

Author's Accepted Manuscript

PERVAPORATION CATALYTIC MEMBRANE
REACTOR APPLICATION OVER
FUNCTIONAL CHITOSAN MEMBRANE

Derya Unlu, Nilufer Durmaz Hilmioglu



PII: S0376-7388(18)30294-1
DOI: <https://doi.org/10.1016/j.memsci.2018.05.005>
Reference: MEMSCI16145

To appear in: *Journal of Membrane Science*

Received date: 31 January 2018
Revised date: 2 May 2018
Accepted date: 3 May 2018

Cite this article as: Derya Unlu and Nilufer Durmaz Hilmioglu, PERVAPORATION CATALYTIC MEMBRANE REACTOR APPLICATION OVER FUNCTIONAL CHITOSAN MEMBRANE, *Journal of Membrane Science*, <https://doi.org/10.1016/j.memsci.2018.05.005>

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.

**PERVAPORATION CATALYTIC MEMBRANE REACTOR APPLICATION OVER
FUNCTIONAL CHITOSAN MEMBRANE**

Derya Unlu, Nilufer Durmaz Hilmioglu^{*1}

Kocaeli University, Chemical Engineering Department, 41380, Kocaeli, Turkey

derya.unlu@kocaeli.edu.tr

niluferh@kocaeli.edu.tr

*Corresponding author: Tel: +902623033545; fax: +90 262 359 12 62,
niluferh@kocaeli.edu.tr, niluferhilmioğlu3@gmail.com

Abstract

In this study, homogeneous catalyst "Sulfosuccinic acid" was added into the polymer matrix, and the functional catalytic membrane was prepared. Chitosan was chosen as a polymeric material. Sulfosuccinic acid (SSA) loaded functional chitosan membranes have been used to synthesize bioadditive ethyl levulinate in a pervaporation catalytic membrane reactor. The functional membrane was characterized by the TGA and SEM. The performance of SSA loaded functional chitosan membranes was investigated with binary mixtures of ethanol/water under varying operating conditions (feed concentration, temperature, SSA amount) to study the influence on separation performance. Pervaporation catalytic membrane reactor experiments were carried out to optimize operating conditions such as reaction time, reaction temperature, catalyst amount, and molar feed ratio. The kinetic model in PVC MR with the

¹Postal address: Department of Chemical Engineering, Engineering Faculty, Kocaeli University, 41380 Kocaeli, Turkey

Download English Version:

<https://daneshyari.com/en/article/7019814>

Download Persian Version:

<https://daneshyari.com/article/7019814>

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