

Swelling Behavior of Cross-Linked Poly (2-hydroxyethyl methacrylate)

Authors : Salah Hamri, Tewfik Bouchaour, Ulrich Maschke

Abstract : The aim of this work is the study of swelling ratio of cross-linked polymer networks poly (2-hydroxyethyl methacrylate) (PHEMA). The system composed of erythrosine and Triethanolamine, in aqueous medium, is used as photo-initiator and 1,6-Hexanediol diacrylate as cross-linker. The analysis of UV-visible and infrared spectra, which were taken at different times during polymerization/cross linking, makes it possible to obtain useful information on the reaction mechanism. The swelling behavior was studied by changing the nature of solvent, dye sensitizer (erythrosine, rose Bengal and eosin), and pH of the medium. The exploitation of experimental results using Fick diffusion model is also expected and shows a good correlation between theoretical and experimental results.

Keywords : cross-linker, photo-sensitizer, polymer network, swelling ratio

Conference Title : ICPMSE 2015 : International Conference on Polymer Materials Science and Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : July 29-30, 2015