

A Simple Route to Enhanced Photocatalytic Activity of P25 Titanium Dioxide Nanoparticles By Silica Addition

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Supporting Information

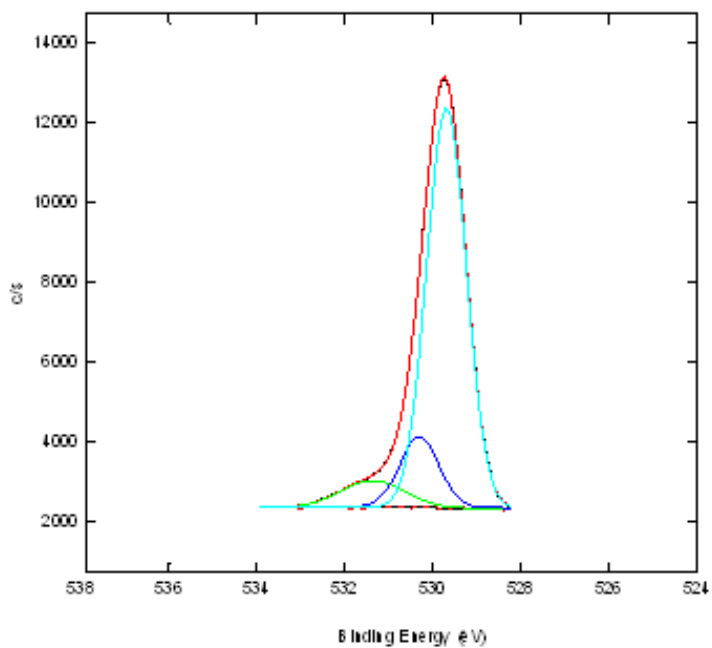


Figure S1. O1s X-ray photoelectron spectra for TiO₂(P25).

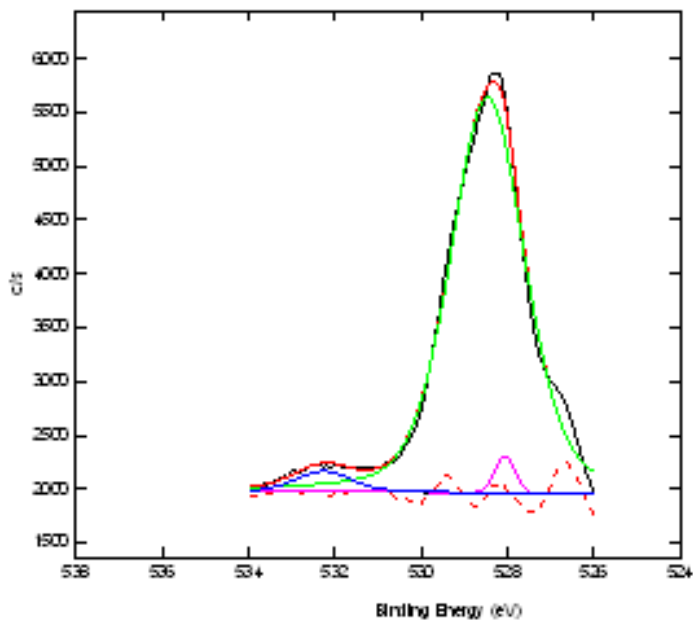


Figure S2. O1s X-ray photoelectron spectra for TiO₂(P25)-SiO₂ formed by refluxing.

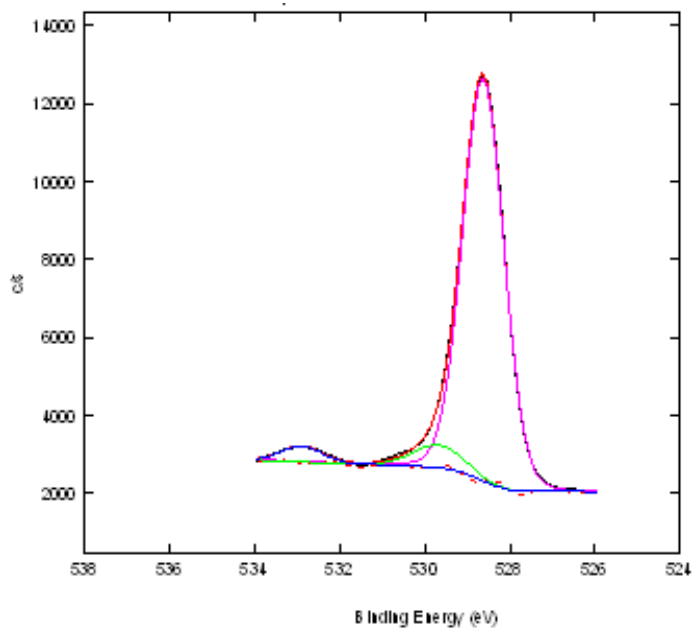


Figure S3. O1s X-ray photoelectron spectra for $\text{TiO}_2(\text{P25})\text{-SiO}_2$ formed by stirring.

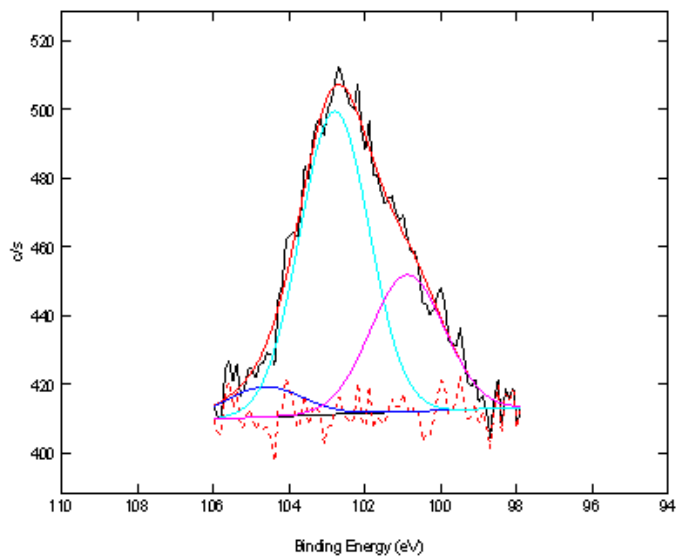


Figure S4. Si2p X-ray photoelectron spectra for $\text{TiO}_2(\text{P25})\text{-SiO}_2$ formed by refluxing.

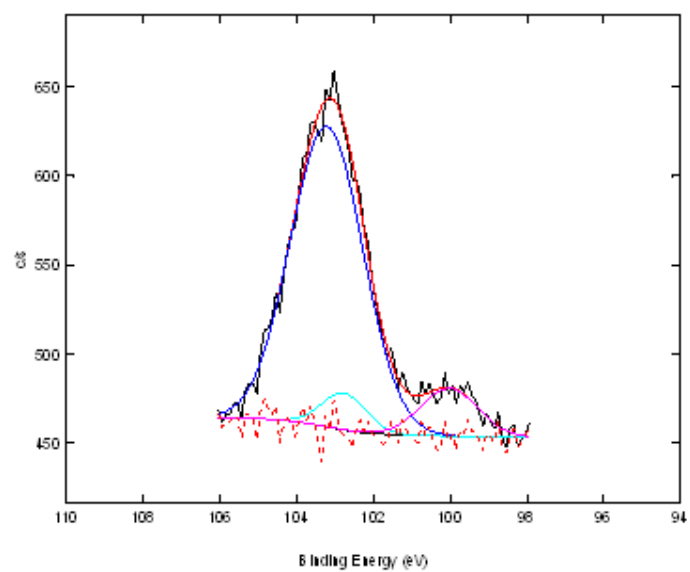


Figure S5. Si2p X-ray photoelectron spectra for TiO₂(P25)-SiO₂ formed by stirring.

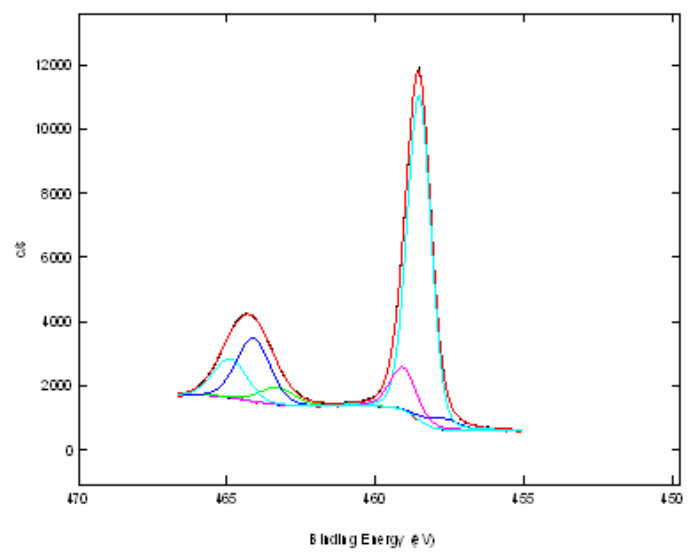


Figure S6. Ti2p X-ray photoelectron spectra for TiO₂(P25).

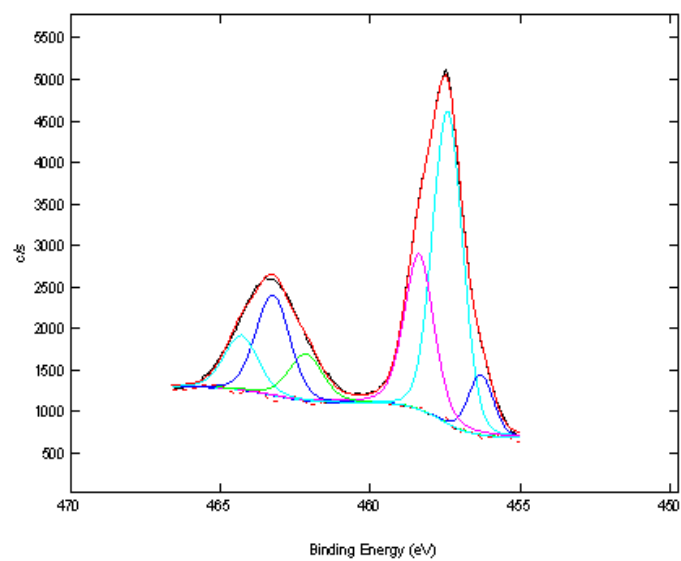


Figure S7. Ti₂p X-ray photoelectron spectra for TiO₂(P25)-SiO₂ formed by refluxing.

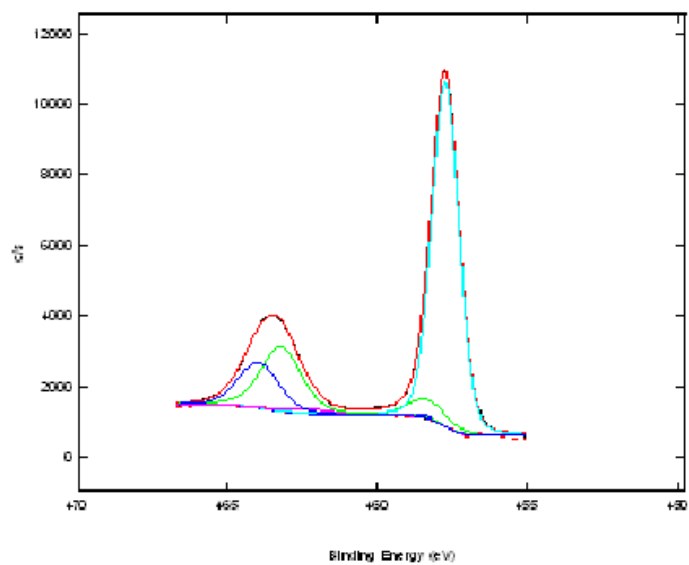


Figure S8. Ti₂p X-ray photoelectron spectra for TiO₂(P25)-SiO₂ formed by stirring.

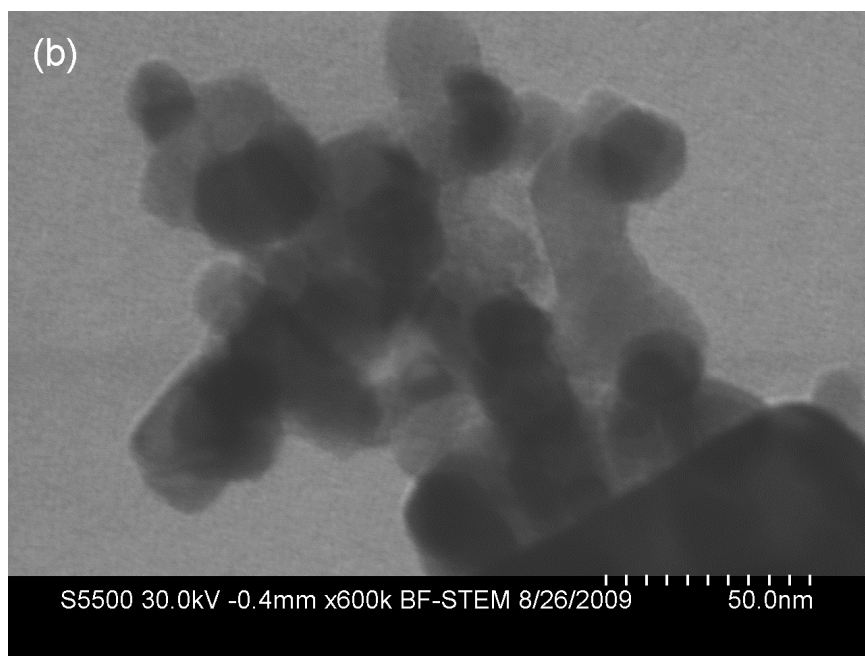
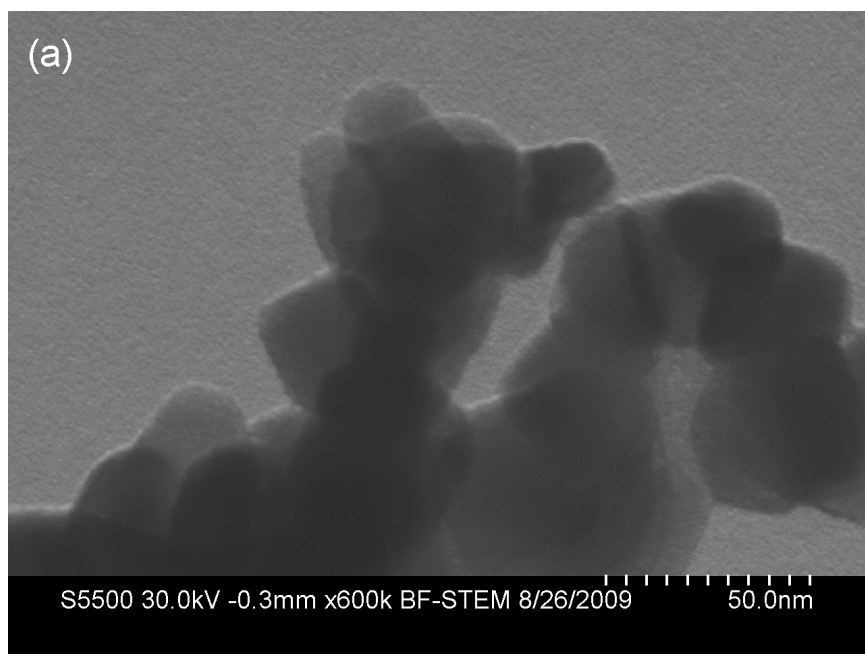


Figure S9. TEM of $\text{TiO}_2(\text{P25})$ reacted with fumed silica with (a) stirring in comparison with (b) as-received P25 TiO_2 .

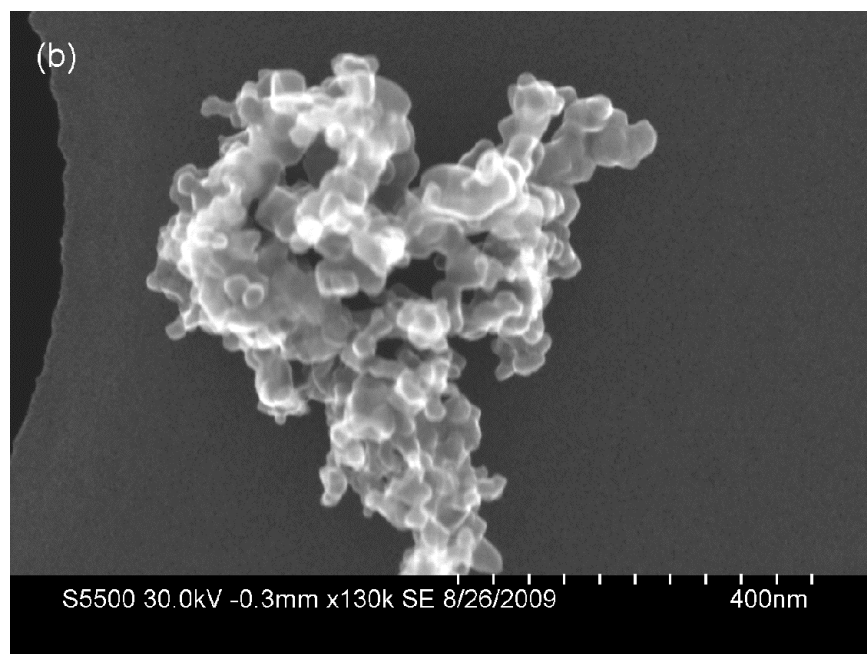
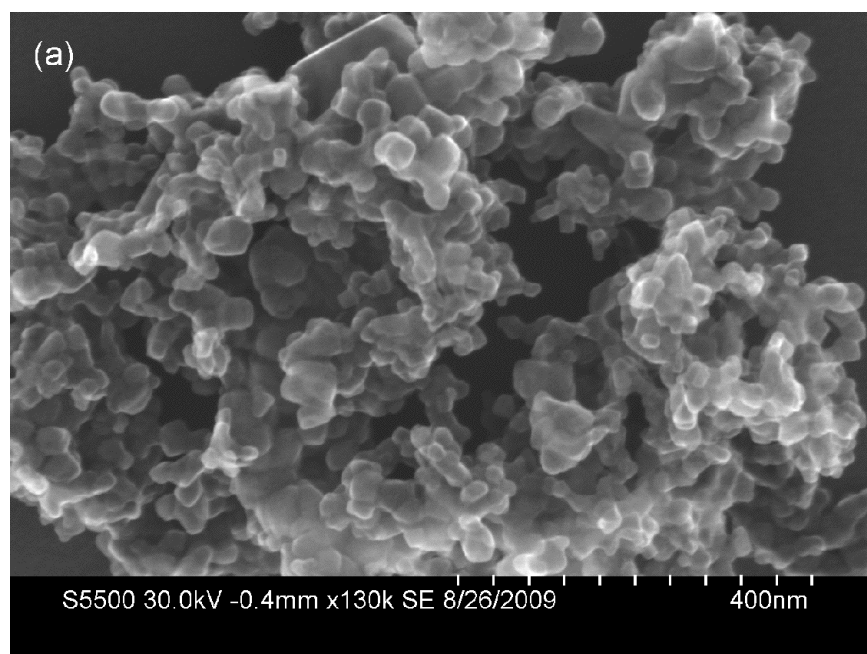


Figure S10. SEM of $\text{TiO}_2(\text{P25})$ reacted with fumed silica with (a) stirring in comparison with (b) as-received P25 TiO_2 .

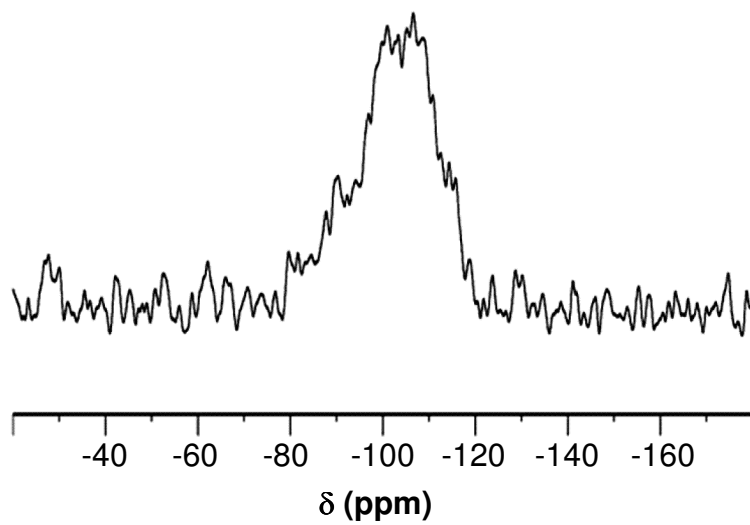


Figure S11. ^{29}Si MAS NMR of $\text{TiO}_2(\text{P25})\text{-SiO}_2(5\%)$ showing the presence of “ SiO_4 ” coordination environment.

Table S1. Summary of peak fitted XP spectra.

Sample	O1s	Ti2p _{1/2}	Si2p
TiO ₂ (P25)	529.70 (Ti-O-Ti) 530.31 (Ti-O-Ti) 531.38 (Ti-O-Ti)	463.3 (Ti ₂ O ₃) 464.11 (TiO ₂) 464.8 (TiO ₂)	-
TiO ₂ (P25)-SiO ₂ formed by refluxing	528.07 (Ti-O-Ti) 528.47 (Ti-O-Ti) 532.28 (Si-O-Ti)	462.14 (Ti ₂ O ₃) 463.23 (Ti ₂ O ₃) 464.29 (TiO ₂ or Ti-O-Si)	100.88 (SiO ₂) 102.80 (SiO ₂) 104.64 (Si-O-Ti)
TiO ₂ (P25)-SiO ₂ formed by stirring	528.62 (Ti-O-Ti) 528.69 (Ti-O-Ti) 532.88 (Si-O-Ti)	462.25 (Ti ₂ O ₃) 463.20 (Ti ₂ O ₃) 463.95 (TiO ₂ or Ti-O-Si)	100.02 (SiO ₂) 102.77 (SiO ₂) 103.21 (Si-O-Si)