

## Synthesis of Porous TiO<sub>2</sub> Nanowires and Their Photocatalytic Properties

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**Abstract** Porous TiO<sub>2</sub> nanowires were obtained by a surfactant -free hydrothermal method combined with subsequent acid -washing process and calcination. FESEM analyses show that the precursor consists of a large quantity of uniform wire-like nanostructures. The nanowire-like precursors transformed to the porous nanowire products after acid -treatment and calcination at 500 °C in air for 2 h. The BET surface area of the porous TiO<sub>2</sub> nanowires can be calculated to be 86.4 m<sup>2</sup>/g. In addition, the obtained porous TiO<sub>2</sub> nanowires were used as catalyst to photodegrade methylene blue and Rhodamine B. The results have showed that the porous TiO<sub>2</sub> exhibit superior photocatalytic property on photocatalytic decomposition of methylene blue and Rhodamine B due to the unique porous nanostructures