Synthesis and Analysis of Inorganic Polymers of Ce (IV) – P Compounds.

Aelemi, A., Shirazi, S.
Faculty of Chemistry, University of Tabriz, Tabriz, Iran.

Key Words. Ion Exchanges, Inorganic Polymer, Fibrous Structure, Inorganic Ion Exchanges, Chromatographic Separation.

Abstract: All of Ce(IV) – P \(^{1(1)}\) compounds can be used as ion exchange. The solubility of these compounds in inorganic acids are very low and they can not be formed anionic complexes and can give amorph and crystalize phases under different conditions in which the phosphate groups was substituted with sulphate groups. The crystal and amorph form of inorganic polymers of Ce(IV) – P can be prepare from the reaction of orthophosphoric acid in the presene of Ce(IV) – S \(^{1(1)}\) in \(\text{H}_2\text{SO}_4\) at 80–100°C with stirring about 4h. The crystal form of Ce(IV) – P have fibrous structure and very similar with celeluse paper. The XRD elemental analysis, IR and FTIR and microscopic pictures of polymer under different condition of preparations, and one of its use as chromatographic separation of inorganic cations was also studied.

1 – Ce(IV) – P : Cerium (IV) phosphate 2 – Ce(IV) – S : Cerium (IV) sulphate