

## Photocatalytic Decomposition of Gas Compounds by Nickel Titanate Dioxide under Visible-light Irradiation

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In this study, we prepared a nickel titanate photocatalyst (NTN) using a facile synthesis process with microwave method and applied it for photocatalytic decomposition of gas phase toluene. P25, a commercial photocatalyst, was also employed for the photocatalytic decomposition to compare their photocatalytic performance. NTN exhibited a higher reaction rate constant under visible light irradiation. From XRD patterns and Raman spectra, P25 consisted of anatase and rutile TiO<sub>2</sub> structures and NTN existed only in nickel titanate structure. Based on UV-Vis spectra, the bandgaps of P25 and NTN were obtained at 3.2 and 2.20 eV, respectively, implying that NTN would be a visible light-responder photocatalyst.