

36 - 67 Selective Adsorption of Metal Ions to Surface-Templated Resins Prepared by Emulsion Polymerization Using a Functional Surfactant

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Monomer-type surfactants which can function as a ligand, 10-(*p*-vinylphenyl) decanoic acid (Rac) and 2-(*p*-vinylbenzylamino) alkanolic acids (R_nNAc), have been used as emulsifiers for the preparation of surface-templated resins. The surfactants adsorb at the oil-water interface and emulsify divinylbenzene-styrene monomers. Emulsion polymerization using a potassium persulfate initiator or by irradiation with γ -rays gave fine particles which were 200-300nm in diameter. The metal-imprinted resins prepared with Rac were 1.8 times more effective than the unimprinted resins for adsorption of Cu (II) and Zn (II)-imprinted resins showed highly effective adsorption of Zn (II). Such surface-template effects were also seen for metal-imprinted resins prepared with R_nNAc, but the effect was sensitive to the alkyl chain length. The R₁₈NAc resin was the most effective. The Cu (II) Zn (II) ratio in competitive sorption was 3.7 for the Cu (II)-imprinted resins prepared with Rac and 4.2 with R₁₈NAc

(Molecular and Ionic Recognition with Imprinted Polymers, Chapter 18, Acs books, April 15-17 (1997))