

DEPOLLUTION OF WASTEWATERS USING NANOBIOTECHNOLOGY BASED ON NEW TiO₂ PHOTOCATALYST

Cristina Ileana BUTNARIU¹, Monica TURCAN¹, Ecaterina MATEI¹, Florinela PÎRVU^{1,2},
Alina Gina CATRINA², Gigel PARASCHIV¹

¹ University POLITEHICA of Bucharest, 313 Splaiul Independentei St., Bucharest, 060042, Romania

²National Research and Development Institute for Industrial Ecology – ECOIND, 71-73 Drumul Podu Dambovitei St., 060652 Bucharest, district 6, Romania

Photocatalysis has become a common word and various nanomaterials having photocatalytic functions are widely studied. Among many candidates for photocatalysis, TiO₂ is almost the only material suitable for industrial use at present [1-4]. In this paper, we present the TiO₂ synthesis starting from Ti sheets putted into contact with a mixture of NaOH 0.1 N and acetone for 72 hours under ambient conditions. The finally obtained sheets were washed with distilled water and ethanol and the surface was analysed by microscopy and diffraction in order to evaluate the composition of the surface layer and the morphology. Thus, SEM and EDS results and XRD indicated the formation of TiO₂ on the edges of nanometer circles onto the surface of Ti sheets. For testing of photocatalytic capacity for wastewater treatment an amount of 1 g containing two Ti sheets having TiO₂ on the surface were contacted with a methylene blue solution of at room temperature and under UV light. The decreasing of methylene blue concentrations was investigated by Uv-Vis spectroscopy indicating the obtaining of 100% of efficiency for removing of methylene blue from wastewaters.

References:

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