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Preparation of ZnO/CuO under the regulation of SDS and its application in photocatalytic degradation

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As a green and efficient treatment technology, photocatalysis has enormous advantages in degrading organic pollutants in water. Here, zinc acetate, copper acetate, and sodium hydroxide have been used as raw materials to prepare ZnO/CuO composites under the mediation of sodium dodecyl sulfate (SDS). The structures and morphologies of desired products are characterized by X-ray powder diffraction (XRD) and scanning electron microscopy (SEM), respectively. The obtained samples used photo-catalysts to degrade the simulated pollutant of methylene blue (MB). The results show that the crystals of ZnO and CuO can be successfully produced with the co-precipitation method. Because of the regulation of SDS, the particles have high dispersibility and small particle sizes. Through photocatalytic performances, it is concluded that the degradation rate of the ZnO/CuO composite is higher than the corresponding monomers. It indicates that the synergistic effect of ZnO and CuO enhances the photocatalytic degradation ability of ZnO/CuO composite, providing a potential application prospect for the development of efficient photocatalysts for environmental governance.

Keywords: Copper oxide, Zinc oxide, ZnO/CuO composite, Photocatalysis, Surfactant