

Supplementary Materials

Core/Shell ZnO/TiO₂, SiO₂/TiO₂, Al₂O₃/TiO₂, and Al_{1.9}Co_{0.1}O₃/TiO₂ Nanoparticles for the Photodecomposition of Brilliant Blue E-4BA

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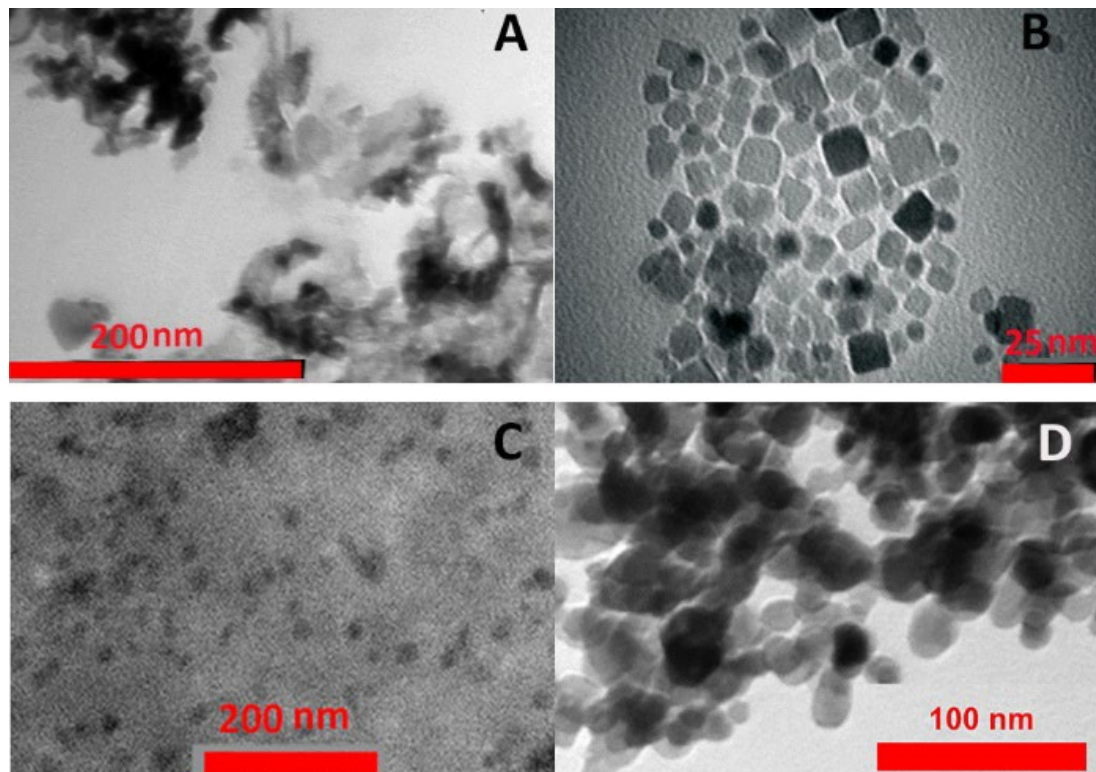


Figure S1. TEM images of synthesized A) Al₂O₃, B) TiO₂, C) SiO₂, and D) ZnO nanoparticles.

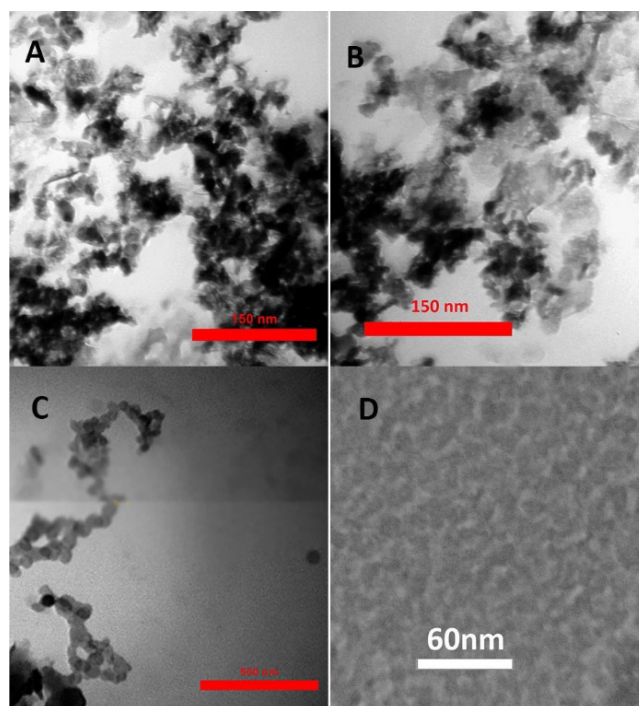


Figure S2. TEM images of the synthesized A) Al₂O₃/TiO₂, B) Al_{1.9}Co_{0.1}O₃/TiO₂, C) ZnO/TiO₂, and D) SiO₂/TiO₂ nanoparticles.

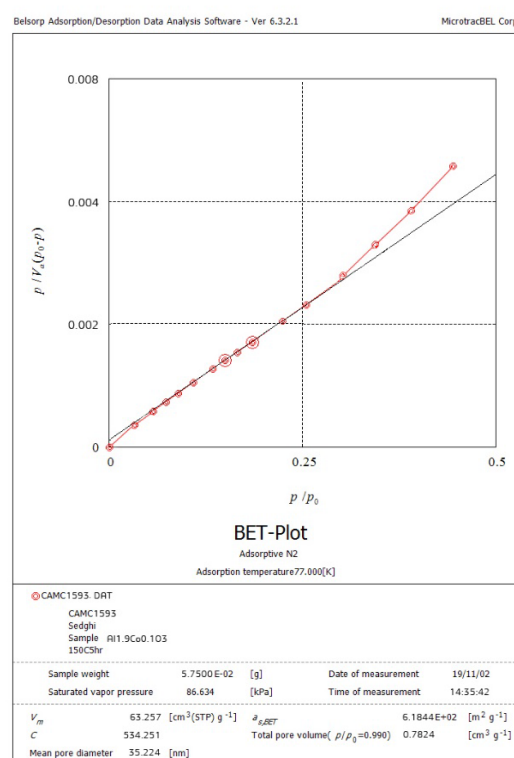
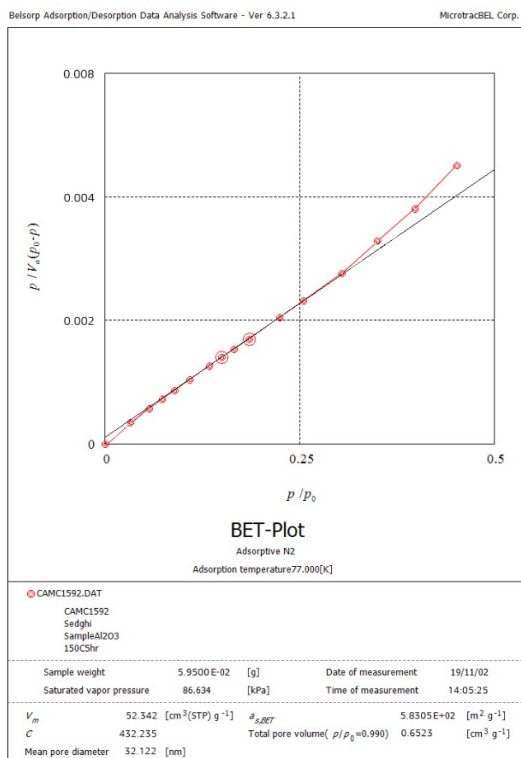
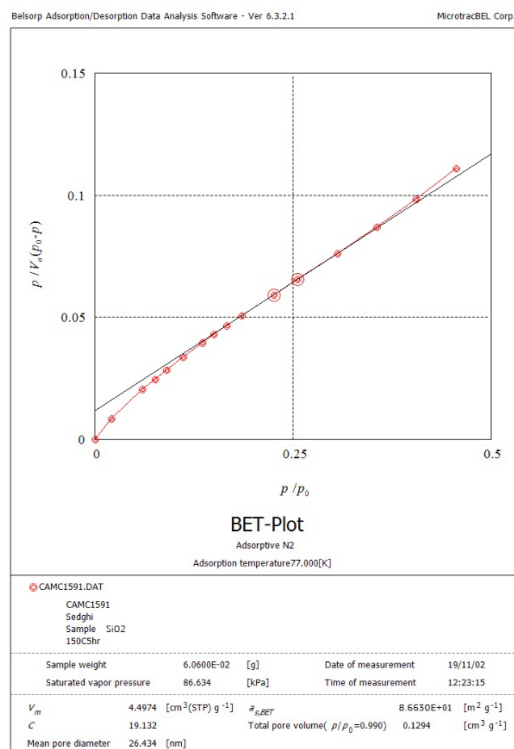
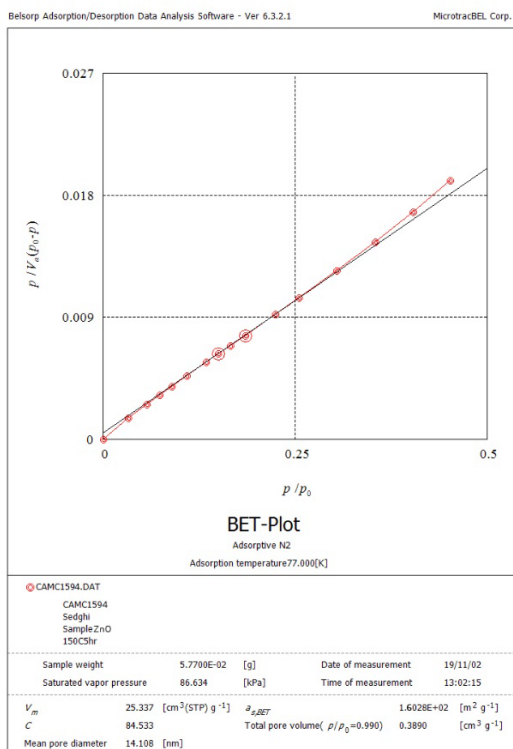


Figure S3. BET plots of the ZnO/TiO₂ (top left), D) SiO₂/TiO₂ (top right), Al₂O₃/TiO₂ (bottom, left), and Al_{1.9}Co_{0.1}O₃/TiO₂ (bottom right) nanoparticles.

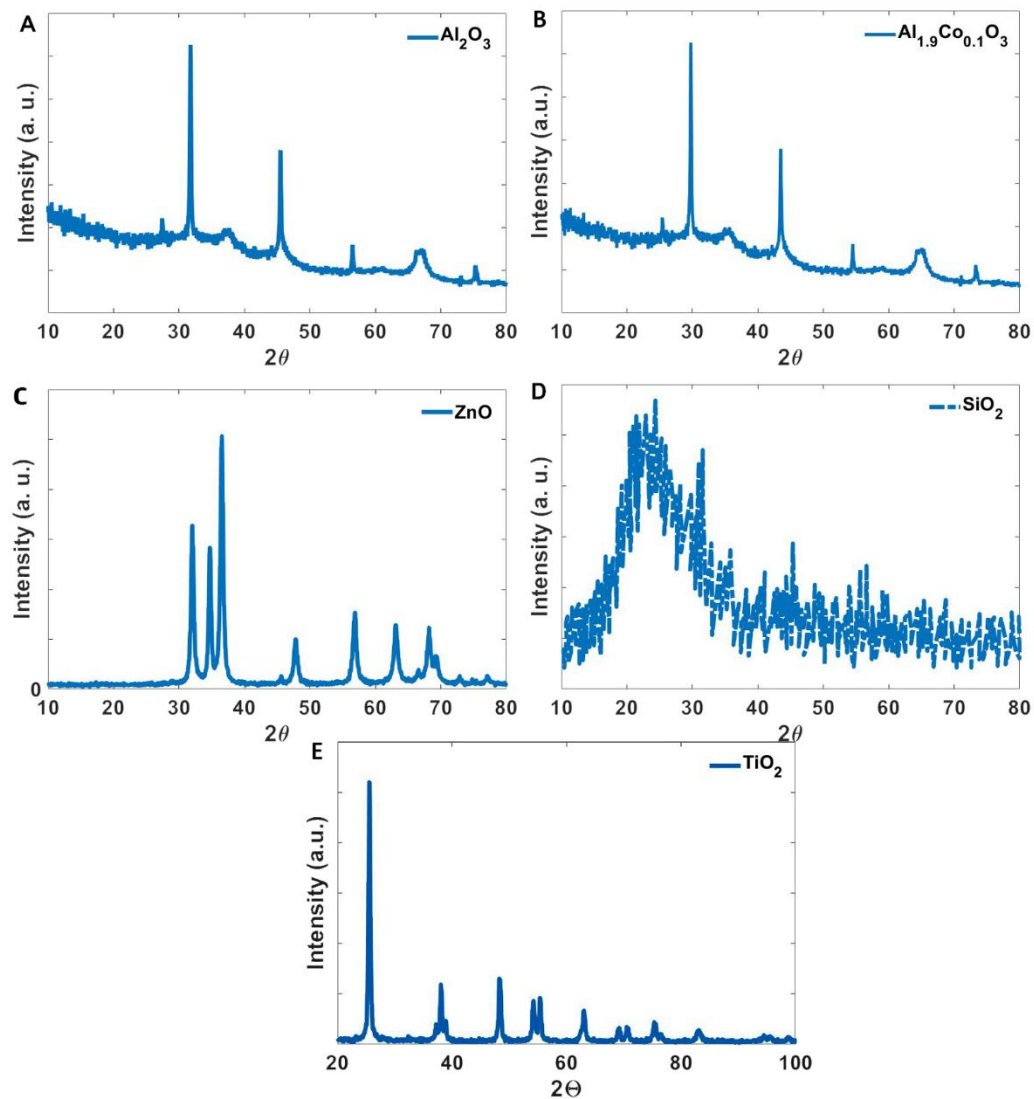


Figure S4. XRD patterns of the synthesized NPs A) Al_2O_3 , B) $\text{Al}_{1.9}\text{Co}_{0.1}\text{O}_3$, C) ZnO , D) SiO_2 , E) TiO_2 .

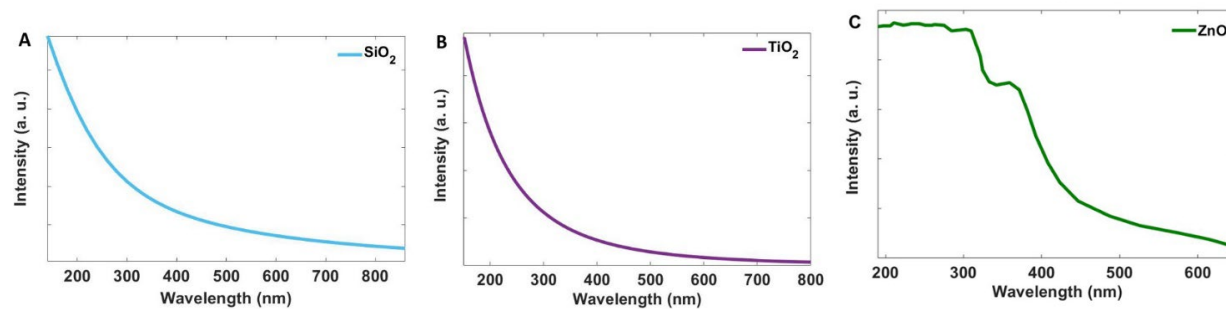


Figure S5. UV-vis absorption spectra for the synthesized NPs A) SiO_2 , B) TiO_2 , and C) ZnO .

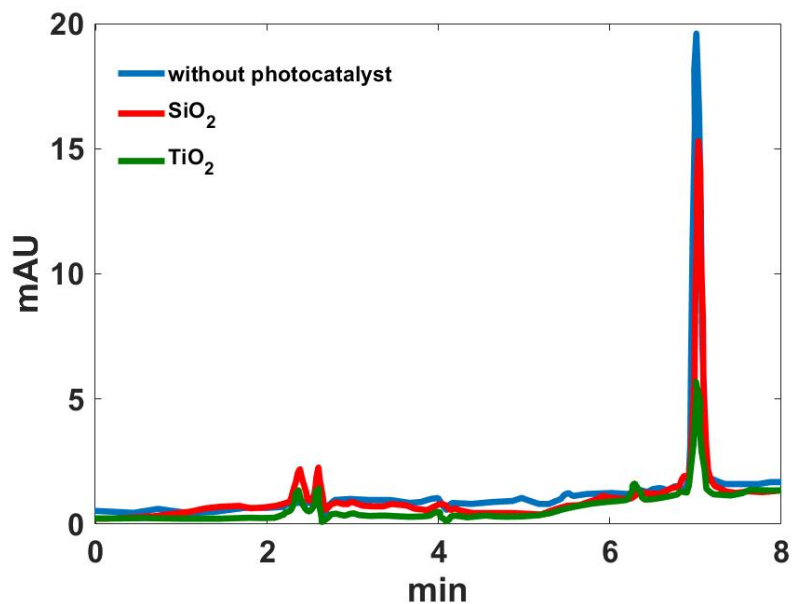


Figure S6. HPLC reaction solutions containing 20 ppm brilliant blue E-4BA in H₂O after addition of 10 mg bare SiO₂ or TiO₂ NPs as catalyst (or none) and UV irradiation for 15 min.

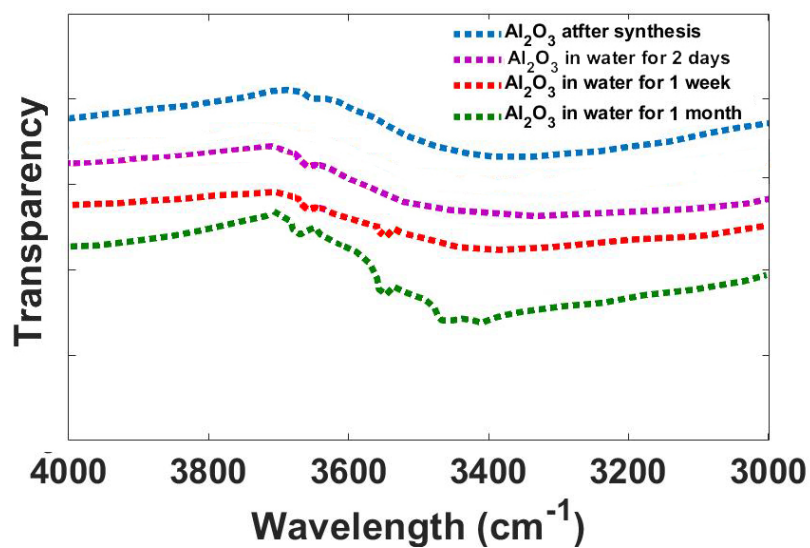


Figure S7. FT-IR spectra of Al₂O₃/TiO₂ nanoparticles stored in water and after synthesis.

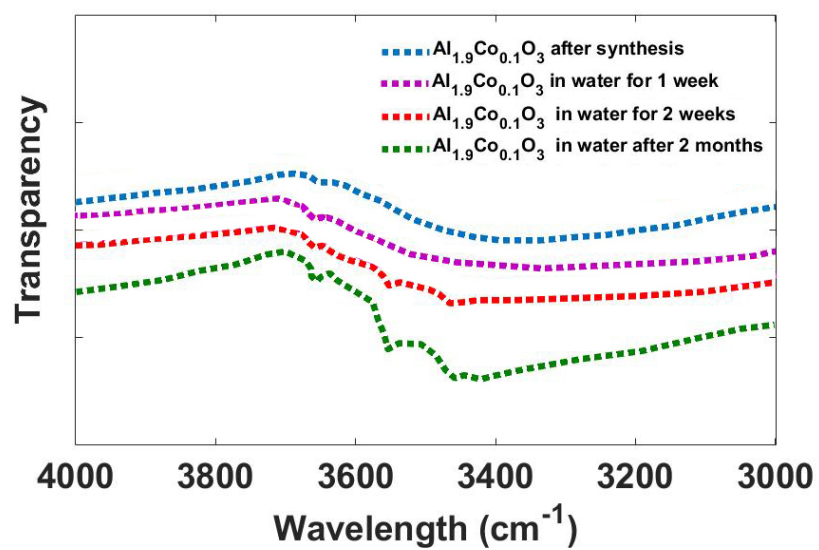


Figure S8. FT-IR spectra of $\text{Al}_{1.9}\text{Co}_{0.1}\text{O}_3/\text{TiO}_2$ nanoparticles stored in water and after synthesis.