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INFLUENCE ON DEPOSITION CYCLES OF AG-DOPED ZNO THIN FILMS PREPARED BY THE SILAR METHOD AND THEIR ANALYSIS IN PHOTOCATALYTIC DEGRADATION OF METHYLENE BLUE.

Zinc oxide thin films as semiconductor catalysts have been studied recently due to the promising treatment of contaminated water, mainly from industrial wastes. The present work studies the influence of SILAR deposition cycles of Ag-doped ZnO thin films on glass substrates for the degradation of methylene blue under UV-Vis light irradiation. This method involves immersing a substrate in different cationic and anionic precursor solutions, resulting in a deposition cycle. ZnSO4, AgNO3, and NH4OH were used as cationic precursors, and hot deionized water at 90 ℃ was used as an anionic solution. The obtained Ag-doped ZnO thin films experienced a thermal treatment to remove moisture and homogenize the surface. Structural, optical, morphological, and electrical properties were analyzed using X-ray diffraction (XRD), Ultraviolet-Visible Spectroscopy (UV-Vis), Scanning Electron Microscopy (SEM), and I-V measurements, respectively. The photodegradation analysis of methylene blue using Ag-doped ZnO thin films was executed by considering different SILAR deposition cycles.

Keywords

Photodegradation, methylene blue, zinc oxide, sustainability.

Reference

M. Khiari, M. Gilliot, M. Lejeune, F. Lazar, and A. Hadjadj, (2021). "Effects of ag nanoparticles on zinc oxide photocatalytic performance,"Coatings, vol. 11, no. 4, pp. 0–15, doi: 10.3390/coatings11040400.

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