

## Ion Conductivity and Thermal Behavior of Polymer Electrolytes Based on PEO and Additive Salts

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One of the suggestions in order to ensure a safety problem, such as the explosion of the battery, can be solved by using a solid polymer electrolyte (SPE), which is usually composed of polymer matrix and lithium salts. In this work, the SPE composites, which were composed of poly(ethylene oxide) (PEO), ethylene carbonate (EC) as a plasticizer, lithium salt, and 1-ethyl-3-methylimidazolium hexafluorophosphate (EMI-PF6) as a filler in order to improve the ion conductivity of the SPE, were prepared. We investigated the influence of EMI-PF6 contents on the ionic conductivity of the SPE composites. As a result, the ionic conductivity of the SPE improved as an increase in EMI-PF6 content, and showed the highest ionic conductivity at 40 wt%. Also, the improvement of ionic conductivity was observed as the temperature increase. It was then resulted that there was close correlation between the mobilities of Li<sup>+</sup> and EMI content in a SPE composite system.