

### Lead Ion-imprinted Porous Polymer Particles to Remove Heavy Metal Ions

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Lead (II) ion-imprinted porous polymethacrylate microparticles were prepared. Two functional monomers, methacrylic acid and vinyl pyridine, formed a complex with the template lead ion through ionic interactions. The self-assembled lead/monomer complex was polymerized in the presence of an ethylene glycol dimethacrylate cross-linker by a suspension method. After the imprinting sites were provided through removal of the template, the microporous particles, of approximate size from 200–1000  $\mu\text{m}$ , were obtained for batch separation applications. The chemical structure and morphology of the Pb(II)-imprinted microporous particles were analyzed using FTIR, SEM, and BET. The adsorption capacity and adsorption kinetics of the imprinted beads for the template Pb(II) ion were significantly affected by particle size, lead ion concentration and pH of the feed solution. The imprinted particles showed high selectivity for the lead ion over other metal ions such as Ni and Zn.