



Removal of heavy metal ions from aqueous solutions by poly(methyl methacrylate-co-ethyl acrylate) and poly(methyl methacrylate-co-butyl methacrylate) membranes

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ABSTRACT

This study deals with the removal of Fe(III), Cu(II) and Co(II) ions from dilute aqueous solutions by using batch equilibration technique. Poly(methyl methacrylate-co-ethyl acrylate) and poly(methyl methacrylate-co-butyl methacrylate) membranes were used for adsorption of metal ions from aqueous solutions. The effects of contact time, pH and concentration of metal ions on the adsorption properties of membranes were studied. As the pH of solution and initial concentration of metal ions increased, the adsorption of metal ions on the membranes also almost increased in our studies. Adsorption equilibrium was reached in about 120 min for Fe(III) ions and 75 min for Cu(II) and Co(II) ions. The maximum adsorption of metals was found as 2.56 mmol/m² for 1 × 10⁻³ Cu(II) solutions at pH of 6.0 by using poly(methyl methacrylate-co-ethyl acrylate) membrane. All adsorption values were provided by the Langmuir adsorption isotherm model.

Keywords: Adsorption; Poly(methyl methacrylate-co-ethyl acrylate); Poly(methyl methacrylate-co-butyl methacrylate); Membrane

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