Supporting Information

for

Visible-light-driven Photocatalytic Destruction of NOx Using Mesoporous TiO2 Spheres Synthesized by a "Water Controlled-Releasing Process"

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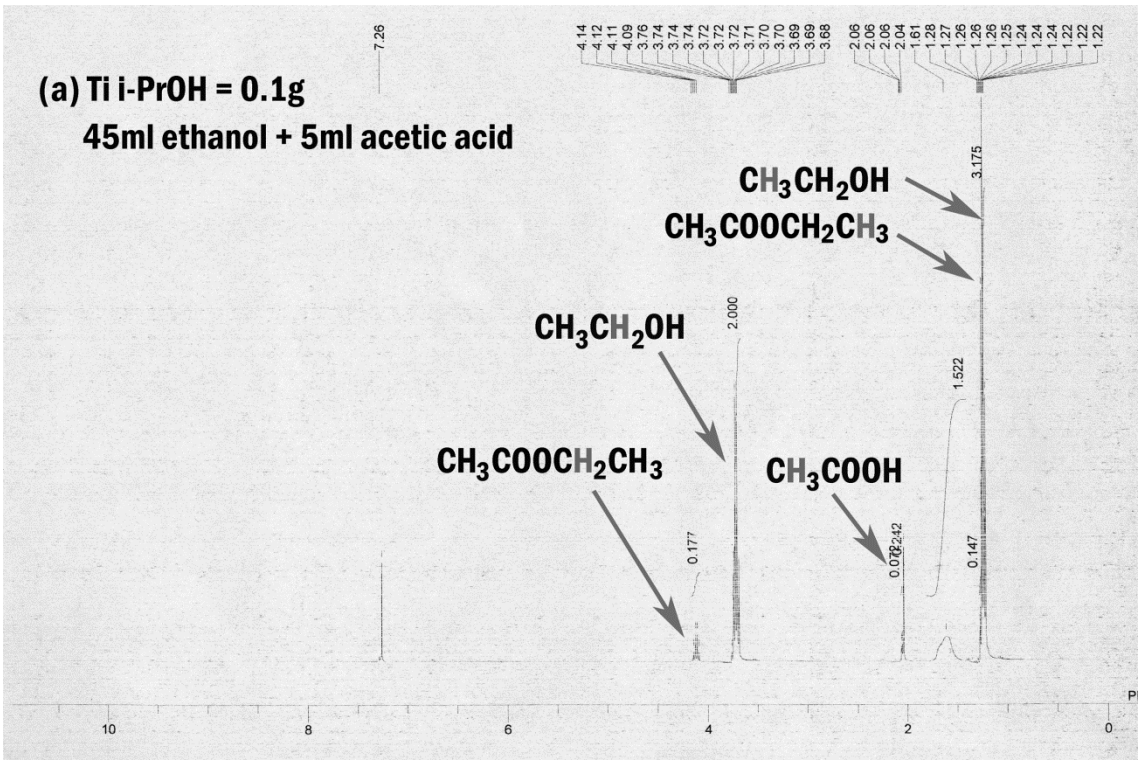
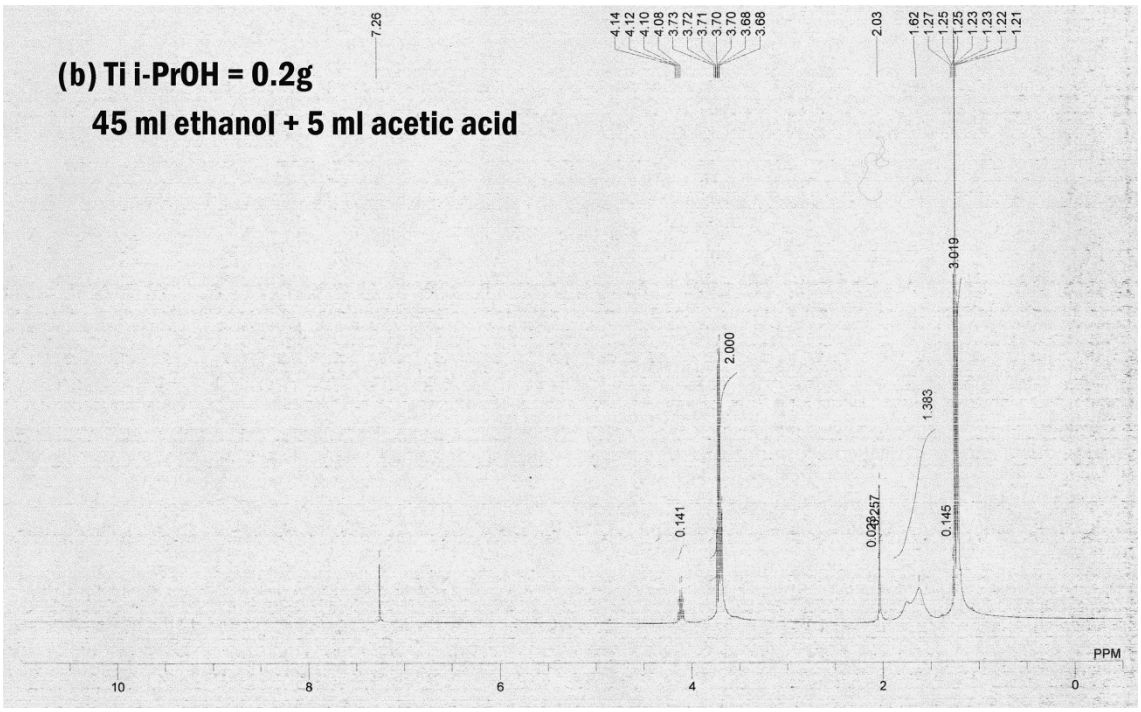
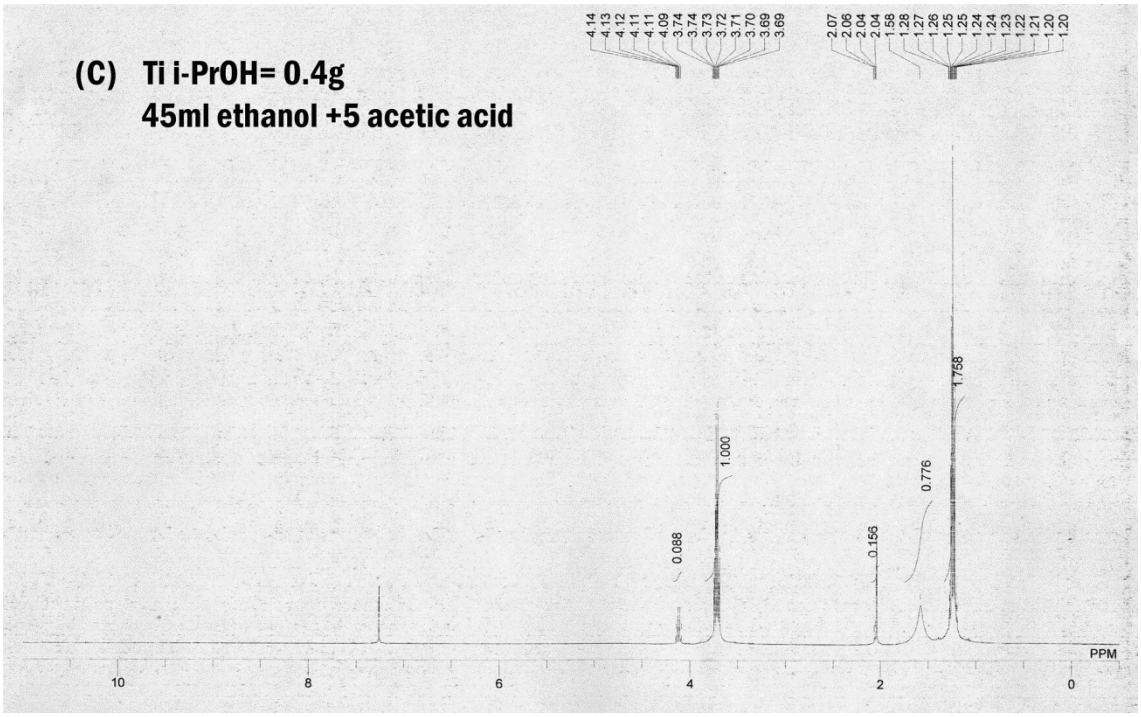
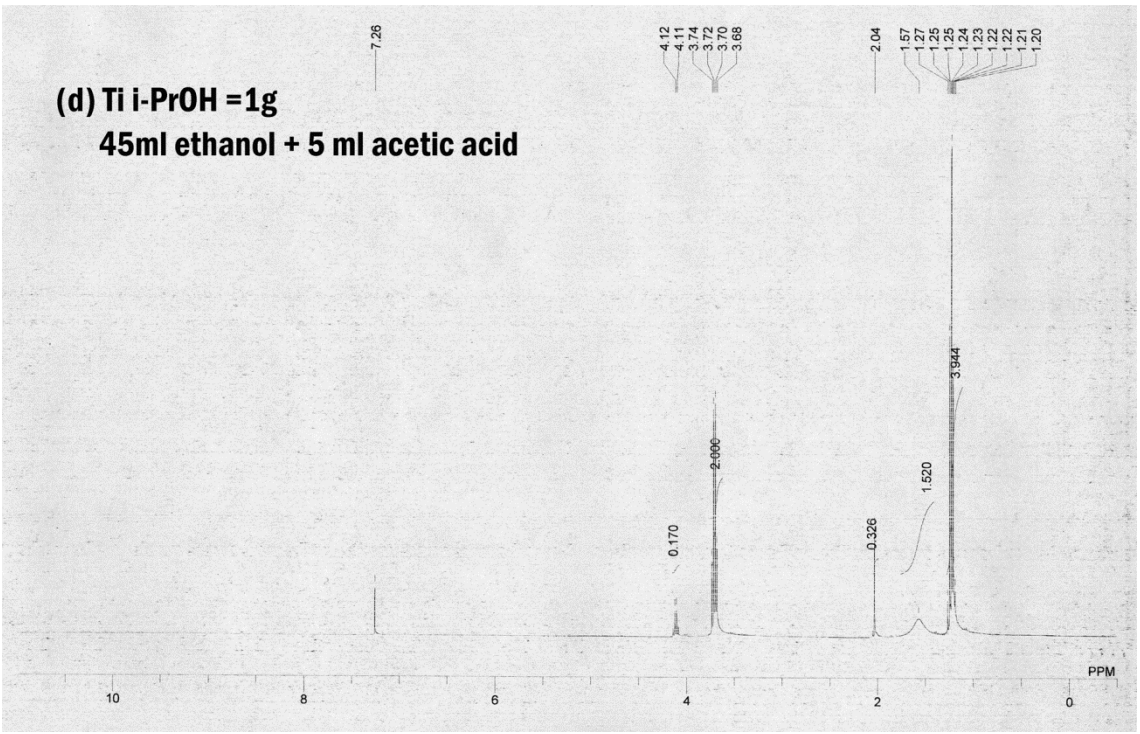
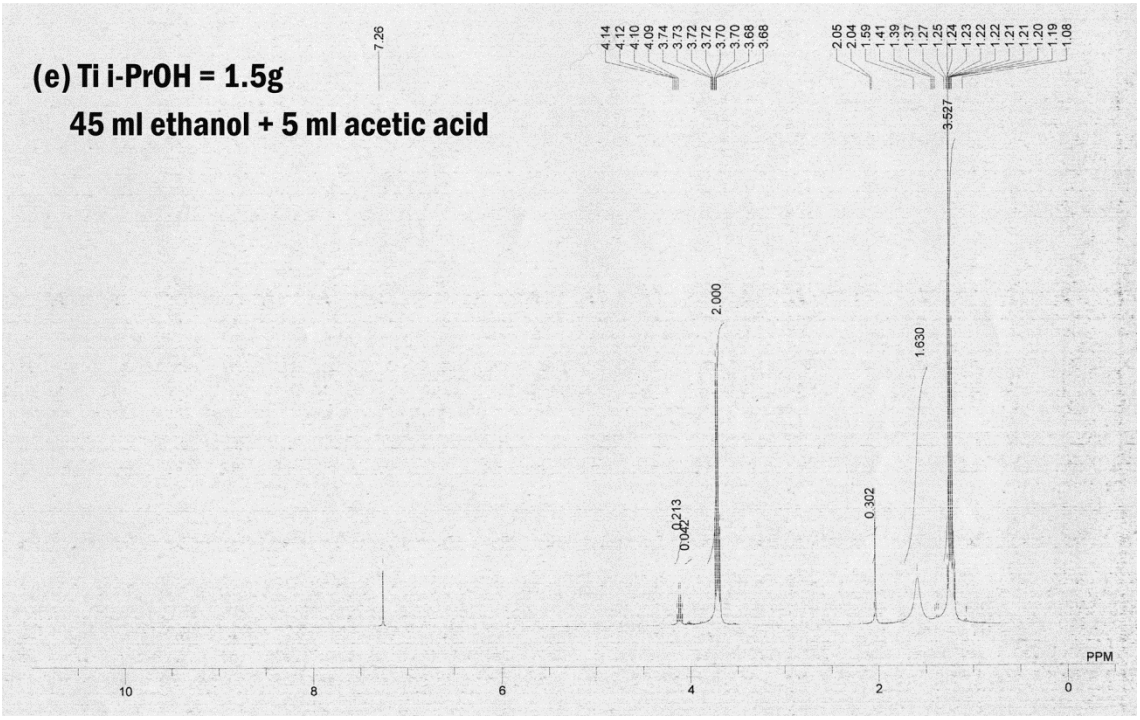
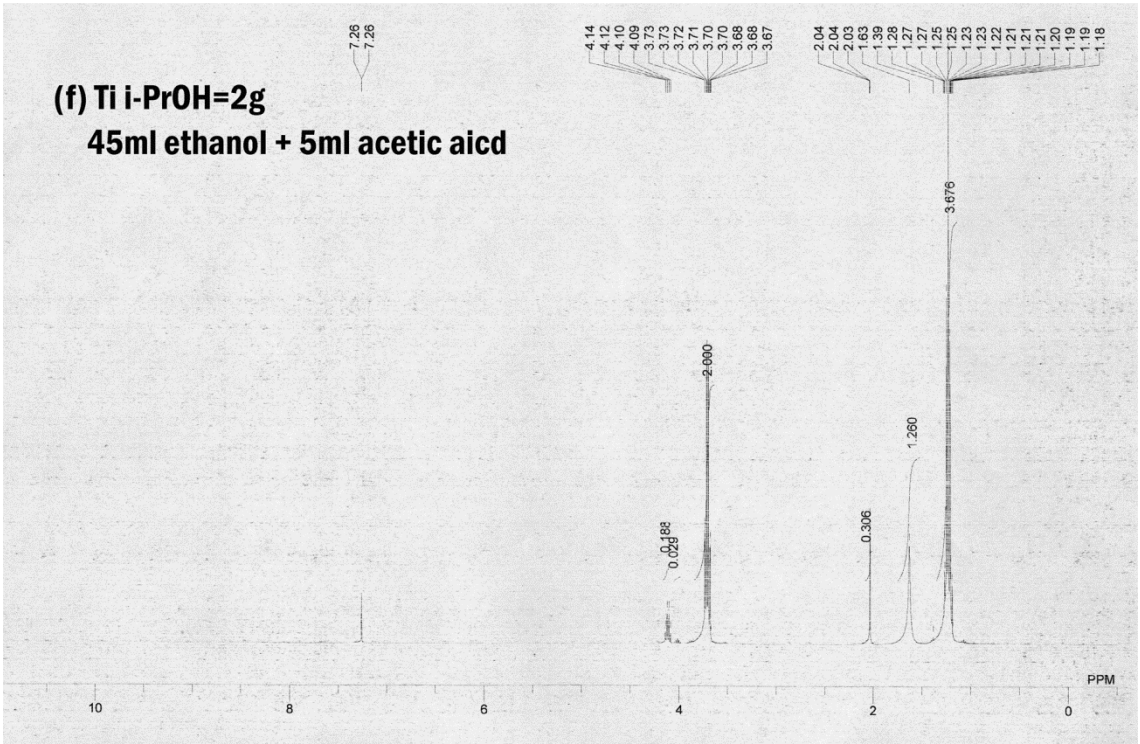












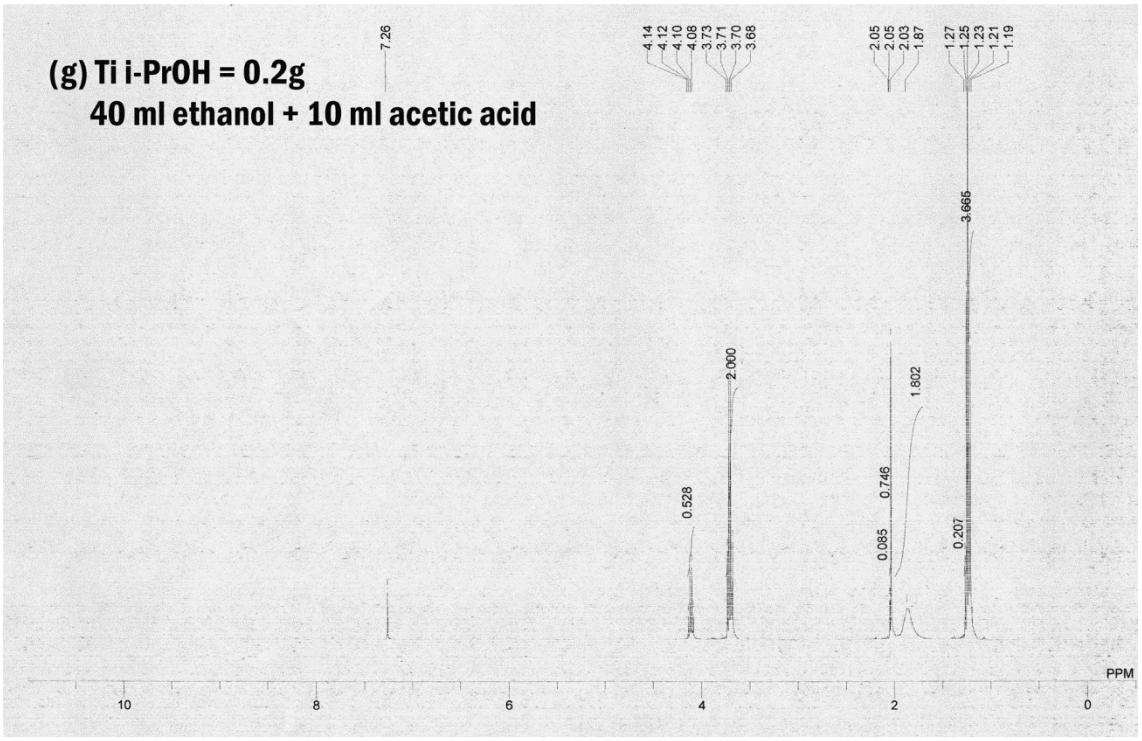


Fig.S1 NMR spectra of solutions after the reaction.(The origin of peaks in the NMR spectra were marked in Fig.S-1c; It is well known that water don't has a fixed position in the NMR spectra)

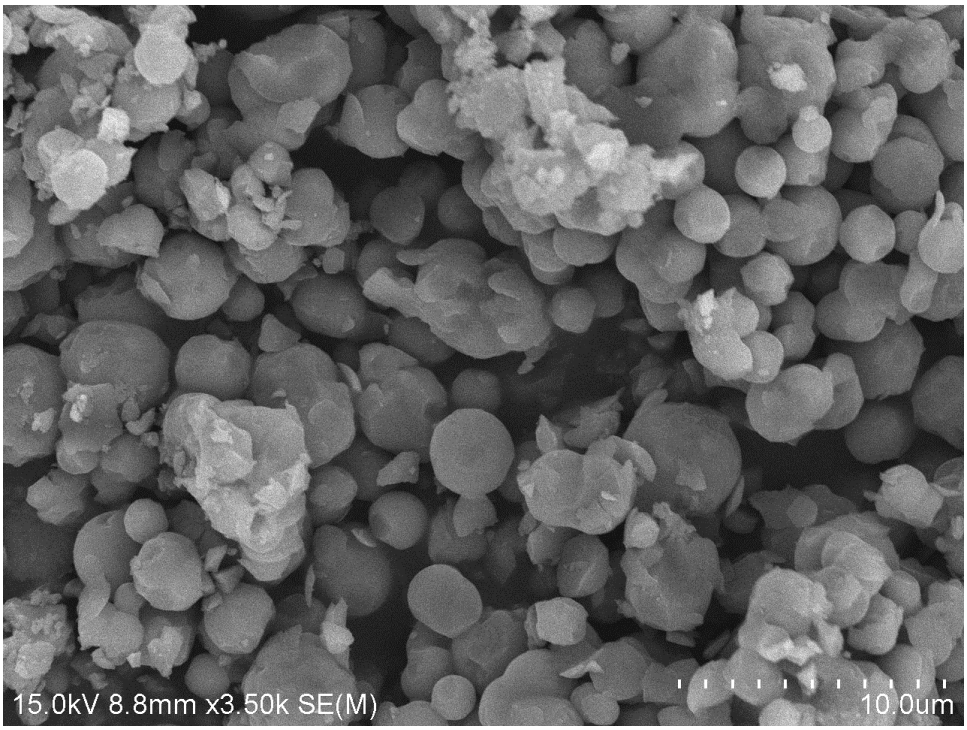
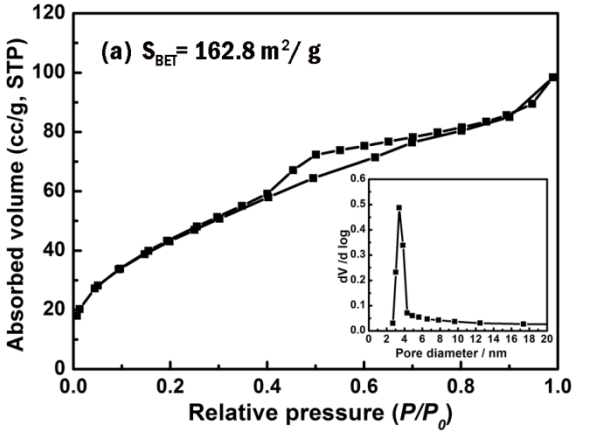
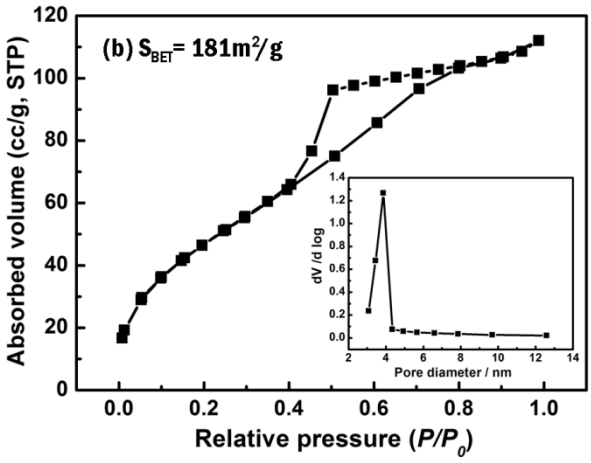
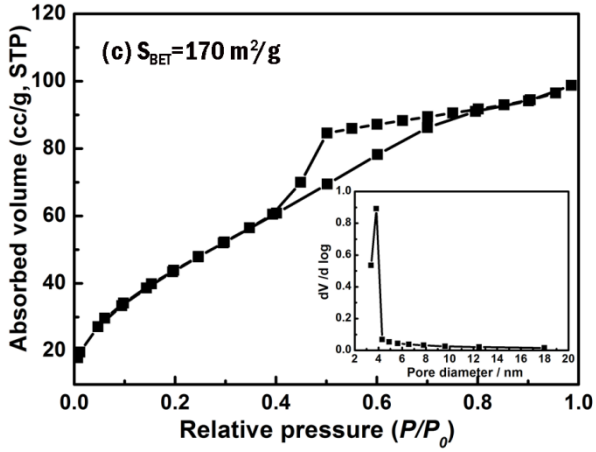


Fig.S2 SEM image of sample synthesized by introducing 3g Ti i-PrOH in the solvent.







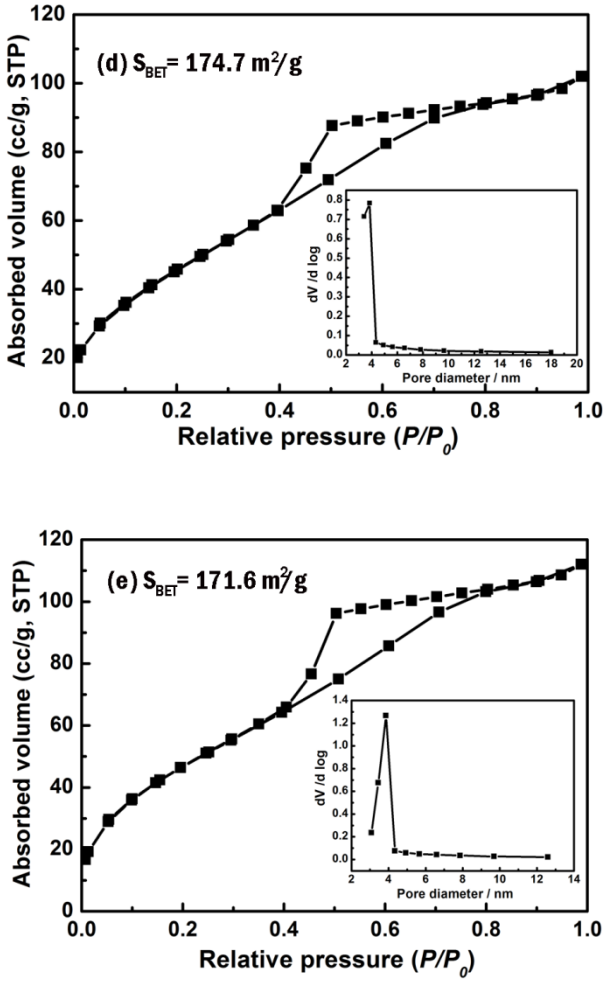


Fig.S3 Nitrogen adsorption-desorption isotherm and BJH pore size distribution plots (inset) of (a) Ti-420, (b) Ti-1150, (c) Ti-1600, (d) Ti-2000, (e) Ti-3000.

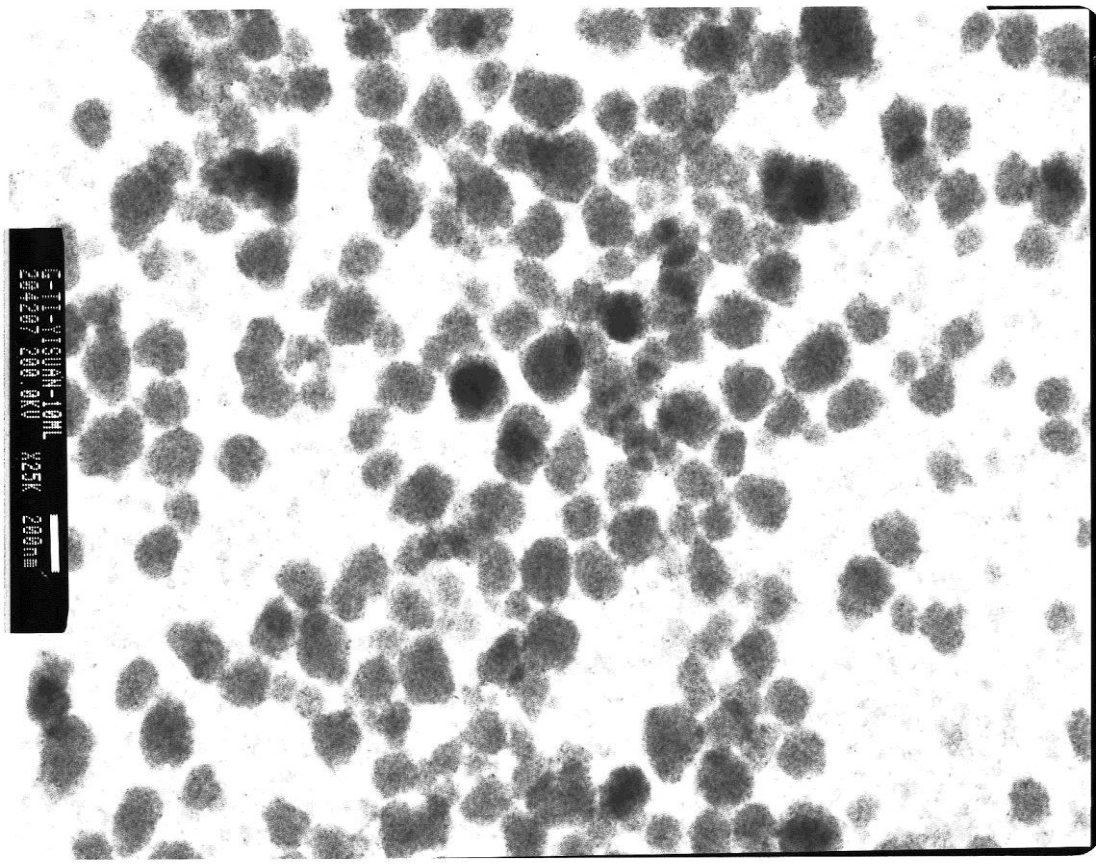


Fig.S4 TEM image of sample obtained with 20 Vol.% acetic acid in the solvent.

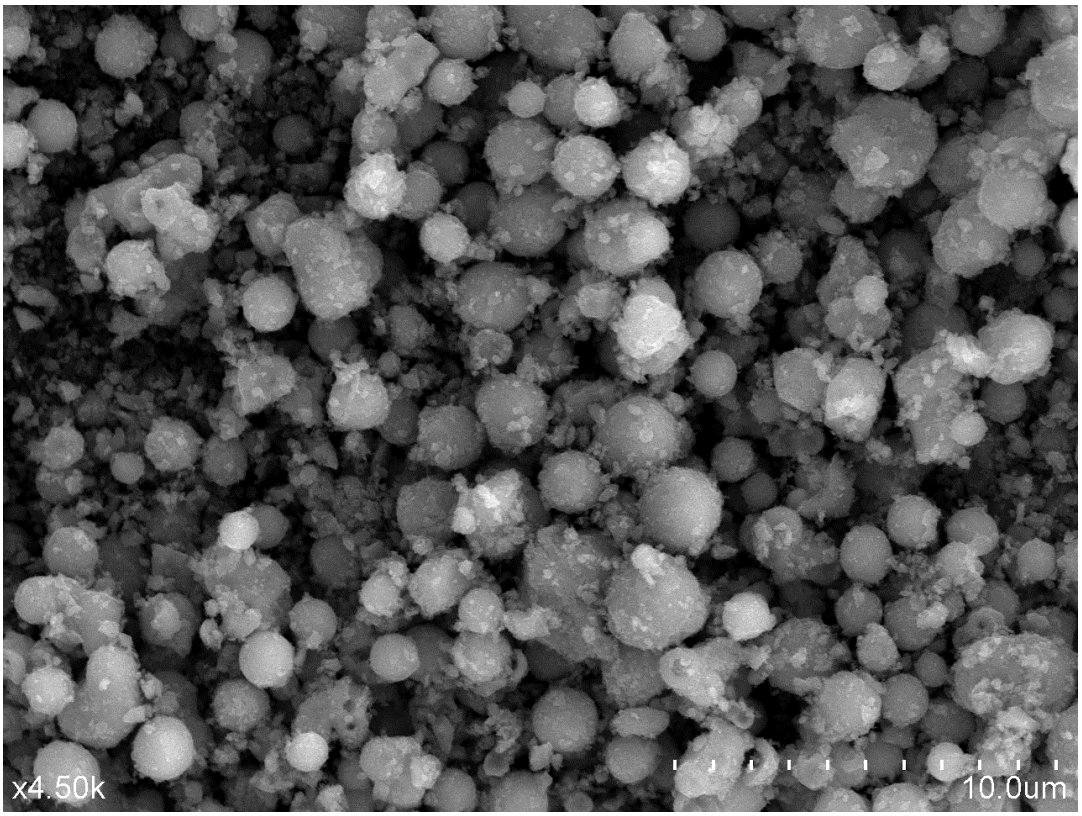


Fig.S5 SEM image of sample synthesized in pure ethanol.

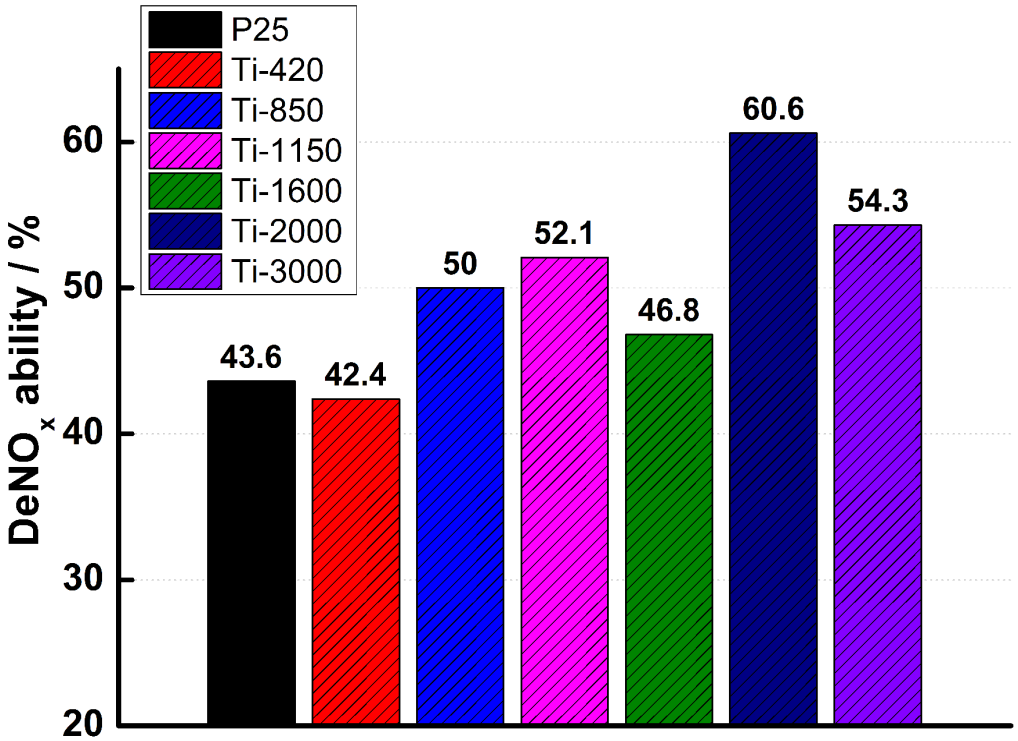


Figure S6 Photocatalytic activity in destructing NO_x gas under UV irradiation over different photocatalysts.

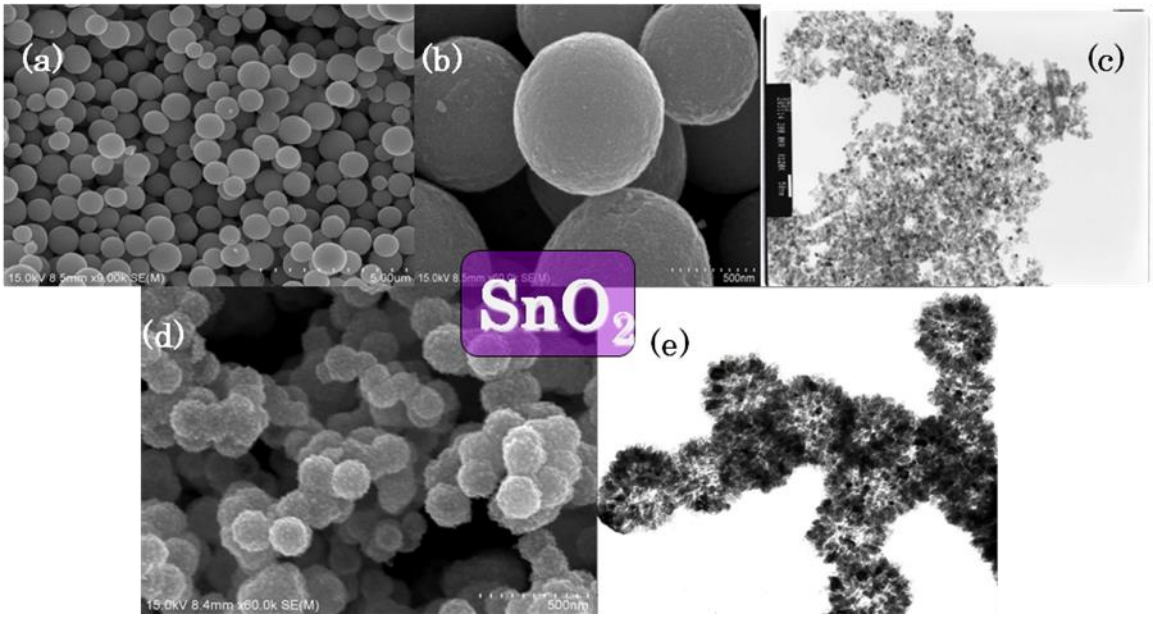


Figure S7. The SEM and TEM images of SnO_2 (a)-(b) nanospheres, (c) nanoparticles, (d)-(e) hollow particles synthesized by water-controlled releasing process. The starting material is 0.2g $SnCl_2$. The 50ml ethanol, 45 ml ethanol+5 acetic acid and 40 ml ethanol+10 acetic acid were used as solvent to synthesize nanospheres, nanoparticles and hollow particles, respectively, at a reaction temperature of 200 ^{o}C