



PREPARATION OF A NEW POLYSTYRENE SUPPORTED-ETHYLENEDIAMINEDICARBOXYLIC ACID RESIN AND ITS SORPTION BEHAVIOR TOWARD DIVALENT METAL IONS

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A new polystyrene-supported ethylenediaminedicarboxylic acid resin has been synthesized through a reaction between the amination of the commercially available 4-chloromethyl polystyrene polymer with ethylenediamine and the subsequent carboxymethylation with monobromoacetic acid, using. chelation behavior of this resin toward the divalent metal ions Cu²⁺, Ni²⁺, Zn²⁺, and Pb²⁺ in aqueous solutions was investigated. Batch equilibration experiments were carried out as a function of contact time, pH, amount of metal-ion, and polymer mass. The amount of metal-ion uptake of the polymer was determined by using atomic absorption spectrometry (AAS). Results of the investigation revealed that the resin exhibited higher capacities and a more pronounced adsorption toward Cu²⁺ and that the metal-ion uptake follows the order: Cu²⁺ > Zn²⁺ > Ni²⁺ > Pb²⁺. The adsorption and binding capacity of the resin toward the various metal ions investigated are discussed.