Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Improving a Photocatalytic Free Radical Polymerization by Hydrochloric Acid

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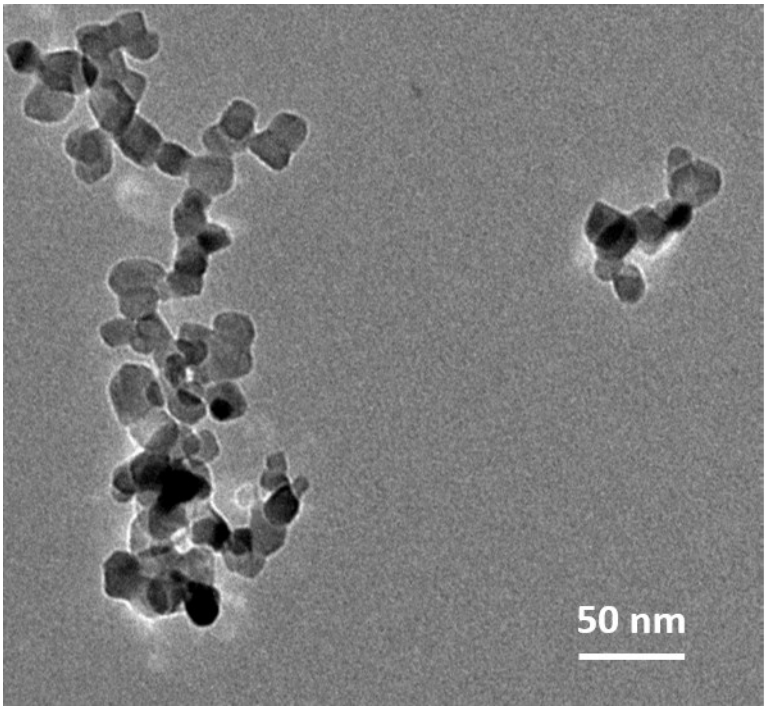

Fig. S1 The transmission electron microscope image of the TiO_2 nanoparticles

The transmission electron microscope investigations were performed on a Tecnai G20 TWIN transmission electron microscope at an accelerating voltage of 200 kV.

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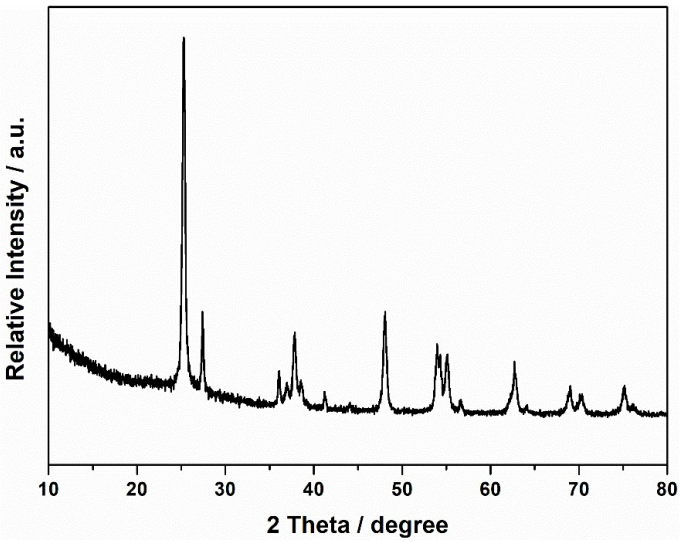

Fig. S2 The X-ray diffraction pattern of the TiO_2 nanoparticles

The X-ray diffraction pattern was recorded by a BRUKER D8 A25 X-ray diffractometer.

The X-ray diffraction pattern of the TiO_2 nanoparticles was shown in Figure S2. The Scherrer Formula (equation S1) was used to calculate the size of nanoparticles.

$$D = \frac{K\gamma}{B\cos\theta} \tag{S1}$$

Where K is the Scherrer's constant. λ is the wavelength of X-rays applied as 0.154056 nm. θ is the diffraction angle. B is the full width at the half-maximum of the diffraction peak. According to the peak at $2\theta=48.08^0$, it is calculated out that the average size of the nanoparticles (i.e. D value) is 20 nm, which is in accordance with the label of the Degussa P25 TiO_2.

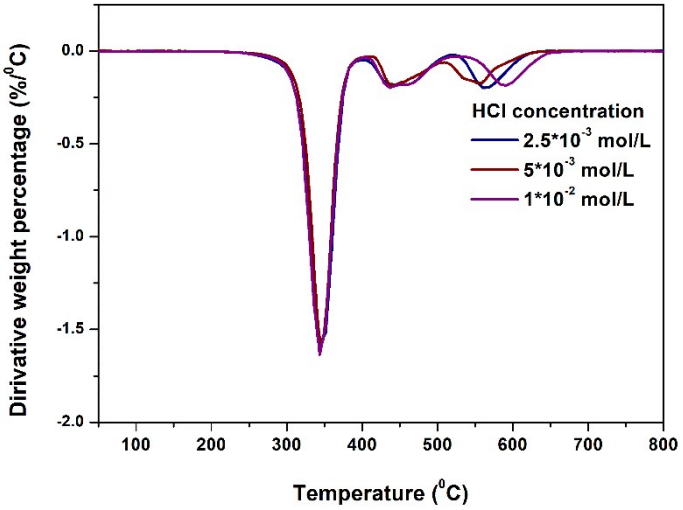

Fig. S3 DTG curves of photocatalytic polymerization crude product. The concentration of TiO_2 in aqueous suspension is 1 g/L