

Visible-driven photocatalysts based on TiO₂-Ni and zeolite

Pham Thanh Truc, Kaiming Jiang¹, 박찬이¹, 신은우^{1,†}

울산대학교; ¹울산대학교 화학공학과

(ewshin@ulsan.ac.kr[†])

Zeolitic materials were known as fascinating adsorbents due to their high porosity properties. In this study, zeolite X and Y were applied as supporter for titanium dioxide in order to enhance their adsorption ability. Moreover, Ni was added for the purpose of shifting sensitivity of photocatalysts to visible area. The photocatalytic materials were synthesis via wet impregnation and incipient wetness impregnation methods. The performances of catalysts are evaluated base on the variation of Ti-Ni : zeolite ratio. These materials were characterized by X-Ray diffraction, FT-IR spectroscopy, Raman spectroscopy and UV-visible diffuse reflectance were used to determine composition and structure of composites. The porosity of materials was conducted by N₂ adsorption. Photocatalytic reaction was conducted under visible-irradiation in order to remove dye in water. The photocatalyst composites give an expectation of enhancing the removal of BPA in waste water.