

عنوان مقاله:

Characterization and Stability Study of Polyurethane / Magnetic Strontium Hexaferrite / Clinoptilolite Nanocomposite

محل انتشار:

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خلاصه مقاله:

In this research, a new polyurethane / strontium hexaferrite / clinoptilolite (PU/SrM/CLP) nanocomposite was synthesized through the in-situ polymerization method, and its chemical stability in both acidic and alkaline solutions was assessed. It was found that the incorporation of CLP and SrM into the PU matrix would enhance the thermal stability of the nanomaterial. The thermal stability of the composite ingredients against the thermal events up to the temperature of Yoo °C in an ascending order includes PU, strontium hexaferrite, and CLP zeolite, respectively. As a result, the formed nanocomposite exhibited more thermal stability than PU. Several analytical techniques such as XRF, XRD, FTIR, SEM-EDX, and BET were employed to characterize the physicochemical properties of the nanocomposite. The presence of FTIR peaks at the wavelengths of IYoo cm-1 and "Foo cm-1 confirms the C=O and N–H groups due to the formation of PU in the composite structure, respectively. The pore volume and specific surface area of the Nano sorbent using BET were obtained as o.@9YA cm[#]/g and Y.fo mY/g, respectively. Based on the Scherrer equation, the adsorbent crystallite size was measured as IY.YF nm at the highest peak (Ioo %). In addition, The chemical stability of the prepared nanocomposite was assessed in both acidic and alkaline solutions which showed about a IY % reduction. The point of zero charge (pHpzc) for nano sorbent was Y.F. According to the obtained results, the PU/SrM/CLP nanocomposite can be utilized as a stable and magnetic sorbent in aqueous harsh media, .especially in wastewater samples

کلمات کلیدی:

Nanocomposite, pHpzc, Chemical stability, Thermal stability, surface characterization

لینک ثابت مقاله در پایگاه سیویلیکا:





