THIRTEENTH YOUNG RESEARCHERS' CONFERENCE
MATERIALS SCIENCE AND ENGINEERING

December 10-12, 2014, Belgrade, Serbia

Serbian Academy of Sciences and Arts, Knez Mihailova 36

PROGRAMME & THE BOOK OF ABSTRACTS

Materials Research Society of Serbia

&

Institute of Technical Sciences of SASA

December 2014, Belgrade, Serbia

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XII/5

Dynamic adsorption of Rhodamine B from dilute aqueous solutions using negatively-charged membrane adsorbers

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A series of polyethersulfone membranes with integrated cross-linked poly(glycidyl methacrylate-co-2-acrylamido-2-methylpropane sulfonic acid) were synthesized using a combination of the traditional immersion precipitation process for making membranes and photopolymerization. Negative charges were introduced using AMPS as a reactive monomer. Presence of sulfonic groups was confirmed by FTIR-ATR spectra. Changes in membrane morphology as a function of AMPS concentration in the casting solution were investigated by SEM. Membrane charge was evaluated from streaming potential measurements using a specially constructed device. Dynamic adsorption of Rhodamine B was used to demonstrate effects of monomer concentration on the properties and separation performance.

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Organic/inorganic nanosilica support role in the recovery of terephthalic acid from Poly(ethylene terephthalate) wastes

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Poly (ethylene terephthalate) wastes received from used soft-drink bottles chemically recycled to terephthalic acid by using diethylene glycol (DEG) as the solvent and sodium hydroxide as the catalyst in the presence of organically modified nanosilica by g-glycidoxypropyltrimethoxysilane and diethanol amine (GDS) as the solid support. The performance of organically modified nanosilica were examined in detail and the results were compared with reaction in lack of GDS. Results showed that (GDS) delivered good performance as the reagent and solid support in depolymerizing of PET to the terephthalic acid. In the meantime, obtained results revealed that in the presence of NaOH (0.3 g), GDS (0.02 g) and PET: DEG molar ratios (1:3), TPA was obtained in high recovery yield (86%). In addition by exceeding the of GDS to 0.05g, the consumption of the solvent as well as reaction time required for complete glycolysis decreases up 62% and 98%, respectively.