

ECHAHID HAMMA LAKHDAR UNIVERSITY - EL-OUED
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**Synthesis, Characterization of Hybrid Aluminosilicate Material for
Photocatalytic Application**

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1- Abstract

Titanium prepared ferric diatomite modified composite as catalyst and characterized in this study. The titanium prepared ferric diatomite modified called " TDF " was made a surface modification treatments including Iron (III) nitrate nanohydrate $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ then titanium dioxide TiO_2 degussa P25 deposition on raw diatomite. In the $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ treatment, surface silica of diatomite and TiO_2 degussa P25 were partially dissolved in The iron (III) nitrate nanohydrate $\text{Fe}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$ by means of x-ray fluorescence (XRF), scanning electron microscopy (SEM), thermogravimetric analysis (TGA), differential scanning calorimetry (DSC), and UV-visible diffuse reflectance spectroscopy (DRS). The surface area of TDF is $855 \text{ m}^2/\text{g}$. The surface modification also increased the point of zero charge (pH_{PZC}) values to 6 for titanium prepared ferric diatomite modified " TDF " with gap band was $E_g = 1.1 \text{ eV}$ by UV-visible DRS technique.

Keywords : Titanium, ferric, diatomite, composite, catalyst, surface area, pH_{PZC} , band gap.

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