



Preparation of heterogeneous reverse osmosis membranes undergoing modification process

B.S. Thaçi^a, S.T. Gashi^{b,*}, F.I. Podvorica^{a,b}

^aDepartment of Chemistry, University of Prishtina, 10000 Prishtinë, Republic of Kosovo, emails: bthaqi75@gmail.com (B.S. Thaçi), fetah.podvorica@gmail.com (F.I. Podvorica)

^bAcademy of Sciences and Arts of Kosovo, 10000 Prishtinë, Republic of Kosovo, Tel. +37744500773; email: salihg@yahoo.com (S.T. Gashi)

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ABSTRACT

This paper gives more insight about the role of aryl diazonium salt (DS) grafted on coal surface prior to use in the membrane making process, which brings better membrane separation. The surface of coal particles was modified by chemical reduction of 4-nitrobenzenediazonium salt of different concentrations at millimolar level in aqueous acid solution (hypophosphoric acid, sulfuric, hydrochloric, nitric, and phosphoric) and aprotic (acetonitrile) medium. The attenuated total reflectance-Fourier transform infrared spectra showed that the nitrophenyl groups were strongly bonded on the surface of coal particles. The use of the modified coal for the preparation of reverse osmosis (RO) membranes, alter their characteristics as shown by RO parameters as well as scanning electron microscopy images. The current paper provides the data that shows evidence of the DS's effect on the modification of coal and better separation of RO heterogeneous membranes.

Keywords: Reverse osmosis; Heterogeneous membranes; Modified coal; Diazonium salt

* Corresponding author.