

Facile Synthesis of Co₃O₄ Nanoparticle-Functionalized Mesoporous SiO₂ for Catalytic Degradation of Methylene Blue from Aqueous Solutions

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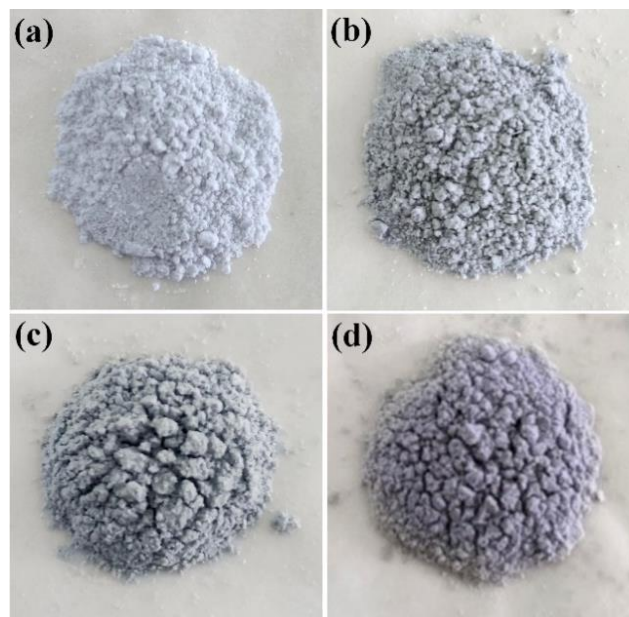


Figure S1. Photographs of the mesoporous $\text{Co-SiO}_2(x)$ catalysts: $\text{Co-SiO}_2(0.02)$ (a), $\text{Co-SiO}_2(0.04)$ (b), $\text{Co-SiO}_2(0.08)$ (c), and $\text{Co-SiO}_2(0.17)$ (d).

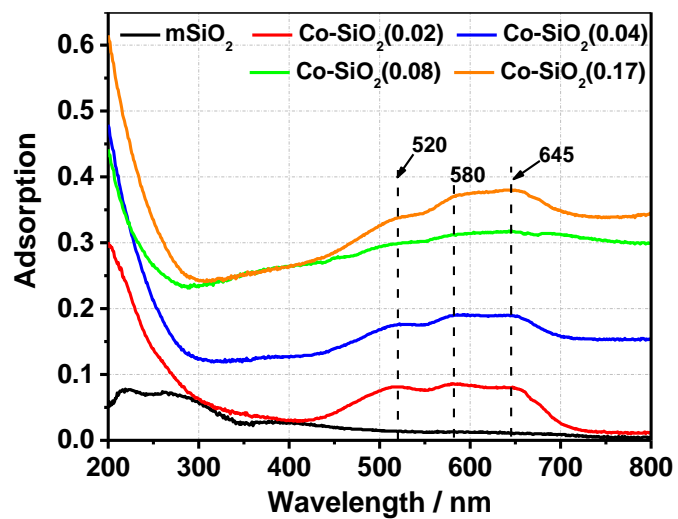


Figure S2. UV-Vis DRS of the mesoporous Co-SiO₂(x) catalysts.

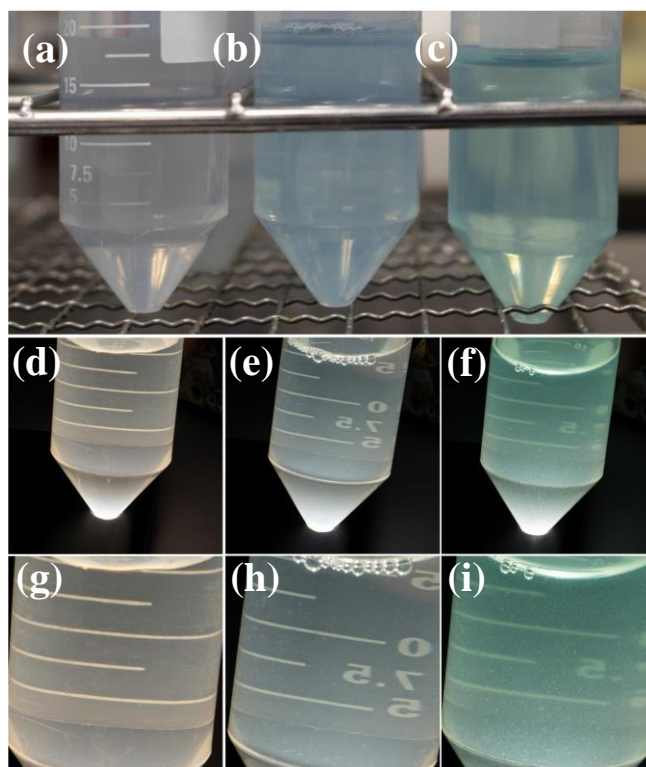


Figure S3. Photographs of the solutions: clear $\text{Ca}(\text{OH})_2$ (a), the supernatant (b), mixed clear $\text{Ca}(\text{OH})_2$ and supernatant (c); Clear $\text{Ca}(\text{OH})_2$ (d), the supernatant (e), mixed clear $\text{Ca}(\text{OH})_2$ and supernatant (f) under flash light; detail views (g),(h) and (i).

$$Am = \frac{(C_0 - C_e) \cdot V}{M \cdot S_{\text{BET}}} \quad \text{S(1)}$$

$$\% = \frac{Am \cdot N_A \cdot 1.3 \times 10^{-16}}{m} \quad \text{S(2)}$$

where Am ($\text{mg} \cdot \text{m}^{-2}$) is MB adsorption amount per S_{BET} ; C_0 and C_e ($\text{mg} \cdot \text{L}^{-1}$) represent the initial and equilibrium concentration of MB. V (L) represents the volume of the MB solution, and M (g) represents the amount of the catalyst, S_{BET} ($\text{m}^2 \cdot \text{g}^{-1}$) represents the S_{BET} of the sample; N_A (mol^{-1}) represent the Avogadro constant; m ($\text{g} \cdot \text{mol}^{-1}$) represents the molar mass of MB.

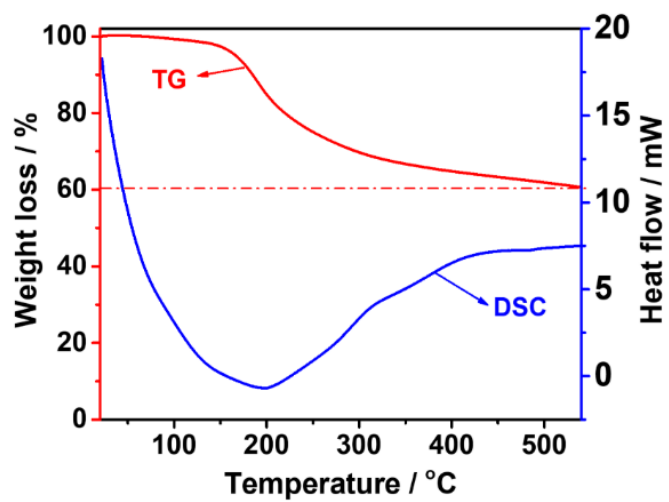


Figure S4. TG in air and DSC curves of the template-containing SiO₂-As sample.