

Supplementary 1.

Fig. S1 a. SEM photographs of TiO₂-P25 (Evonik AEROXIDE® P25) with different magnifications

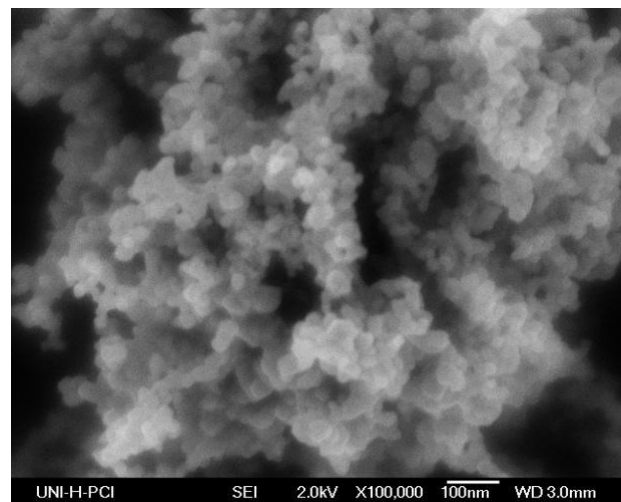
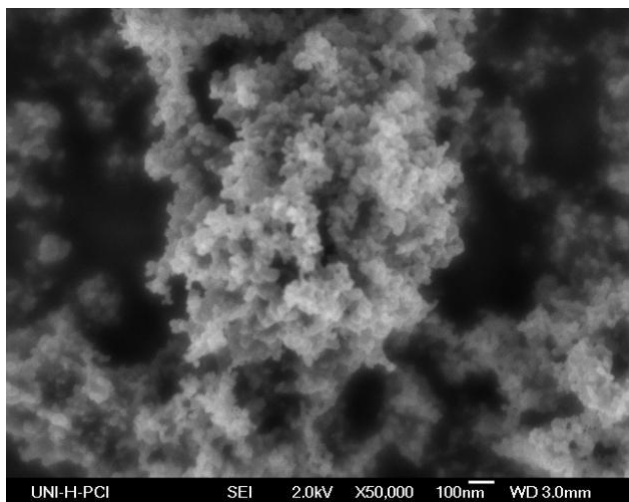
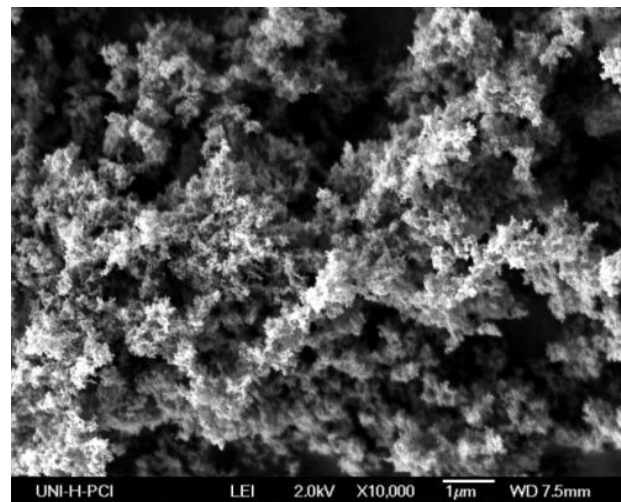
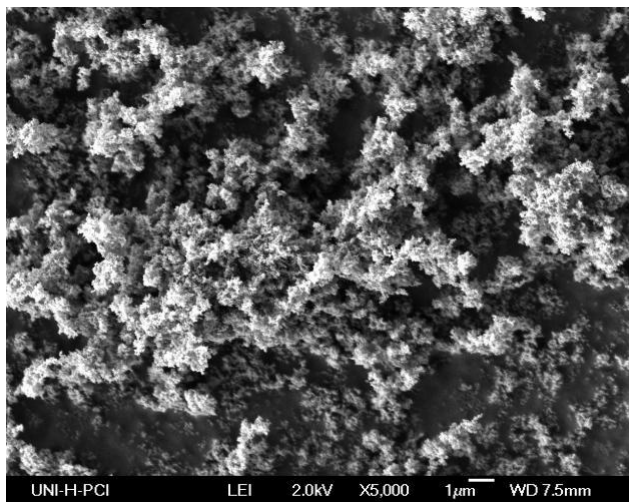


Fig. S1 b. SEM photographs of TiO_2 -Foam-1 (hexylic acid as amphiphilic molecule) with different magnifications

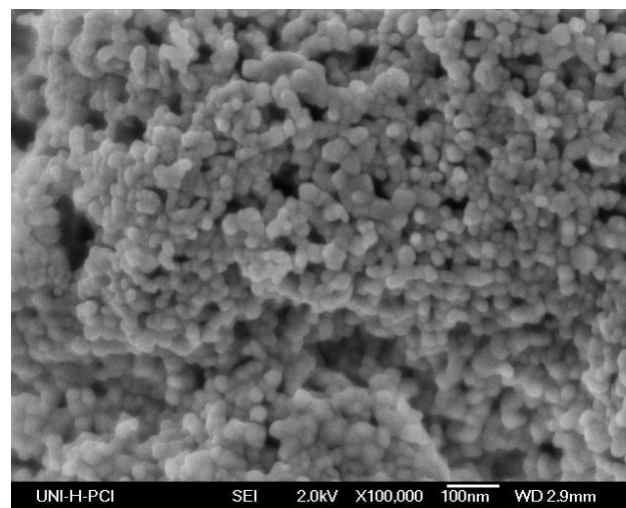
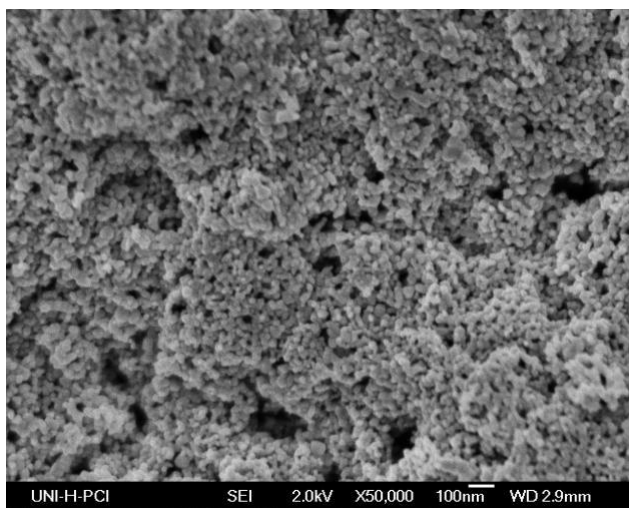
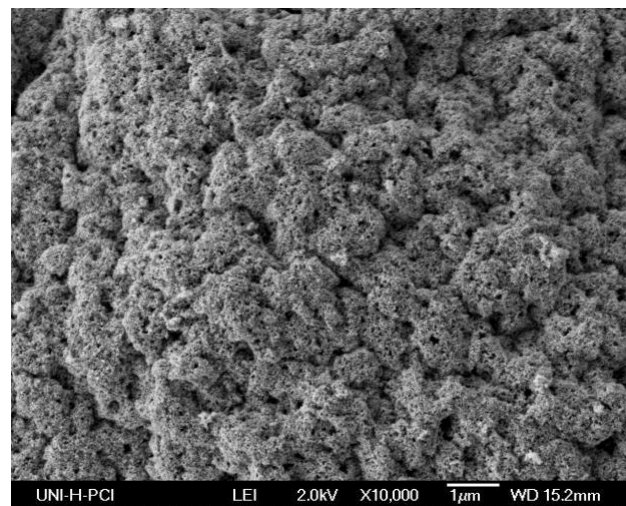
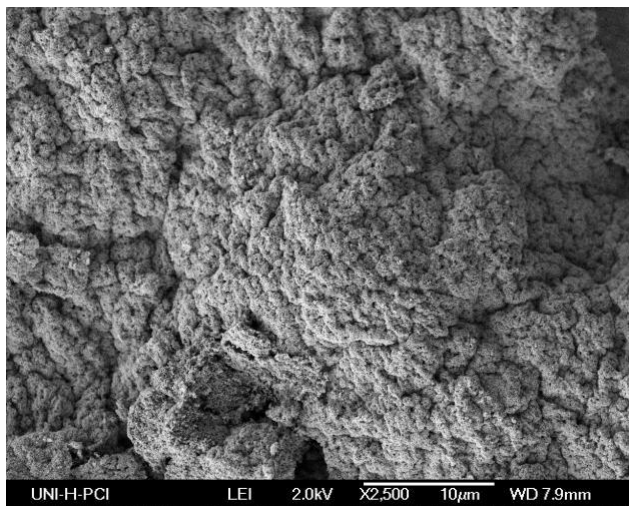
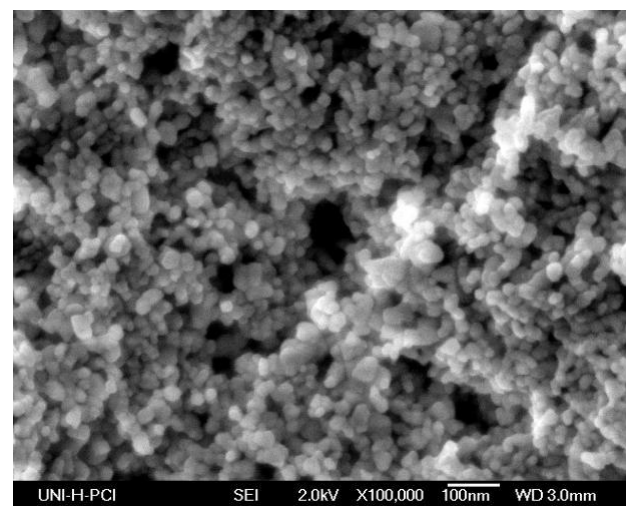
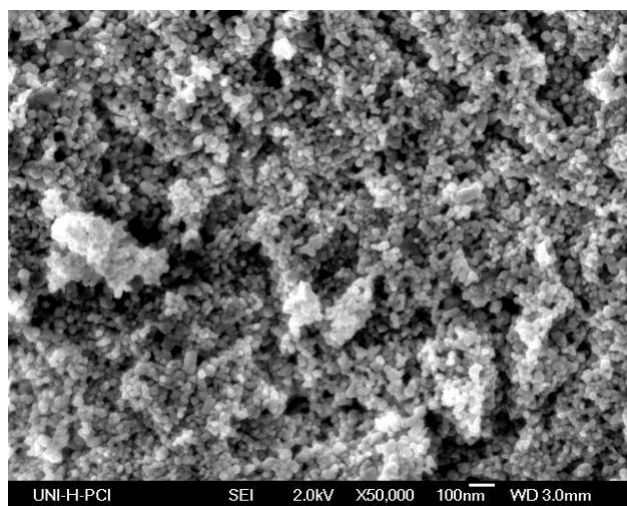
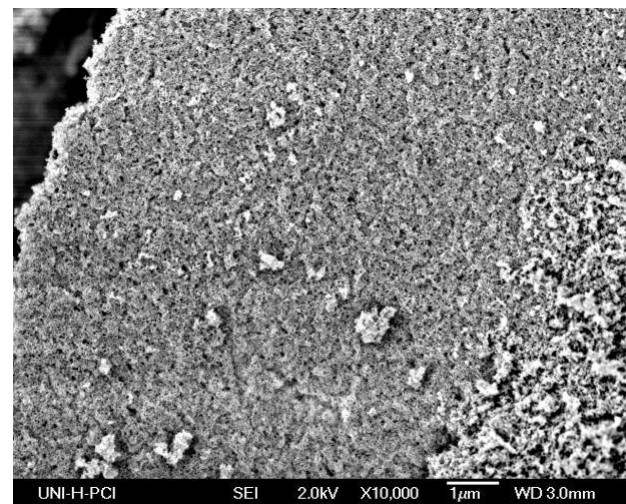
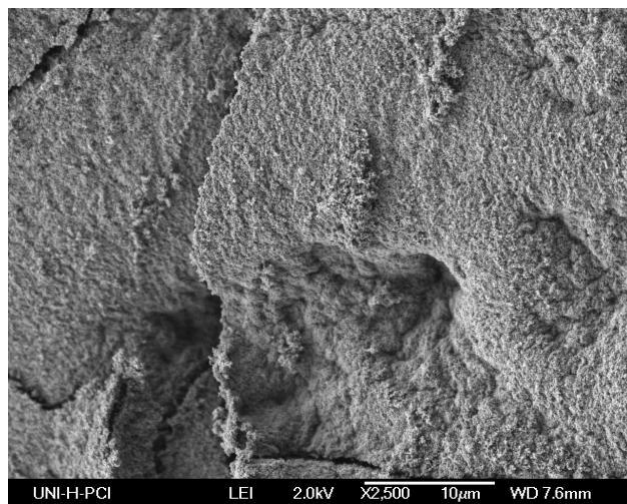


Fig. S1 c. SEM photographs of TiO_2 -Foam-2 (hexylamine as amphiphilic molecule) with different magnifications



Supplementary 2.

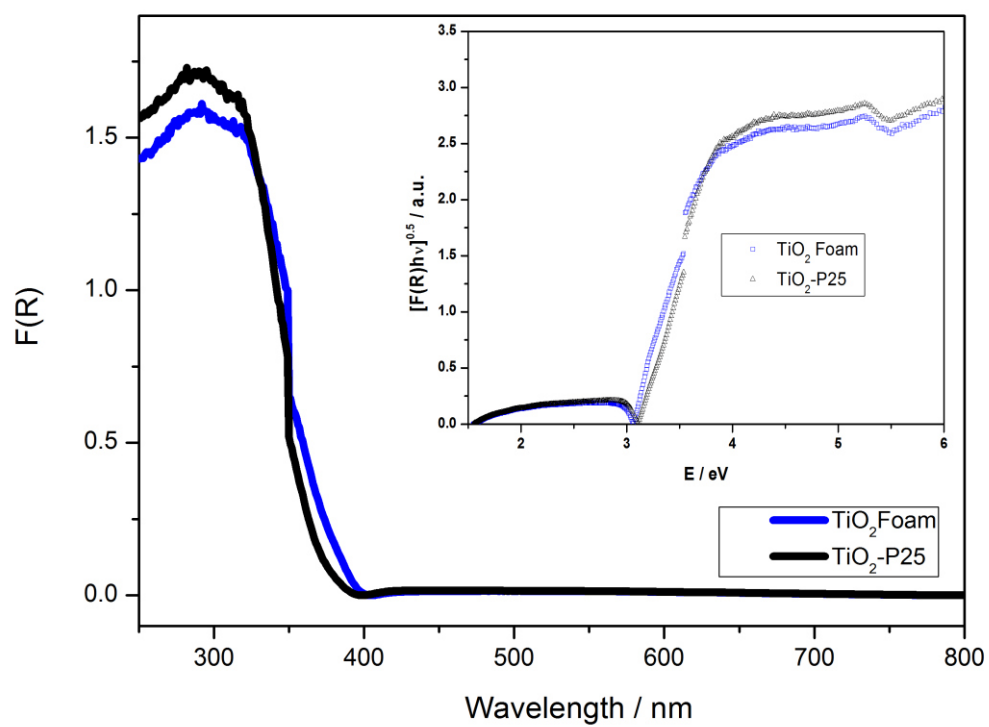


Fig. S2. Comparison between the diffuse reflectance spectra of $\text{TiO}_2\text{-P25}$ and prepared TiO_2 Foam, inset shows the modified Kubelka-Munk function versus the photon energy of these two samples.

Supplementary 3.

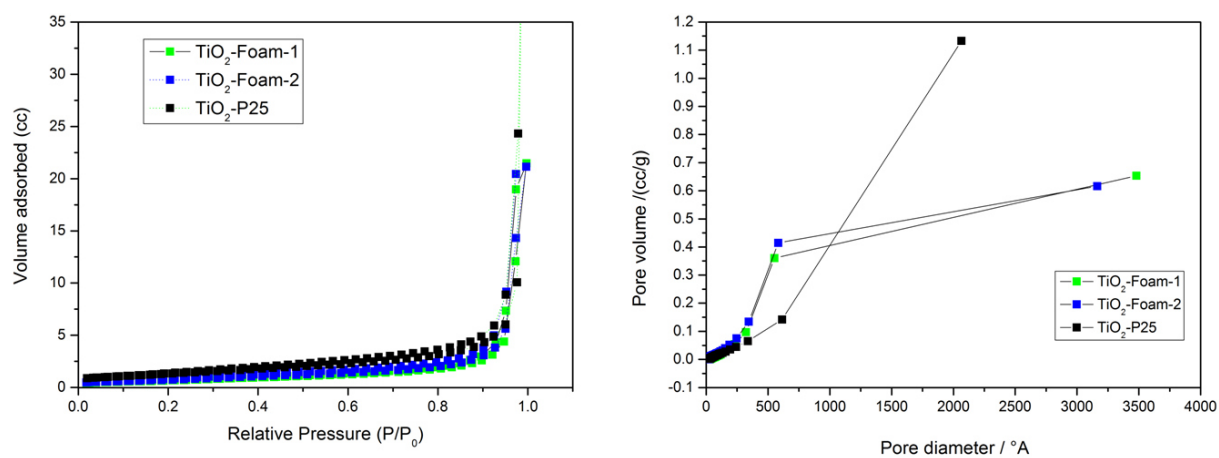


Fig. S3. Left: Nitrogen adsorption-desorption isotherm of TiO₂-Foam-1 (Hexylic acid as amphiphilic molecule), TiO₂-Foam-2 (Hexylamine as amphiphilic molecule), and TiO₂-P25. Right: The BJH graphs indicated corresponding pore size distributions of samples.

Supplementary 4.

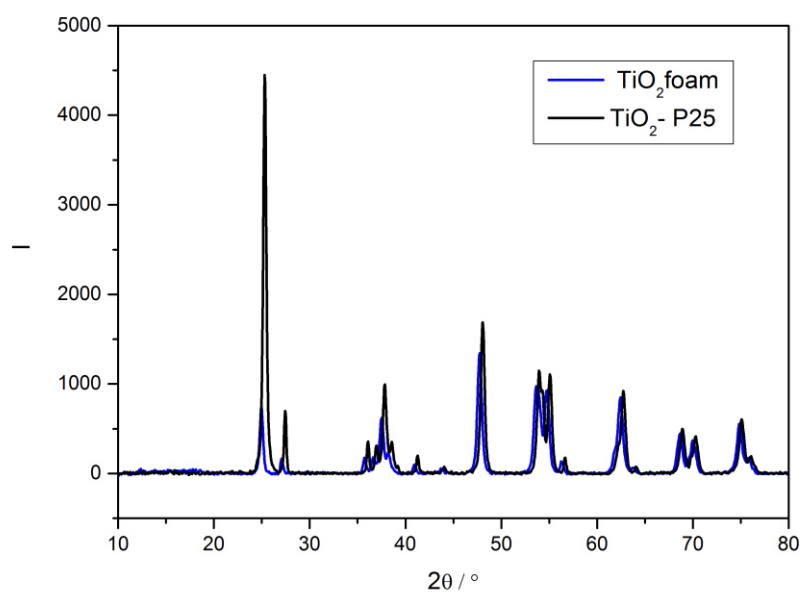


Fig .S4. Comparison between the XRD pattern of TiO₂-Foam (with Hexylic acid) and commercial used TiO₂ (Evonik AEROXIDE® P25).

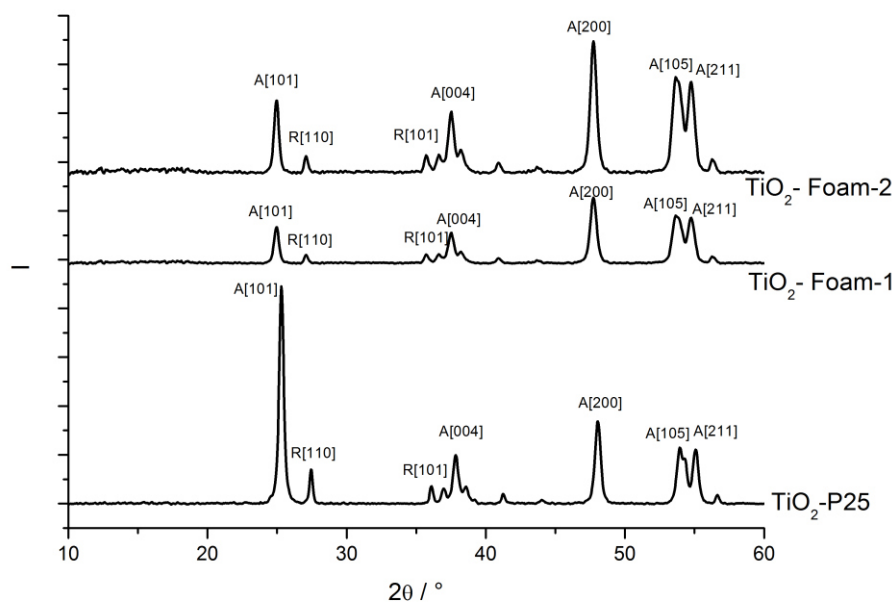


Fig. S5. XRD patterns of TiO₂-P25, TiO₂-Foam-1, and TiO₂-Foam-2, the respective reflection peaks of anatase (A) and rutile (R) phases are labeled with their Miller indices.