

## Synthesis of Methylated Poly(1-vinylimidazole) for Alkaline Anion-exchange Membrane Fuel Cell

박현진<sup>1,2,\*</sup>, 김형준<sup>2</sup>, 표성규<sup>1</sup>  
<sup>1</sup>중앙대학교; <sup>2</sup>한국과학기술연구원  
(t12384@kist.re.kr\*)

Alkaline anion exchange membrane fuel cell (AAEMFC) is an electrochemical device that can convert the chemical energy of H<sub>2</sub> into directly electrical current. AAEMFCs exhibit several advantages over PEMFCs, such as that they can use cheaper non-noble metal catalysts. And the oxygen reduction (ORR) under alkaline conditions is faster than in acidic conditions. Alkaline solid polymer electrolyte membranes contain positive ionic functional groups and mobile negatively charged anions. In this regard, Poly(1-vinylimidazole)(P1Vim) was synthesized by the radical polymerization of 1-vinylimidazole. In addition, quantitative methylation supplies a permanent cationic charge on the imidazole ring. These imidazolium salts exhibit high ionic conductivities, high chemical and thermal stability.