



“Gheorghe Asachi” Technical University of Iasi, Romania



NEW MESOPOROUS TITANIUM OXIDE-BASED PHOTOACTIVE MATERIALS FOR THE REMOVAL OF DYES FROM WASTEWATERS

Doina Lutic¹, Cristina-Giorgiana Coromelci^{1,3}, Tatjana Juzsakova⁴, Igor Cretescu^{2*}

¹Department of Materials Chemistry, Al. I. Cuza University, 11 Carol I Boulevard, 700506 Iasi, Romania

²Department of Environmental Engineering and Management, Faculty of Chemical Engineering and Environmental Protection, Gheorghe Asachi Technical University of Iasi, 73 Professor D. Mangeron Street, 700050 Iasi, Romania

³Gheorghe Asachi Technical College Iasi, 189 Sararie Street, 700050 Iasi, Romania

⁴University of Pannonia, 10 Egyetem St., 8200 Veszprem, Hungary

Abstract

The remarkable photocatalytic properties of titanium dioxide and the high adsorption capacity of the mesoporous materials were combined to obtain active photocatalysts for the decomposition of Rhodamine 6G dye. The mesoporous TiO₂ was obtained by the controlled hydrolysis-condensation of titanium isopropoxide, using hexadecyl-trimethyl-ammonium bromide as template, followed by calcination to remove the organic matter. Subsequently, this sample was doped with sodium wolframate and platinum. The solids are highly porous, as proved by BET nitrogen adsorption. The photocatalytic tests were carried out at different dye concentrations, catalyst dose and pH. The experiments showed good activities for both the initial support and doped samples.

Key words: CTAB template, mesoporous titanium dioxide, porosity, Rhodamine 6G, W-Pt doping

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