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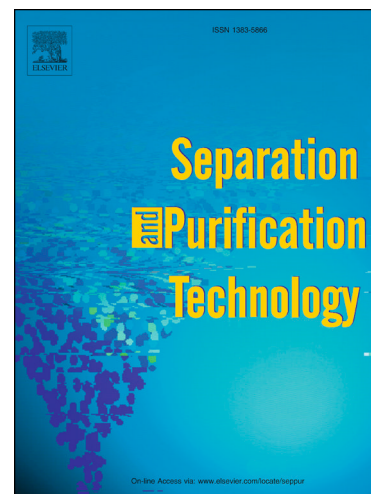
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**Development and investigation of mixed-matrix PVA-fullerenol membranes
for acetic acid dehydration by pervaporation**

Maria E. Dmitrenko¹, Anastasia V. Penkova^{*1}, Alexander B. Missyul², Anna I. Kuzminova¹,
Denis A. Markelov^{1,3}, Sergey S. Ermakov¹, Denis Roizard⁴

¹*Institute of Chemistry, St. Petersburg State University, Universitetsky pr. 26, Peterhof,
198504 Saint Petersburg, Russia*

²*ALBA Synchrotron Light Source, Carrer de la Llum 2-26, 08290 Cerdanyola del Vallès,
Barcelona, Spain*

³*St. Petersburg National Research University of Information Technologies, Mechanics and
Optics, Kronverkskiy pr. 49, 197101 St. Petersburg, Russia*

⁴*Laboratoire Réactions et Génie des Procédés, CNRS, Université de Lorraine, ENSIC, 1
rue Granville, 54000 Nancy, France*

*Corresponding author. E-mail: a.penkova@spbu.ru, tel.: +7(812)428-48-05

Author e-mails: Maria E. Dmitrenko, m.dmitrienko@spbu.ru; Alexander B. Missyul, amissiul@cells.es; Anna I. Kuzminova, ai.kuzminova@mail.ru; Denis A. Markelov, markeloved@gmail.com; Sergey S. Ermakov, s.ermakov@spbu.ru; Denis Roizard, denis.roizard@univ-lorraine.fr.

Abstract

This study focuses on the development of a green pervaporation (PV) process for dehydrating a wide range of commercially significant mixtures such as concentrated (and corrosive) acetic acid blends using mixed-matrix membranes based on polyvinyl alcohol (PVA) cross-linked by low-hydroxylated fullerenol (C₆₀(OH)₁₂). The effect of C₆₀(OH)₁₂ and various conditions of physical cross-linking on the structure and internal morphology of composite membranes was investigated by X-ray diffraction and scanning electron microscopy, and the stability and transport properties of the developed membranes were investigated for acetic acid dehydration at a wide range of feed water contents (5–30 wt.%) and temperatures (25–60 °C). The supported mixed-matrix

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