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Effect of Sulfur Doping in Bismuth Oxychloride on Degradation and Photocatalytic of Rhodamine B Under UV irradiation

This research presents synthesis of sulfur doped bismuth oxychloride (S-doped BiOCl) powder by using microwave radiation with power of 450 Watt for 15 minutes. Different sulfur contents, 0, 2.5, 5 and 7.5 %mol, were purposed. Prepared samples were characterized by using X-ray diffraction (XRD), Fourier transform Infrared Spectroscopy (FT-IR), UV-Visible Spectrophotometer Field Emission scanning Electron Microscopy (FE-SEM) and Energy Dispersive X-Ray Spectroscopy (EDX). The S-doped BiOCl was tested with Rhodamine B under UV irradiation for their degradation and photocatalytic activity studies. Result shows that sulfur doping at 2.5 %mol gave the best reaction with highest degradation rate of 78% at 90 minutes of irradiation time. This study indicates the potential use of S-doped BiOCl for degradation and photocatalytic application.

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