Supporting Information

Facile synthesis of ultrasmall TiO_2 nanocystals/porous carbon composites in large quantity and their photocatalytic performance under visible light

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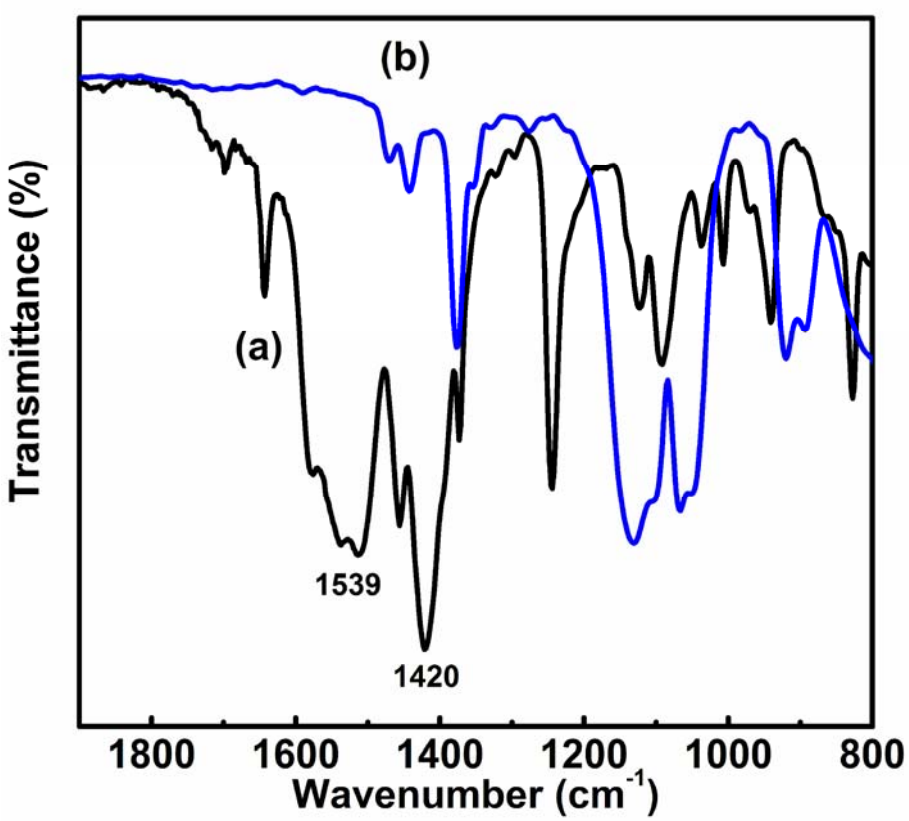

Figure S1. FTIR spectra of the titanium ion containing monomer (a) and $Ti(OBu)_4$ (b).

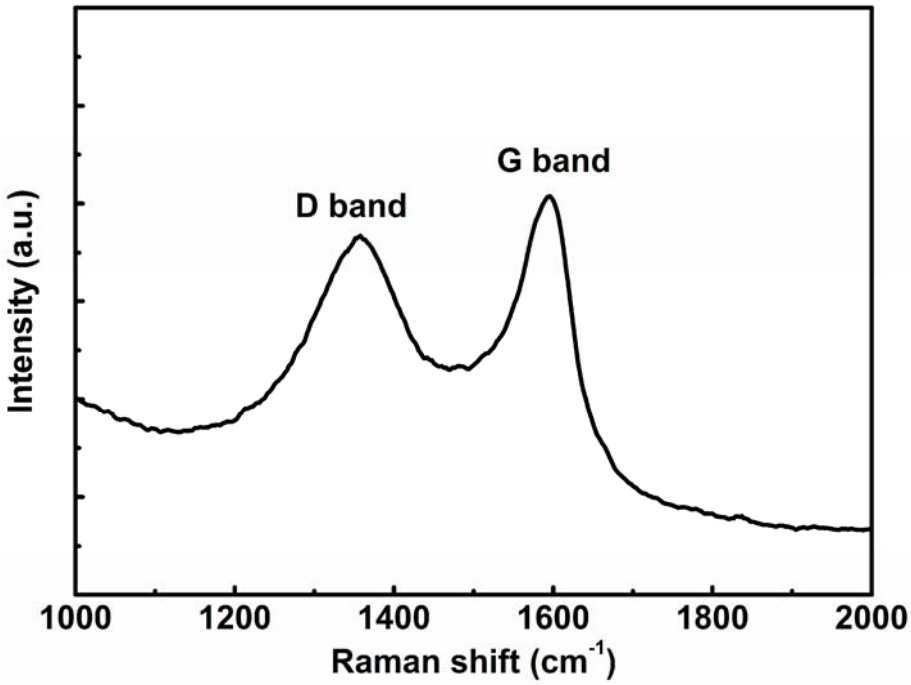

Figure S2. Raman spectrum of the TiO_2-C-900 sample.

The presence and nature of carbon in the TiO_2-C sample were also investigated by Raman spectroscopy. The carbon exhibits characteristic Raman peaks at around 1346 and 1593 cm^{-1} which originate from the disordered and ordered graphitic carbon, respectively. The peak at around 1593 cm^{-1} corresponds to an E_{2g} mode of graphite, which is due to the sp^2-bonded carbon atoms in two-dimensional hexagonal graphitic layer. The D band at around 1346 cm^{-1} is associated with the presence of defects in the hexagonal graphitic layers.

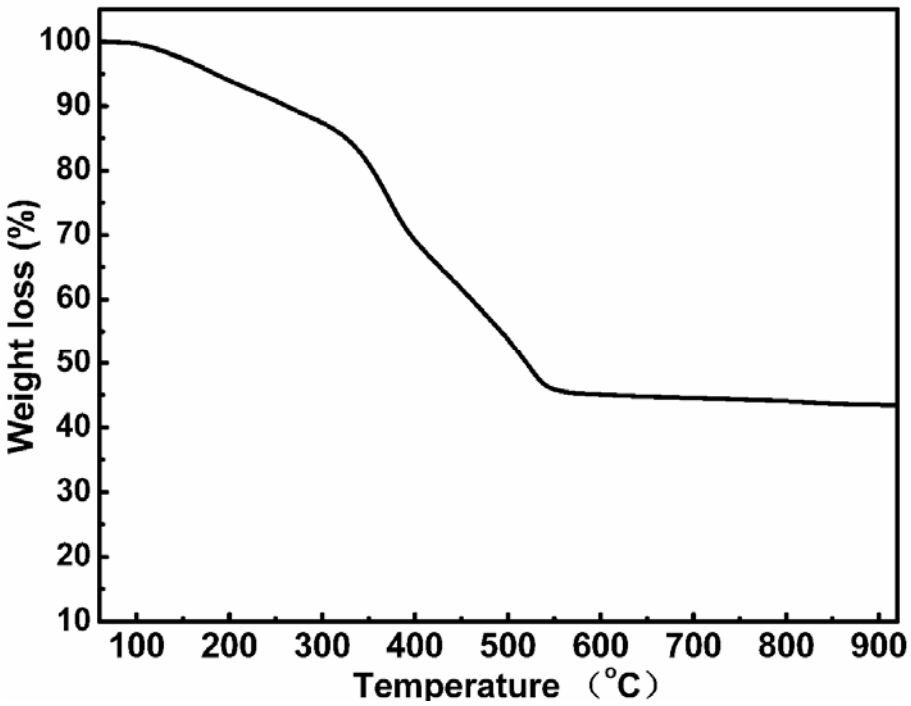

Figure S3. TGA curve of the titanium ion-containing polymer precursor at air atmosphere (heating rate: 10 ^{o}C min^{-1}). The weight loss was completed around 550 ^{o}C.

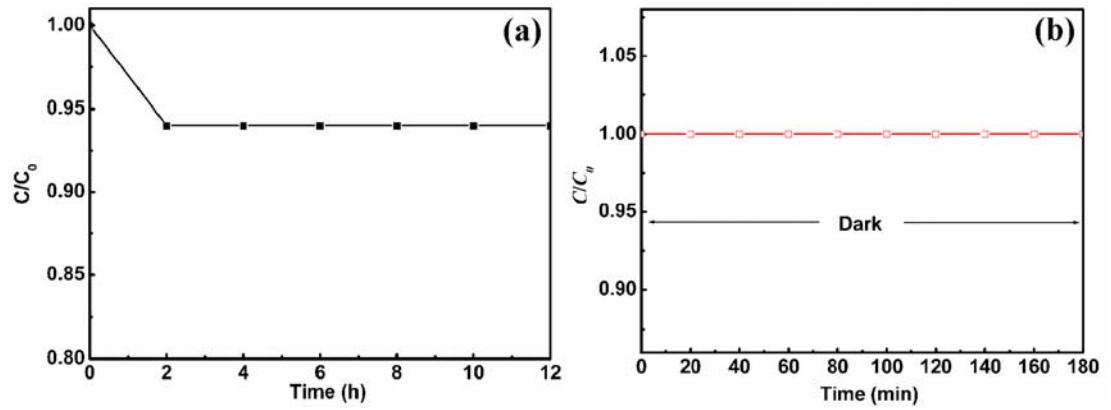

Figure S4. (a): the adsorption-desorption equilibrium curve of TiO_2-C-900 on MB (2.5×10^{-4} mol L^{-1}) in the dark. (b) degradation profile of MB in the presence of TiO_2-C-900 but in dark.