

Author's Accepted Manuscript

Functionalization of Polybenzimidazole-crosslinked Poly(vinylbenzyl chloride) with Two Cyclic Quaternary Ammonium Cations for Anion Exchange Membranes

Jinkai Hao, Yongyi Jiang, Xueqiang Gao, Wangting Lu, Yu Xiao, Zhigang Shao, Baolian Yi



PII: S0376-7388(17)32069-0
DOI: <https://doi.org/10.1016/j.memsci.2017.10.062>
Reference: MEMSCI15689

To appear in: *Journal of Membrane Science*

Received date: 21 July 2017
Revised date: 27 September 2017
Accepted date: 28 October 2017

Cite this article as: Jinkai Hao, Yongyi Jiang, Xueqiang Gao, Wangting Lu, Yu Xiao, Zhigang Shao and Baolian Yi, Functionalization of Polybenzimidazole-crosslinked Poly(vinylbenzyl chloride) with Two Cyclic Quaternary Ammonium Cations for Anion Exchange Membranes, *Journal of Membrane Science*, <https://doi.org/10.1016/j.memsci.2017.10.062>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Functionalization of Polybenzimidazole-crosslinked Poly(vinylbenzyl chloride) with Two Cyclic Quaternary Ammonium Cations for Anion Exchange Membranes

Jinkai Hao^{a,b}, Yongyi Jiang^{a,b}, Xueqiang Gao^{a,b}, Wangting Lu^c, Yu Xiao^a, Zhigang Shao^{a*},
Baolian Yi^a

^aFuel Cell System and Engineering Laboratory, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, 457 Zhongshan Road, Dalian 116023, China

^bUniversity of Chinese Academy of Sciences, Beijing 100039, China

^cInstitute for Interdisciplinary Research, Jiangnan University, 430056, Wuhan, China

*Corresponding author. Tel.: +86 411 84379153; fax: +86 411 84379185.
zhgshao@dicp.ac.cn

ABSTRACT

The anion exchange membranes (AEMs) with both high ionic conductivity and good stability is always the research focus role for the long-term use of AEM fuel cells. A series of the mechanically and chemically stable PVBC/PBI crosslinked membranes, functionalized with N1-butyl substituted BDABCO groups, were designed, prepared and characterized. With the crosslinking by polybenzimidazole (PBI), the membranes showed good flexibility, strength and low swelling ratio (less than 18%). N1-butyl substituted doubly-charged BDABCO was introduced in the AEMs during the crosslinking reaction instead of the traditional dipping method, benefiting from the

Download English Version:

<https://daneshyari.com/en/article/7020253>

Download Persian Version:

<https://daneshyari.com/article/7020253>

[Daneshyari.com](https://daneshyari.com)