

ABSTRAT**SYNTHESIS, CHARACTERIZATION AND INVESTIGATION OF
ADSORPTION PROPERTIES OF MAGNETIC HYDROGELS****İsmail BAYRAKTAR**

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2013, 127 pages

In this study, crosslinked polymers are synthesized using of acrylamide which is the most commonly used in the production of cross-linked polymer, and AMPS (2-acrylamido 2-methyl propane sulfonic acid) as comonomer. To obtain semi-IPN poly (ethylene glycol) was used. Semi-IPN's and hydrogels were prepared by free radikal polymerization in aqueous solution using poly(ethylene glycol)diacrylate and poly(ethylene glycol)dimethacrylate as crosslinkers. For the preparation of magnetic particles semi-IPN's and hydrogels were loaded with iron (Fe^{2+} , Fe^{3+}) ions. Structural characterization of chemically crosslinked polymers was made by Fourier Transform Infrared Spectroscopy (FT-IR) analysis. Scanning electron microscopy (SEM) images were taken for determination of surface porosity of semi-IPN's and hydrogels. Dynamic swelling tests were applied at 25°C for the purpose of investigation of swelling properties of crosslinked copolymers. According to obtained data, parameters concerning swelling kinetics and diffusion mechanism were calculated. For the aim of investigation of adsorption properties of crosslinked copolymers, janus green B was chosen as model molecule. It was determined that semi-IPNs and hydrogels adsorbed dye of janus green B from aqueous solutions in high level.

Keywords: Acrylamide, 2-acrylamido 2-methyl propane sulfonic acid, interpenetrating polymer network, hydrogel, magnetic hydrogel, poly (ethylene glycol), adsorption, Janus Green B.