

عنوان مقاله:

synthesis and optimization of chitosan ceramic -supported membrane for pervaporation ethanol dehydration

محل انتشار:

دومین همایش ملی غشا و فرایندهای غشایی (سال: 1394)

تعداد صفحات اصل مقاله: 5

نویسندگان:

.mahdi Nikbakht - School of Chemical Engineering, College of Engineering, University of Tehran, Tehran, Iran

Sepideh Soroush - Research Center for Membrane Separation Processes, Faculty of Chemical Engineering, Iran
University of Science and Technology, Tehran, Iran

Morteza Asghari - Separation Processes Research Group (SPRG), Department of Engineering, University of Kashan,
Kashan, Iran

Mohammad Mehdi Montazer-Rahmati - School of Chemical Engineering, College of Engineering, University of
Tehran, Tehran, Iran

خلاصه مقاله:

In the present work, ceramic-supported chitosan hybrid membranes were prepared for pervaporation dehydration of ethanol. Mullite and combined mullite-alumina (50% alumina content) tubular ceramic supports were fabricated, and their influence on membrane performance was compared to a commercial α -alumina support. The membrane preparation parameters were different ceramic supports and the concentration of chitosan solution (varying from 2 wt.% to 4 wt.%). The supports and hybrid membranes were characterized by field emission scanning electron microscopy (FE-SEM) and contact angle measurement. The results show, with increasing chitosan concentration, permeability decreases and selectivity increases. It was also found that the separation factor decreases with increasing feed temperature and feed water content, while the permeation flux increases. The membrane that was coated on α -alumina support with a 3 wt.% chitosan concentration exhibited the best pervaporation performance, leading to a permeation flux and separation factor of 352 g.m⁻².h⁻¹ and 200 for 90 wt.% ethanol in feed at 60 °C, respectively

کلمات کلیدی:

;Hybrid membrane; ceramic supports; chitosan; pervaporation; ethanol dehydration

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/390465>

