

عنوان مقاله:

Investigation of ion transport and water content properties in anion exchange membranes based on polysulfone for solid alkaline fuel cell application

محل انتشار:

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خلاصه مقاله:

In the present research work, homogeneous anion exchange membranes based on polysulfone (QAPSFs) were prepared via chloromethylation, amination and alkalization. In the amination step, trimethylamine and N,N,N',N'-tetramethyl-1, 6-hexanediamine were used as amination and crosslinking agents, respectively. The chloromethylated polysulfone was characterized by ¹HNMR spectroscopy and the chloromethylation degree was calculated using peak area integration. Ion transport properties, such as ionic conductivity, ion exchange capacity, and activation energy for hydroxide ion transport were measured for the prepared anion exchange membranes. Furthermore, water content associated properties, such water uptake and hydrated number, were determined for these membranes. According to the obtained results the membrane with crosslinking agent (QAPSF-2) showed ion transport properties quite similar to the membrane without the crosslinker (QAPSF-1). Although QAPSF-2 had more improved water content associated properties and reasonable dimensional stability in contrast to QAPSF-1. Finally, according to ionic transport measurements and water content characterizations, the prepared QAPSF membranes can be denoted as good candidates for solid alkaline fuel cell application

کلمات کلیدی:

Solid Alkaline Fuel Cell, Anion Exchange Membrane, Polysulfone, Amination Agents

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