

High adsorbability photocatalysts zeolite-TiO₂ for removal of bisphenol A in water

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Zeolitic materials were reported as fascinating adsorbents due to their high porosity properties. In this study, zeolite type X with very high value of specific surface area was used to support titanium dioxide (P25 Degussa), on the purposed to create composites by simple mixing method. The new material's properties are the combination of high photocatalytic activity from P25 and well-adsorbed effect from porous zeolite X. Photocatalytic reaction was conducted under UV-irradiation in order to remove bisphenol A (BPA) in water. Concentration of BPA solution was analyzed by HPLC to determine the ability of ZT in removal of BPA and to specify reaction rate constant. The porosity of materials was conducted by N₂ adsorption. External properties of composites were investigated by FE-SEM and HR-TEM. XRD, Raman and UV-visible diffuse reflectance spectra was used to determine composition and structure of ZT composites. This study promotes very simple method to synthesize composite based on two commercial materials. The photocatalyst composites give an expectation of enhancing the removal of BPA in waste water.