Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Molten salt construction of stable oxygen vacancies on TiO_2 for enhancement of visible light photocatalytic activity

Yu Zou,[a] Kaimeng Yang,[a] Qirong Chen,*[b] Haitao Wang[c] and Xiangfu Meng*[a]

[a]Department of Chemistry, Capital Normal University, Beijing 100048, P. R. ChinaDepartment of Chemistry, Capital Normal University, Beijing 100048, China.

[b]Beijing Center for Physical and Chemical Analysis (BCPCA), Beijing 100089, China..

[c]Baxter Healthcare, 12F No989, Shanghai 200031, China.

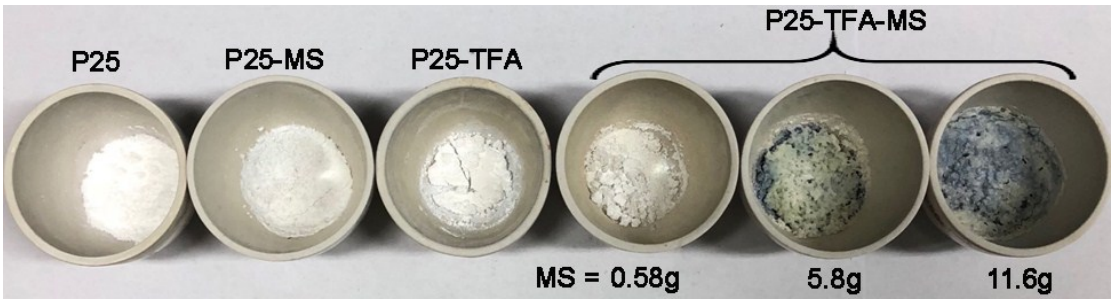

Fig. S1 Effect of MS dosages on the annealing of P25.

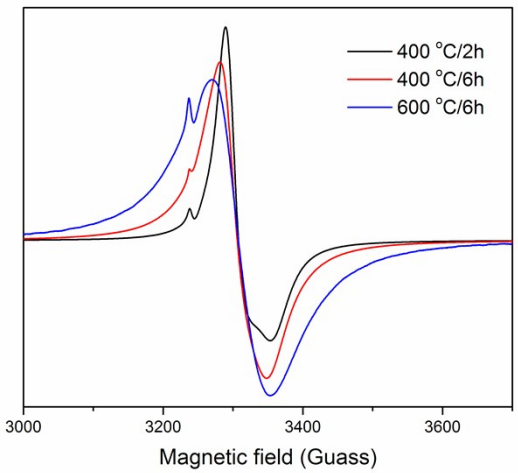

Fig.S2 X-band EPR spectra of B-TiO_2 synthesized with MS at different time and temperature. A longer annealing time and a higher temperature will lead to increase of the bulk Ti^{3+} defect concentration and decrease of surface oxygen vacancy concentration.

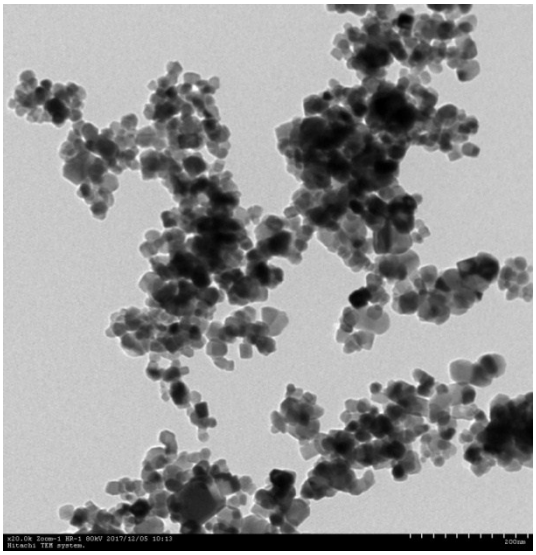

Fig. S3 TEM of TiO_2 synthesized with addition of NaF via molten salt.

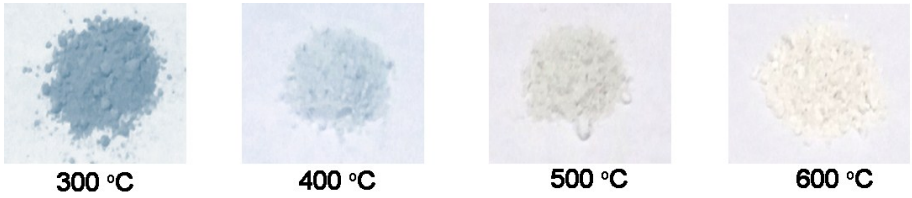

Fig. S4 Photographs of B-TiO_2 calcinated in air at different temperature for 2h. It is found that the dark blue color fades to white gradually with increasing the calcination temperature from 300 °C to 600 °C.

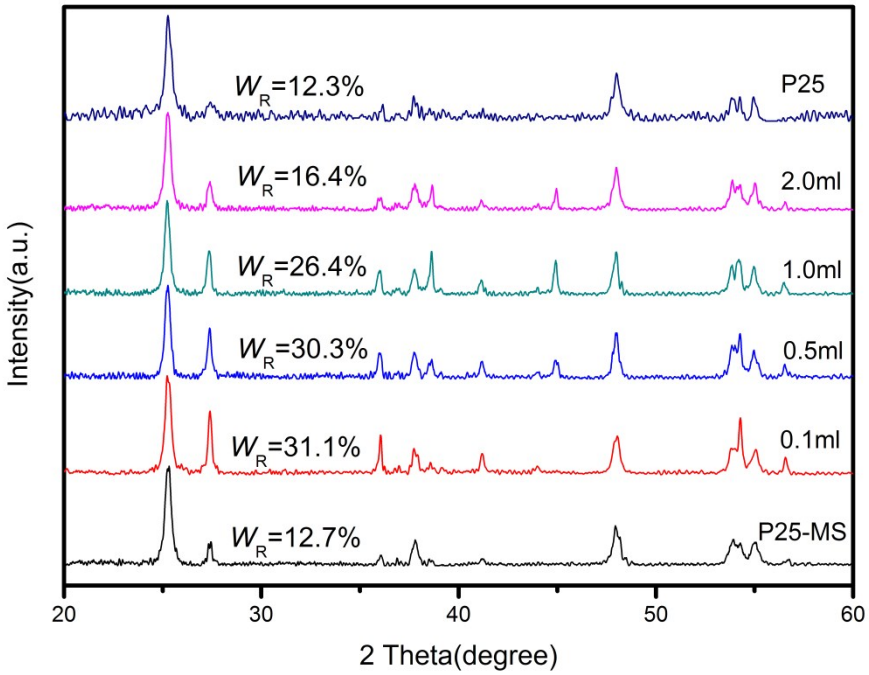

Fig. S5 XRD of TiO_2 synthesized with different TFA amount via MS method.

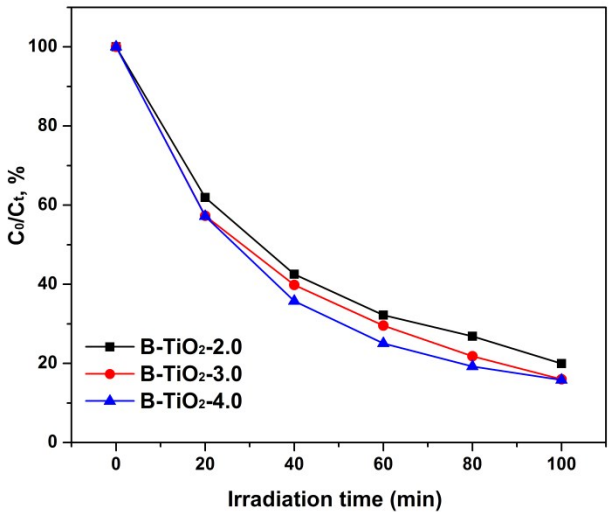

Fig. S6 Effect of TFA amount on photocatalytic activity of B-TiO_2.

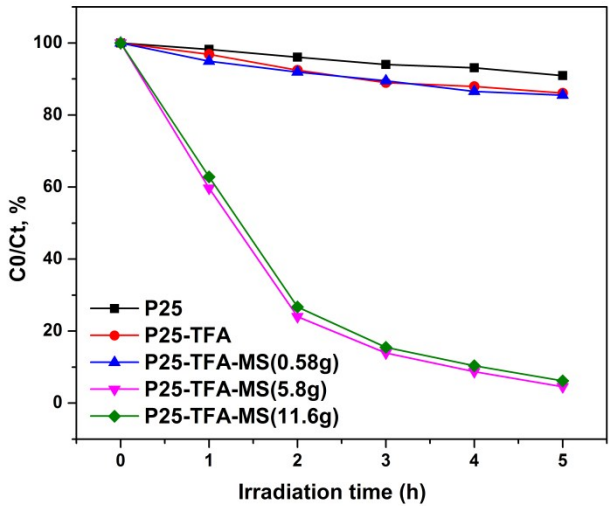

Fig. S7 Effect of molten salt dosage on photocatalytic activity.

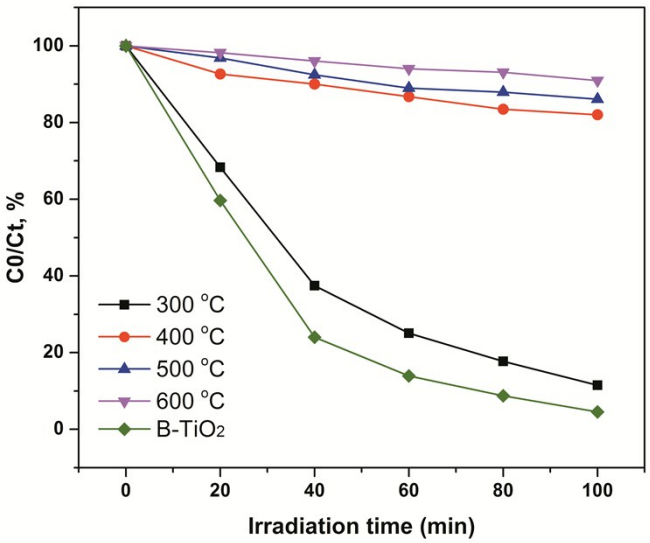

Fig. S8 Photodegradation of RhB over calcinated B-TiO_2 at different temperature. It is clear to see that the photocatalytic activity of calcinated B-TiO_2 at 300°C decreases slightly. However, the

photocatalytic activity of samples calcinated at 400°C, 500°C, and 600°C are almost vanishes.

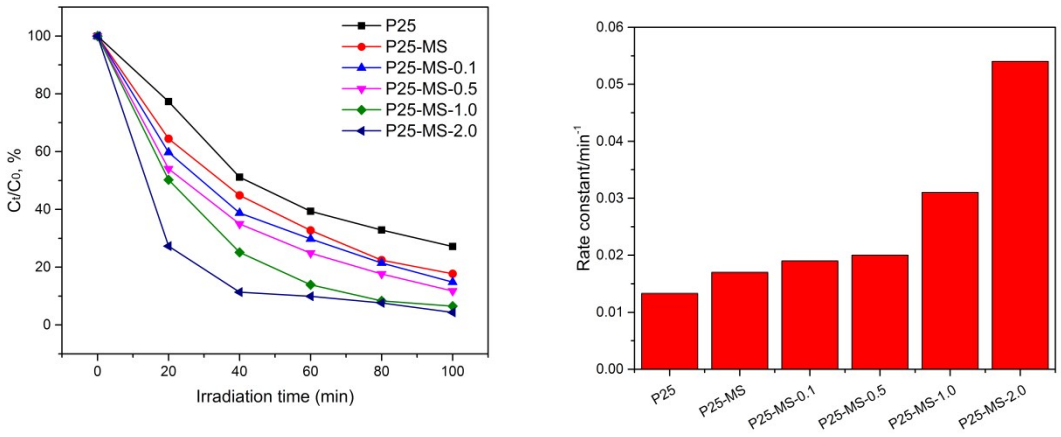

Fig. S9 Photodegradation of RhB under full spectrum light irradiation.