PREPARATION OF PEO-BASED SOLID POLYMER ELECTROLYTE FOR DYE SENSITIZED SOLAR CELL (DSSC)

FATIHA NAJWA BINTI MUHAMMAD SOBRI

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ABSTRACT

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In this project, the PEO-based solid polymer electrolyte was successfully prepared by solution casting method. Polyethylene oxide (PEO) used as host polymer while potassium iodide (KI) as salt. The effect of KI concentration on the ionic conductivity of the electrolyte was investigated. The interaction between salt and polymer in sample PEO/KI/I_2 was studied by Fourier transform infrared spectroscopy (FTIR) while the ionic conductivity was measured using electrochemical impedance spectroscopy (EIS). The ionic conductivity was found to increase with the increasing of the amount of KI. However, a maximum ionic conductivity value 3.04×10^{-5} Scm^{-1} was obtained from sample PEO-KI/I_2 with mass of ratio 6:3:1. These results revealed that the KI increase the ionic conductivity of the polymer electrolytes due to the change in the polymer chains and crystallization phase.

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