



“Gheorghe Asachi” Technical University of Iasi, Romania



STUDIES ON THE PHOTOCATALYTIC DEGRADATION OF ORGANIC DYES USING CeO₂ - ZnO MIXED OXIDES

**Gabriela Antoaneta Apostolescu, Corina Cernatescu, Claudia Cobzaru,
Ramona Elena Tataru-Farmus, Nicolae Apostolescu***

*“Gheorghe Asachi” Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection,
73 Prof. Dr. docent Dimitrie Mangeron Str., 700050 Iasi, Romania*

Abstract

A new catalytic mixture of nanosized dioxide (CeO₂) and zinc oxide (ZnO) powders have been synthesized by surfactant-assisted solvo-thermal route, characterized and evaluated for photocatalytic activity. The prepared catalysts were characterized by TG, XRD, SEM and EDAX methods. SEM analysis showed that the catalyst particles have spheroidal shape and their sizes range from 50 to 80 nm, organised as uniform distributed aggregates with large surface area, leading to the existence of a large number of defects. The photocatalytic activity of these materials was evaluated by UV-Vis spectroscopy for degradation of methylene blue (MB) and 4'-(1-methyl-benzimidazol-2)-phenylazo-2''-(8''-amino-1''-hydroxy-3'',6''-disulphonic)-naphthalene acid (PMBH) in water.

Key words: CeO₂ - ZnO mixed oxides, MB, organic dye photodegradation

Received: November, 2014; Revised final: February, 2015; Accepted: February, 2015

* Author to whom all correspondence should be addressed: e-mail: napostol@ch.tuiasi.ro