

Synthesis of ion imprinted polymers for selective recognition and separation of rare earth metals

Abstract

Lanthanide-ion imprinted polymers (L-IIPs) were synthesized by stoichiometric amounts of rare earth ions and the cavities in the polymers were created for the corresponding lanthanide ions. The maximum sorption capacity, are estimated to be 125.3, 126.5, 127.6, 128.2 and 129.1 mg g⁻¹ for Pr, Nd, Sm, Eu and Gd, respectively at pH 6. In the selectivity study, the L-IIPs exhibit good selectivity to the specific rare earth ions in the presence of coexisting cations. The imprinting results are found to be excellent with some rare earth ions over other competitor rare earth ions with same charge and close ionic radius.