

ICOSECS 8

University of Belgrade
Faculty of Technology and Metallurgy
Belgrade, Serbia, June 27-29, 2013



8th International Conference
of the Chemical Societies
of the South-East European Countries

BOOK OF ABSTRACTS

organized by

SAC - Society of Albanian Chemists
UCB - Union of Chemists in Bulgaria
PUC - Pancyprian Union of Chemists
AGC - Association of Greek Chemists

Society of Chemists and Technologists of Macedonia - SCTM
Chemical Society of Montenegro - CSM
Romanian Chemical Society - RCS
Serbian Chemical Society - SCS

Asymmetric polyethersulfone membranes with crosslinked poly(glycidyl methacrylate) particles

Filip Radovanović, Tanja Tomković, Aleksandra Nastasović, Sava Veličković*, Aleksandra Nešić**, Antonije Onjia**

University of Belgrade, Institute for Chemistry, Technology and Metallurgy

*University of Belgrade, Faculty of Technology and Metallurgy

**University of Belgrade, Vinca Institute of Nuclear Sciences, P.O. Box 522

Polyethersulfone (PES) is frequently used for high-performance ultrafiltration membranes. Functionalization of PES membranes is required to introduce new groups for specific applications, such as affinity membranes for bioseparations [1]. Functionalization methods include bulk modification of PES material, blending of PES with another material, or surface modification of PES membranes [2]. In this work a novel method for introducing functional groups in asymmetric PES membranes is presented [3]. A cast film comprising PES, glycidyl methacrylate (GMA) and a common solvent was exposed to UV irradiation to form a gel of crosslinked polyGMA. The gel was then immersed in a water bath to create an asymmetric membrane with crosslinked polyGMA particles, as shown in Fig. 1. A simple treatment of these membranes with diethylene triamine was used to open the epoxide rings in polyGMA particles and introduce amine functional groups. The effects of monomer concentrations on the properties and separation performance of these novel membrane adsorbers will be presented.

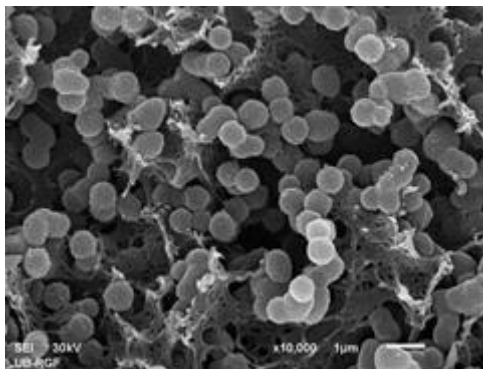


Fig. 1. SEM micrograph of a cross-section of a PES membrane with crosslinked polyGMA particles.

This work has been funded by Serbian Ministry of Education and Science within the framework of the projects TR32008, III 43009 and OI 172062.

References:

- [1] M. Ulbricht, M. Riedel, U. Marx, *J. Membrane Sci.* **120** (1996) 239.
- [2] C. Zhao, J. Xue, F. Ran, S. Sun, *Prog. Mater. Sci.* **58** (2013) 76.
- [3] F. Radovanović, A. Nastasović, A. Nešić, S. Veličković, Serbian Patent Application, Ref. No. 2013/0157.