

Title: Polymer based Membrane Electrospun Fiber in Fuel Cell Application: A Short Review

Author/Authors: Hazlina Junoh, Juhana Jaafar, M. H. D. Othman, Mukhlis A. Rahman

Abstract: Currently, the need of renewable energy becomes crucial due to the problem arising via fossil fuels usage which contributes to the environmental issues. Among the type of existing renewable energy, fuel cells is the most promising renewable energy sources since the energy can be directly converted from combustible of fuel. The proton exchange membrane (PEM) is the heart of the fuel cells system. The research and development on proton electrolyte membrane is keep burgeoned. Even though the studies of the electrolyte nanocomposite membrane for fuel cell application are quite various but only a few studies focused on the effect of electrospun nanocomposite membrane on the performance of proton electrolyte membrane. This review is focusing on the electrospinning process for the preparation of electrospun fiber membrane. This review is concentrates on polymer based membrane electrospun nanofiber and their influence on proton conductivity as well as on fuel crossover barrier properties. The proton conductivity and fuel crossover can be improved by fully exfoliated structure of nanocomposite electrolyte membrane via electrospinning process and thus the membrane can be an alternative PEM for DMFC applications.