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Optical characterization of Cobalt pigmented ZnO films fabricated by anodization for photocatalytic water purification.

While the sixth sustainable development goal to be achieved by 2030 is clean water and sanitation, there is still a global challenge in the supply of adequate clean water due to population growth and urbanization. This necessitates coming up with more affordable approaches of managing waste water. Photocatalytic degradation of pollutants has proved to be one of the promising ways of purifying water. This study aimed at preparing Cobalt doped ZnO films to be used in photocatalytic water purification. ZnO films were fabricated by anodization and Cobalt incorporated. Heat treatment was done at 250°C. Optical characterization was done using a UV-VIS NIR spectrophotometer in the solar range 300nm – 2500nm to obtain reflectance data which aided in determining the optical properties of the films. Data analysis showed a decrease in ZnO reflectance and optical band gap on incorporation of Cobalt. This implied an increase in the absorption of the films which is a fundamental property in photocatalytic water purification. Hence Cobalt doped ZnO films have good photocatalytic properties and can be used for photocatalytic water purification.

Keywords

ZnO, anodization, photocatalysis, heat treatment, doping

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