

Accepted Manuscript

Modification and characterization of electrospun poly (vinylidene fluoride)/poly (acrylonitrile) blend separator membranes

Yun Zhu, Ming Yin, Hesheng Liu, Bing Na, Ruihua Lv, Bin Wang, Yanghui Huang



PII: S1359-8368(16)32463-5

DOI: [10.1016/j.compositesb.2016.12.025](https://doi.org/10.1016/j.compositesb.2016.12.025)

Reference: JCOMB 4780

To appear in: *Composites Part B*

Received Date: 26 October 2016

Revised Date: 10 November 2016

Accepted Date: 10 December 2016

Please cite this article as: Zhu Y, Yin M, Liu H, Na B, Lv R, Wang B, Huang Y, Modification and characterization of electrospun poly (vinylidene fluoride)/poly (acrylonitrile) blend separator membranes, *Composites Part B* (2017), doi: 10.1016/j.compositesb.2016.12.025.

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 proof before it is published in its final 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.

Modification and characterization of electrospun poly (vinylidene fluoride)/poly
(acrylonitrile) blend separator membranes

Yun Zhu, Ming Yin, Hesheng Liu, Bing Na*, Ruihua Lv, Bin Wang, Yanghui Huang

Fundamental Science on Radioactive Geology and Exploration Technology Laboratory, School of
Chemistry, Biology and Materials Science, East China University of Technology, Nanchang, 330013,
People's Republic of China

Abstract: Electrospun polymer membranes have great potentials as separators for lithium-ion batteries due to their high porosity. However, electrospun membranes usually suffer from low mechanical strength because of weak bonding at inter-fiber junctions. In this study, high mechanical strength over 20 MPa is achieved for poly (vinylidene fluoride) (PVDF)/poly (acrylonitrile) (PAN) blend membranes at a ratio of 5/5 after modification by a PVDF dilute solution. Moreover, good dimensional stability at 200 °C is exhibited the modified blend membranes due to the presence of continuous PAN nanofibrils. Separators based on the modified blend membranes impart lithium-ion batteries with superior discharge capacity and cyclic performance.

Keywords: separators; poly (vinylidene fluoride)/poly (acrylonitrile) blends; electrospun membranes; lithium-ion batteries

*Correspondence author. Fax: +86 791 83897982. E-mail address: bnash@ecit.edu.cn, bingnash@163.com

Download English Version:

<https://daneshyari.com/en/article/5021423>

Download Persian Version:

<https://daneshyari.com/article/5021423>

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