**Paper No: PU-SOE-CHE-15**

**Studies on Polyoxyethylene octyl phenyl ether supported Thorium phosphate, a new cation exchange material**

**Amita Somya** and Kalpna Maheria

Department of Chemistry, Presidency University, Bengaluru, 560 064, India

**Abstract**

A new surfactant supported cation exchanger and adsorbent named, polyoxyethylene octyl phenyl ether supported thorium(IV) phosphate (TX-100ThP) has been reported along with its synthesis, physico-chemical characterization such as scanning electron microscopy, X-ray diffraction, thermogravimetric analysis–differential thermal analysis and Fourier transform infra-red study. Following the characterization, the formed product has been tested for its efficiency in ion exchange chemistry and in analytical chemistry. For the testing, adsorption of alkaline earths—Mg2+, Ca2+, Sr2+ and Ba2+ and transition metal ions such as Fe3+, Mn2+, Ni2+, Cd2+, Co2+, Cu2+, Hg2+ and Pb2+ have been explored in different acidic media and the results revealed the selectivity of synthesized material towards Hg2+ ions. On that basis, the material has been used to treat the binary laboratory-made samples, exploring the environmental importance of the cation exchanger in material science.

**Keywords:**

Surfactant, cation exchanger, thorium phosphate, adsorption

**Publication Details:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Journal Name** | **Vol.** | **Month & Year** | **Page No.** | **Publisher** | **Scimago Ranking** |
| Bulletin of Materials Science | 43 | July, 2020 | 1-7 | Springer | Q2 |