Supporting Information

Synthesis of TiO_2/SBA-15 Nanocomposites by Hydrolysis of Organometallic Ti Precursors for Photocatalytic NO Abatement

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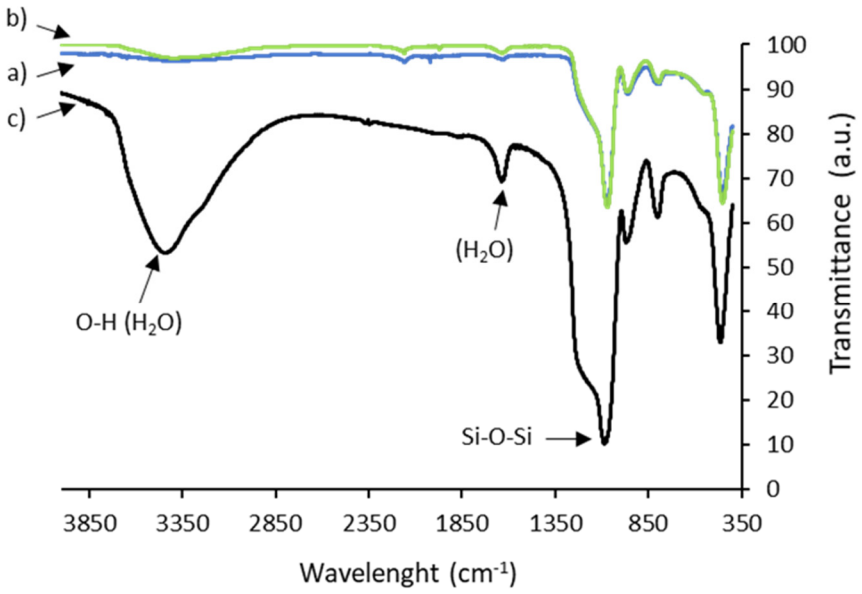

Figure S1. FTIR spectra for SBA-15 according to the hydration pre-treatments. a) as-received, b) hydrated by method A (atmosphere with 75 % RH), c) hydrated by method B (boiling water).

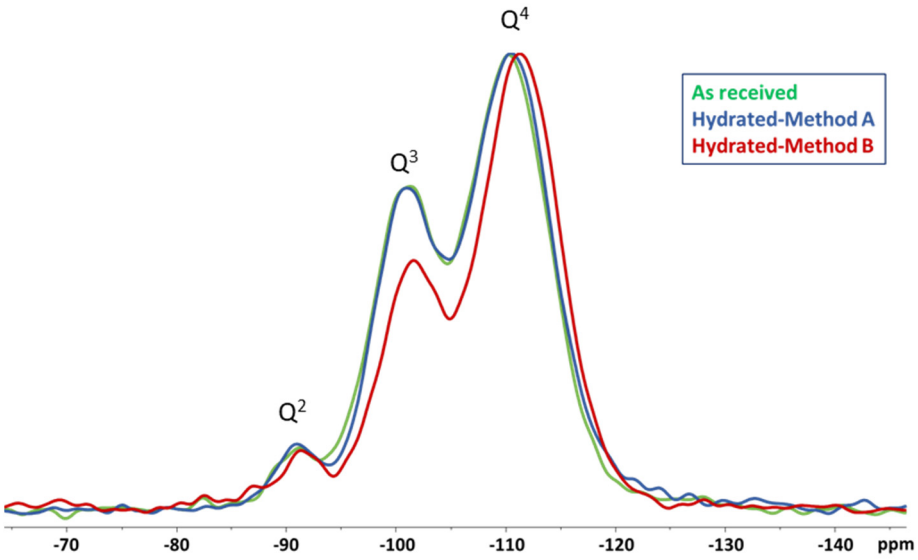

Figure S2. ^{29}Si MAS NMR spectra of SBA-15 powders according to the hydration pre-treatments. Green curve) as-received, blue curve) hydrated by method A (atmosphere with 75 % RH), red curve) hydrated by method B (boiling water). Signal intensities were normalized to those of Q^4 sites.

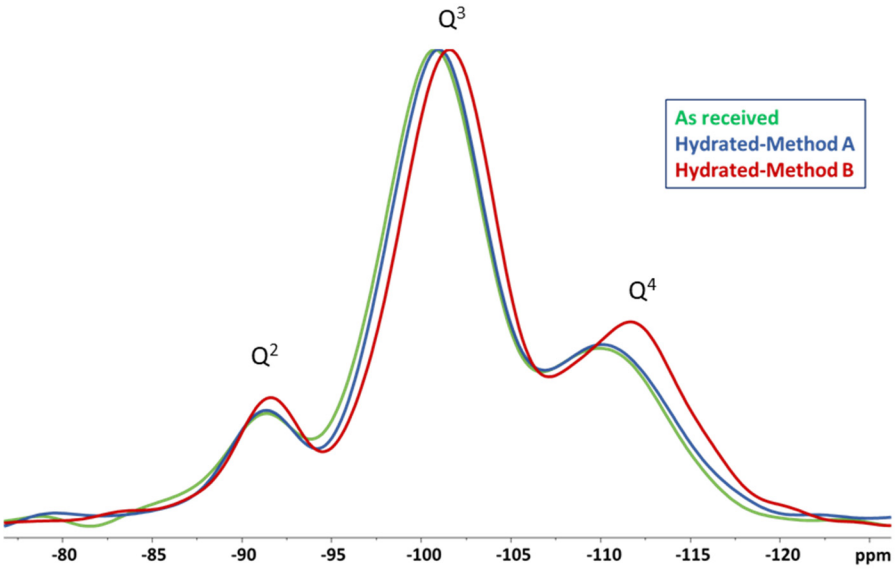

Figure S3. ^{29}Si CP-MAS NMR spectra of SBA-15 powders according to the hydration pre-treatments Green curve: as-received, blue curve: hydrated by method A (atmosphere with 75 % RH), red curve: hydrated by method B (boiling water). Signal intensities were normalized to those of Q^3 sites.

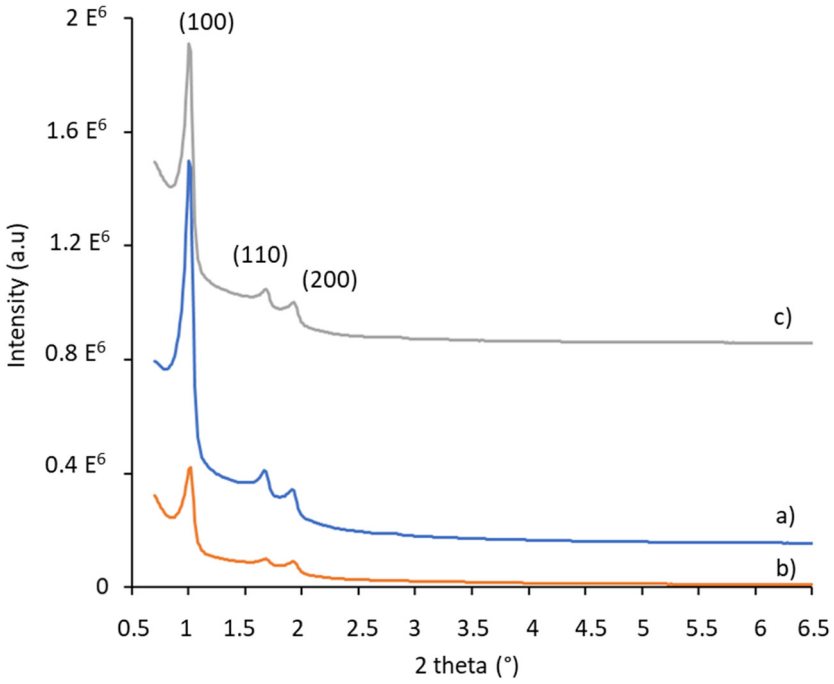

Figure S4. Small angle XRD diagrams of SBA-15 powders according to the hydration pre-treatments. a) as- received, b) hydrated by method A (atmosphere with 75 % RH), c) hydrated by method B (boiling water).

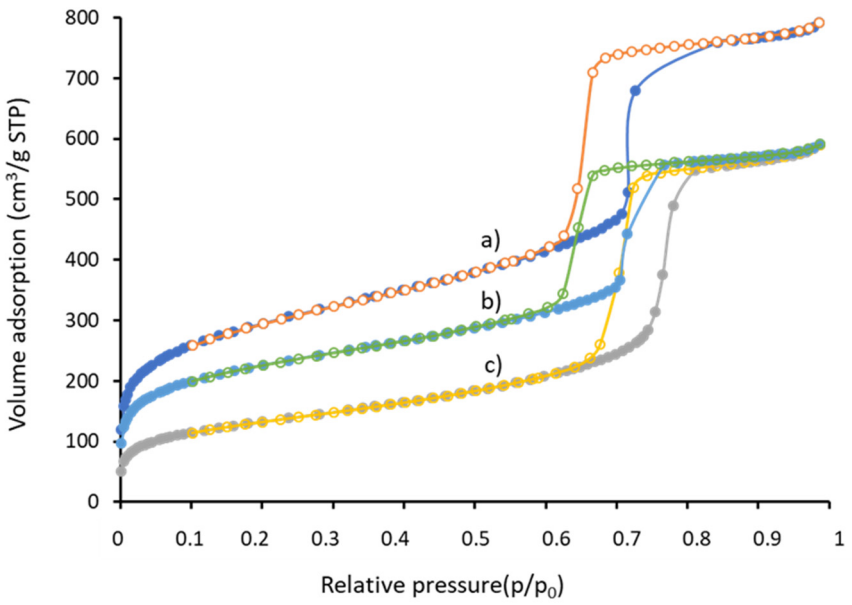

Figure S5. N_2 adsorption/desorption isotherms for SBA-15 according to the hydration method a) powder as-received, dark blue/dark orange: adsorption/desorption curve; b) hydrated by method A (atmosphere with 75 %RH), light blue/green: adsorption/desorption curve; c) hydrated by method B (boiling water), grey/light orange: adsorption/desorption curve

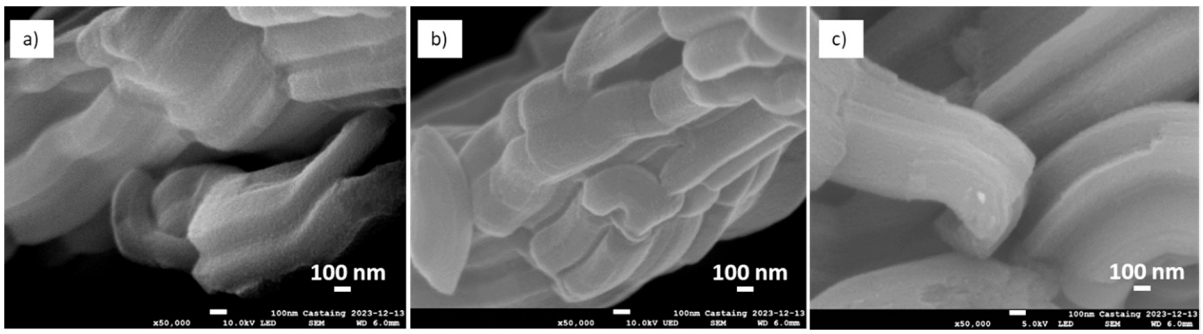

Figure S6. SEM images of SBA-15 powders according to the hydration pre-treatments. a) as- received, b) hydrated by method A (atmosphere with 75 % RH), c) hydrated by method B (boiling water).

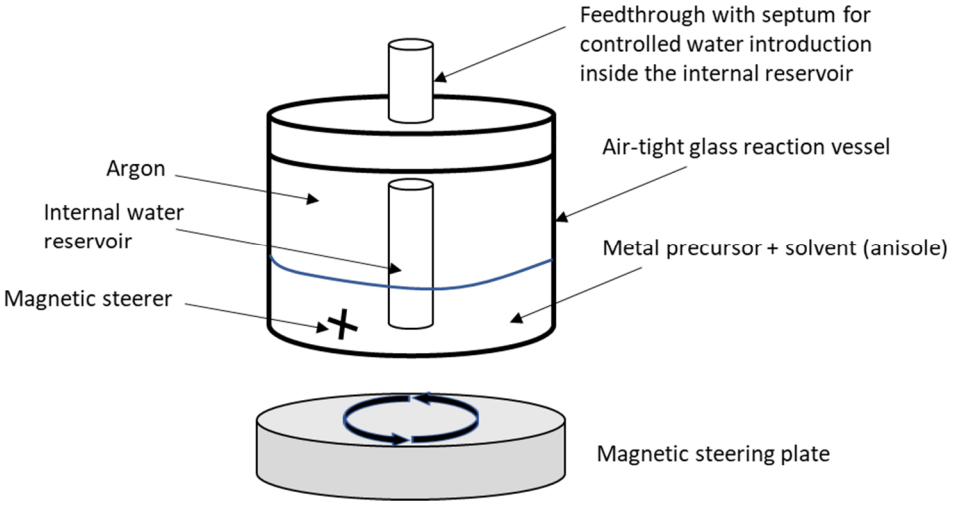

Figure S7. Scheme of the glass vessel used for the controlled hydrolysis of metalorganic precursor in organic solvent under argon.

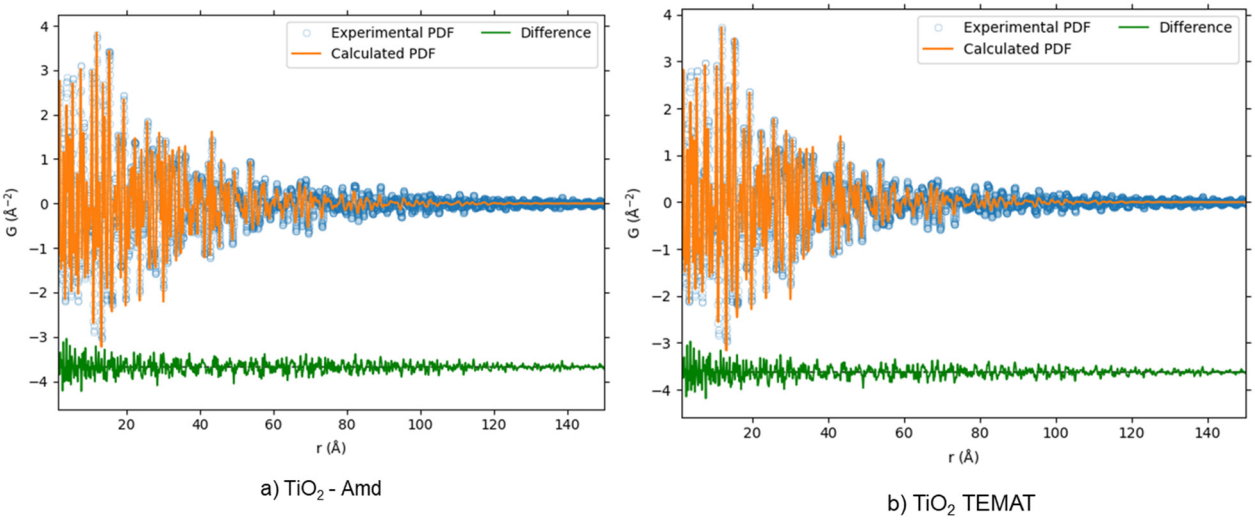

Figure S8. Refinement of anatase structures against PDF obtained on a) TiO_2-amd and b) TiO_2-TEMAT after calcination at 500 °C.

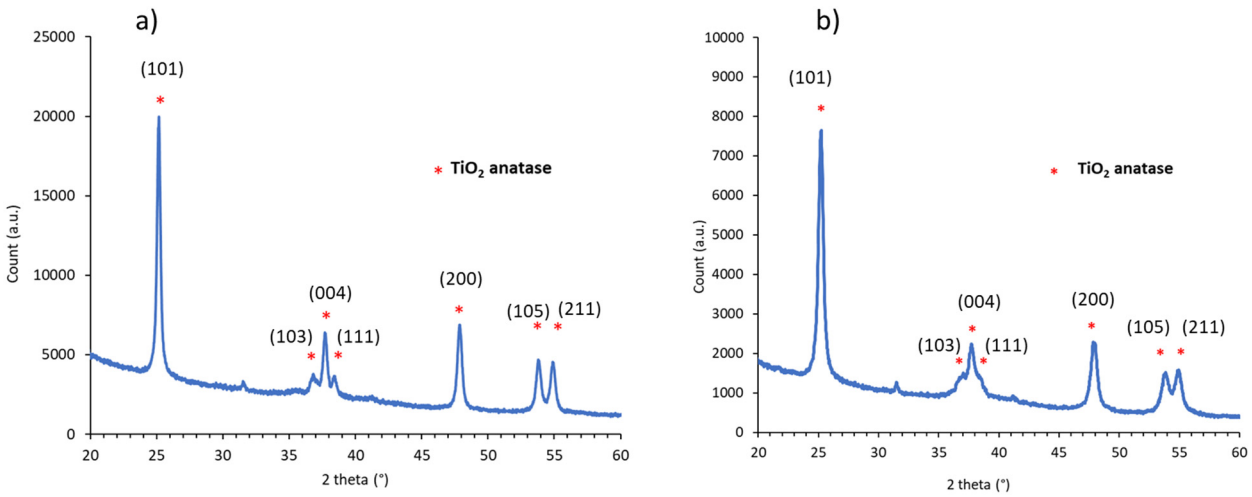

Figure S9. X-ray diffraction diagrams of TiO_2 powders obtained after annealing at 500°C under air of precursor a) Ti-Amd and b) TEMAT. The anatase phase is evidenced for both samples. Small peaks at 31.5 and 41.2° are due to the mechanical support used for XRD analysis.

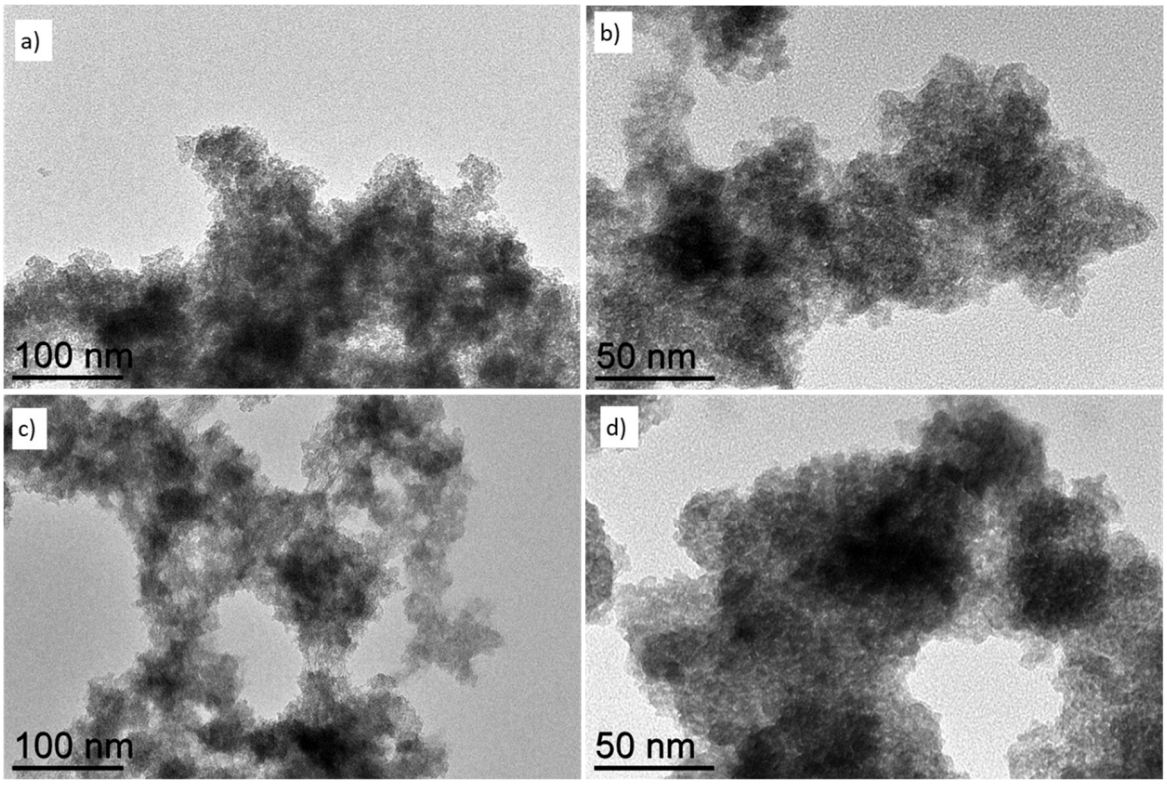

Figure S10. TEM images of TiO_x powders obtained from hydrolysis of TEMAT a) as-prepared, b) calcined at 350°C under air, and from hydrolysis of Ti-Amd c) as-prepared, d) calcined at 350°C under air. Magnification is x 50'000 for a) and c), and x 100'000 for b) and d).

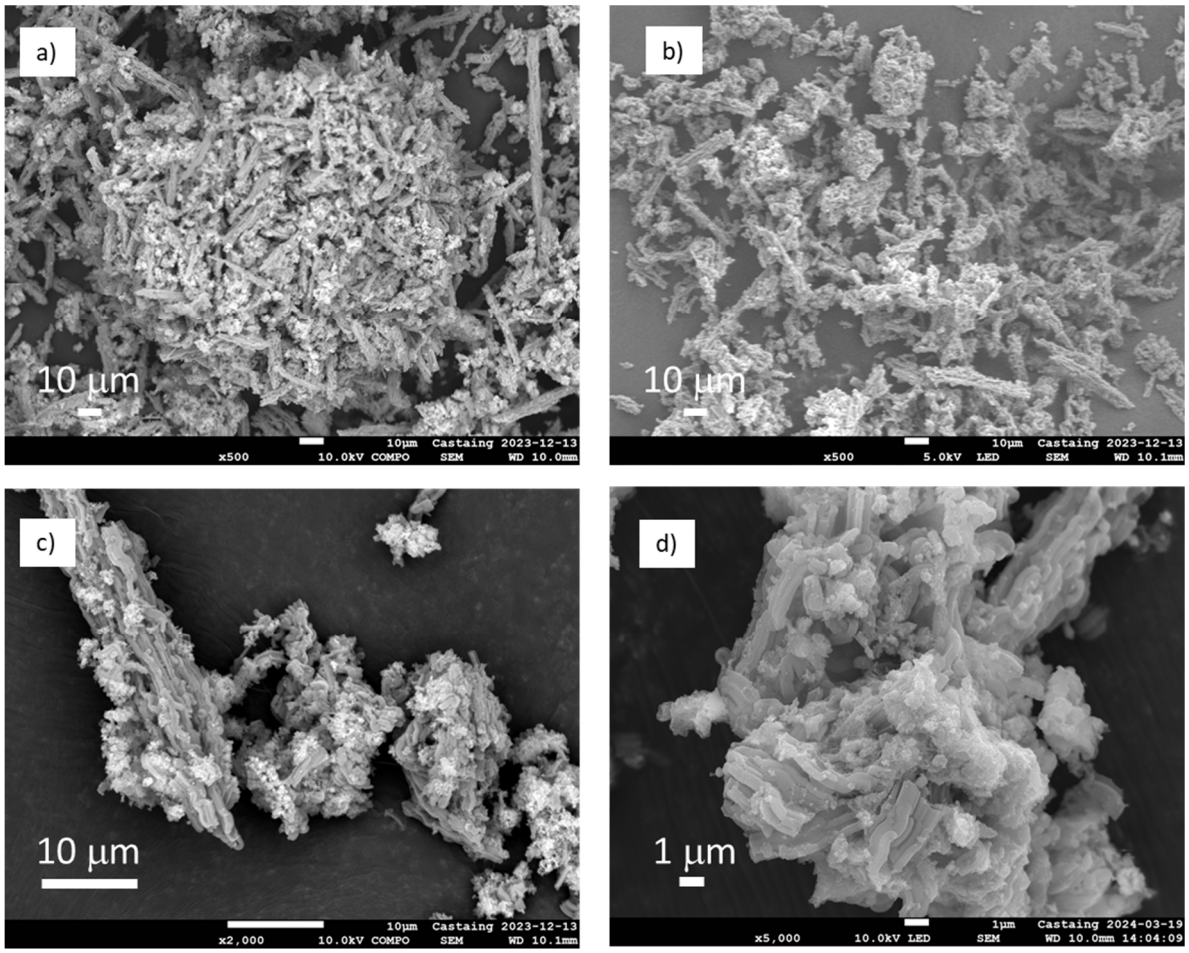

Figure S11. SEM image of TiO_2 /SBA15 powders calcined at 500°C showing the homogeneous repartition of the TiO_2 over the silica matrix in the sample a) and c) TiO_2 obtained from TEMAT hydrolysis (magnification x 500 and x 2'000 respectively), b) and d) TiO_2 obtained from Ti-Amd hydrolysis (magnification x 500 and x 5'000 respectively).

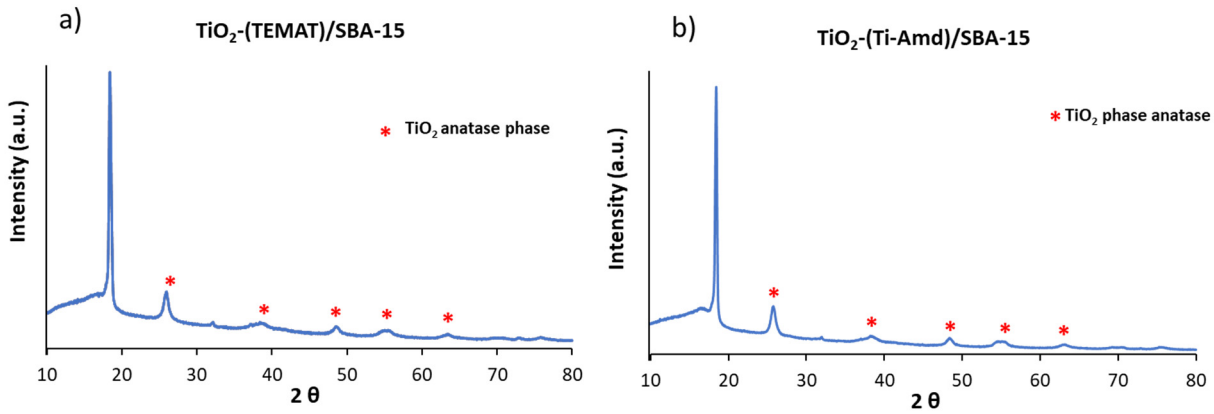

Figure S12. XRD analyses of nanocomposites TiO_2/SBA-15 calcined at 500°C and a) prepared from precursor TEMAT, b) prepared from precursor Ti-Amd.