Environmental Engineering and Management Journal *July/August 2009, Vol.8, No.4, 777-784*
http://omicron.ch.tuiasi.ro/EEMJ/

"Gheorghe Asachi" Technical University of Iasi, Romania

MEMBRANE SUPPORT OF POLYETHERETHERKETONE

Mihaela Emanuela Crăciun, Aurelia Cristina Nechifor, Florin Aldea, Gheorghe Nechifor*

Politehnica University of Bucharest, Department of Analytical Chemistry and Instrumental Analysis, 2-7 Polizu Street, District 1, Bucharest, Romania

Abstract

A crucial stage which makes the other directions of development of membrane processes is getting new membrane materials, to meet increasingly stringent of selectivity and productivity. Polyetheretherketone shows high stability against chemical and physical agents but is poorly soluble in most common solvents. Present studies on obtaining the support of the polyetheretherketone membranes were limited by: solubility of polyetheretherketone in concentrated sulfuric acid and fast speed and less control of phase-inversion technique by immersion precipitation.
This study started to the results of phase-inversion with the chemical reaction of similar systems: polyamide / formic acid and polybenzimidazol / sulfuric acid. Modify the composition of bath clotting, so as to moderate coagulation speed and to obtain membrane support without defects. Basically in the bath of coagulation were introduced inorganic salts. Membranes support obtained were characterized by established methods, aiming to complement data. Stages of obtaining support from polyether ketones membranes are: polymer dissolution in concentrated sulfuric acid, making film of the polymers solution, film precipitation in the coagulation bath and conditioning the membrane support.
The prepared membranes were characterized by fluid permeability method (determining the flow of pure water passing through membrane) tested by the filtration of a protein - bovine serum albumin (BSA), and their structure was studied with scanning electron microscopy.

Key words: membranes, membrane support, phase inversion, polyetheretherketone, polyetheretherketone membrane characterization

* Author to whom all correspondence should be addressed: e-mail: g_nechifor@chim.upb.ro