

## Study of the Sorption Kinetics of Fe (III) by Polyhydroxamic acid Chelating Exchanger Prepared from Polystyrene-Co-Methyl methacrylate

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### ABSTRACT

*The aim of this research is showing the preparation of polystyrene-co-methyl methacrylate which obtained by a free radical initiation process by co-polymerization of methyl methacrylate and styrene using benzoyl peroxide as an initiator at 70°C and 10% ratio of conversion. Conversion of the ester group of the PSCMMA into hydroxamic acid was carried out by treatment of PSCMMA with hydroxyl amine hydrochloride in alkaline medium at (pH=13) using sodium hydroxide. The polyhydroxamic acid was identified by FT-IR spectroscopy: Sorption capacity ( $q_e$ ) of the metal ion ( $Fe^{3+}$ ) was determined This study also shows the effect of initial (pH), temperature and time on the sorption capacity of ( $Fe^{3+}$ ) by (PHA). Arrhenius and vant Hoff equation models were used to describe the equilibrium sorption isotherms for using different concentrations of ( $Fe^{3+}$ ) at pH=4 and at 25 °C by polyhydroxamic acid, PHA.*

**Keywords:** Sorption Kinetics of Fe(III), Polyhydroxamic acid, Chelating exchanger.

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