

ABSTRACT

PREPARATION, CHARACTERIZATION and INVESTIGATION of ADSORPTION PROPERTIES of NEW ACRYLAMIDE/ZINC ACRYLATE COMPOSITE HYDROGELS CONTAINING XANTHAN GUM and SEPIOLITE

Hatice ÖDEMiŞ

M.Sc. Thesis, Department of Chemistry
Supervisor: Prof. Dr. Erdener KARADAĞ
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In this study, acrylamide based anionic semi-IPNs and composite hydrogels containing zinc acrylate as comonomers, sepiolite as a clay and xanthan gum as a natural polymer are synthesized. Hydrogels which synthesized in this study were prepared by free radical polymerization in aqueous solution using poly(ethylene glycol) diacrylate as a crosslinker. Structural characterization of chemically crosslinked polymers was made by Fourier Transform Infrared Spectroscopy (FT-IR) analysis. Scanning electron microscopy (SEM) micrographs were taken for determination of surface porosity of semi-IPN's and composite 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 composite hydrogels adsorbed dye of janus green B from aqueous solutions in high level.

Key Words: Acrylamide, composite, sepiolite, clay, semi-IPN, xanthan gum, hydrogel, adsorption, janus green B.