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Abstract

Photocatalytic Removal of Rhodamine B by Facilely Synthesized N or B doped ZnO

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Abstract:

Synthetic dyes are extensively used in textile dyeing, paper printing and other industries. Unrestrainedly release of wastewater to the nature either during fabrication or utilization can cause the generation of cancerogenic compounds and destroy the environment. Since the pioneering work of Fujishima (1972), advanced oxidation techniques have received intensive attention for wastewater treatment. These oxidation reactions occur faster in the presence of oxidant agents (hydrogen peroxide and ozone) or semiconductor photocatalysts. The advantages of light-induced photodegradation over conventional water treatment techniques are practicability of solar energy, being low-cost, and nature friendly. The chemically very stable and nontoxic zinc oxide (ZnO) was chosen as photocatalyst, but its unique limitations such as wide band gap must be adapted to further exploit the safe and clean energy source. Nitrogen (N) and boron (B) elements were doped to enhance electrical, optical, in turn photocatalytic properties of ZnO. There are quite few investigations on non-metal doped ZnO. The pristine and different rates of B or N doped ZnO powder samples were synthesized by mechanochemical technique that is rapid, economical and appropriable to industry. Catalyst fabrication process consists of two steps. Firstly, precursors are grinded and reacted in solid phase. Secondly, pastry products are calcined at different temperatures. Moreover, the photocatalytic performance of the samples was first time tested on the degradation of Rhodamine B (RB) as a test contaminant under Xenon lamp, which sufficiently simulate the sun emission. Among the photocatalysts, N doped ZnO was the most efficient on the decomposition of RB dye.

Biography:

Ali Can has completed his master`s degree at the age 26 from Ege University and doing PhD at Tomas Bata University in Zlin. He has published 2 papers in international journals and has been working as technical support staff in Nanomaterials and Advanced Technologies research group in Centre of Polymer Systems.

Publication of speakers:

1. S. D. Promislow, and D. Spring, "Postulates for the internal rate of return of an investment project", Journal of Mathematical Economics, vol. 26, no. 3, pp. 325-361, 1996, doi: 10.1016/0304-4068(95)00747-4.
2. R. I. Reul, "Profitability index for investments", Harvard Business Review, vol. 35, no. 4, pp. 116-132, 1957.
3. E. Brigham, and P. Daves, Intermediate Financial Management, United States of America: Thomson/South-Western, 2007.
4. SEEPEX – Serbian power exchange, Day-ahead electricity price, [Online]. Available: http://seepex-spot.rs/sr/download/Activity%20Reports. [Accessed: 04-February-2020].

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