

## PREPARATION OF Mg-DOPED TiO<sub>2</sub> NANOPARTICLES FOR PHOTOCATALYTIC DEGRADATION OF SOME ORGANIC POLLUTANTS

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**ABSTRACT.** In this study, the sol-gel method was used to prepare Mg-doped TiO<sub>2</sub> nanoparticles from titanium tetraisopropoxide and magnesium sulfate as the dopant precursors. Mg-doped TiO<sub>2</sub> shows the formation of anatase phase with polyhedral and spherical particles with an average size of 25-30 nm. X-ray diffraction, X-ray photoelectron spectroscopy, transmission electron microscopy and photoluminescence were used to characterize the prepared material. The photocatalytic degradation performance of rhodamine B, nonylphenol ethoxylates, pseudoephedrine hydrochloride, and nicotine on Mg-doped TiO<sub>2</sub> was studied under UV irradiation. The photocatalytic degradation shows that 98.92, 98.00, 98.00 and 97.95% of rhodamine B, nonylphenol ethoxylates, pseudoephedrine hydrochloride, and nicotine was decomposed by Mg-doped TiO<sub>2</sub>, respectively.

**Keywords:** Mg-doped TiO<sub>2</sub>; Organic pollutants; Photocatalytic degradation; Photoluminescence; Sol-gel

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