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Photocatalytic activities of Fe-Cu/TiO₂ on the mineralization of oxalic acid and formic acid
under visible light irradiation

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Abstract

Pure TiO₂ and (Fe,Cu)-codoped TiO₂ nanoparticles with different nominal doping amounts of Fe and Cu in the range of 0.1-5.0 mol% were synthesized by the modified sol-gel method. The samples were characterized in order to obtain the correlation between physicochemical properties and photocatalytic properties by X-ray diffraction (XRD), scanning electron microscopy (SEM), transmission electron microscopy (TEM), Brunauer, Emmett and Teller (BET) specific surface area, UV-vis diffuse reflectance spectroscopy (UV-vis DRS), X-ray photoelectron spectroscopy (XPS), zeta potential, and inductively coupled plasma (ICP) techniques. Photocatalytic activities of 0.1-5.0 mol% (Fe,Cu)-codoped TiO₂ on the mineralization of oxalic acid and formic acid under visible light irradiation were studied and the results were compared to pure TiO₂ and commercial TiO₂ (Degussa P25). The results clearly

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