

عنوان مقاله:

Synthesis, Characterization, and Application of Zr,Ce-TiO₂/SiO₂ Nanocomposite Thin Film as Visible-light Active Photocatalyst

محل انتشار:

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خلاصه مقاله:

A novel Zr,Ce-TiO₂/SiO₂ nanocomposite thin film was successfully prepared with various amounts of Zr⁴⁺ and Ce⁴⁺ as codopant ions for self-cleaning applications. A thin film was coated on a tile substrate by dip-coating and porous Zr,Ce-TiO₂/SiO₂ was obtained after heat treatment for ۲ hours at ۵۰۰ °C. The SEM images and XRD pattern showed that the optimum amount of doping ions in relation to Ti³⁺ is ۰.۱%. In this circumstance, the most monotony of film was seen and the main formed phase was anatase. The sample structures were characterized by infrared spectroscopy. The nanocomposite films were found to be active for photocatalytic decomposition of methyl orange as an organic pollutant.

کلمات کلیدی:

Codoped TiO₂, Photocatalytic application, Self-cleaning, Visible light

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