

Supporting Information

Amorphous Cr-doped g-C₃N₄ as an efficient catalyst for the direct hydroxylation of benzene to phenol

Tianhao Cao,^a Menglu Cai,^a Leilei Jin,^a Xiaozhong Wang,^a Jie Yu,^{*ab} Yingqi Chen^a
and Liyan Dai^{*a}

^aZhejiang Provincial Key Laboratory of Advanced Chemical Engineering Manufacture Technology, College of Chemical and Biological Engineering, Zhejiang University, Hangzhou 310027, China

^bCollege of Biology and Environmental Engineering, Zhejiang Shuren University, Hangzhou 310015, China

*Corresponding authors.

(J. Yu) E-mail: yj313513@sina.com.

(L. Dai) E-mail: dailiyan@zju.edu.cn; Tel: +86 571 87952693; Fax: +86 571 87953294.

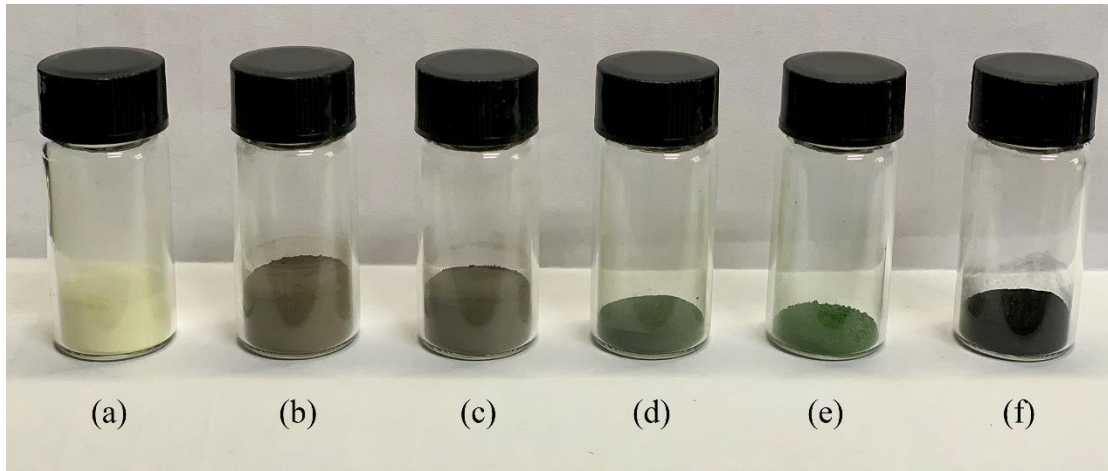


Fig. S1 Different colors of as-prepared (a) $g\text{-C}_3\text{N}_4$, (b) $\text{Cr}/g\text{-C}_3\text{N}_4\text{-300}$, (c) $\text{Cr}/g\text{-C}_3\text{N}_4\text{-350}$, (d) $\text{Cr}/g\text{-C}_3\text{N}_4\text{-400}$, (e) $\text{Cr}/g\text{-C}_3\text{N}_4\text{-500}$, and (f) Cr-300 .

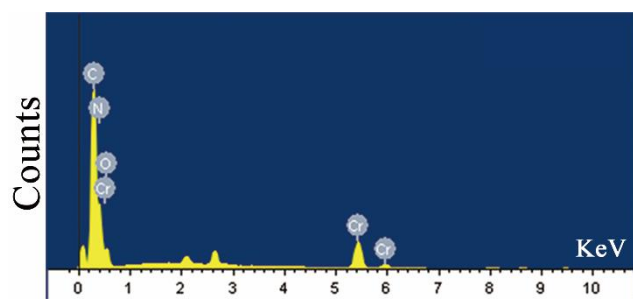


Fig. S2 EDS spectrum of Cr/g-C₃N₄-300 catalyst.

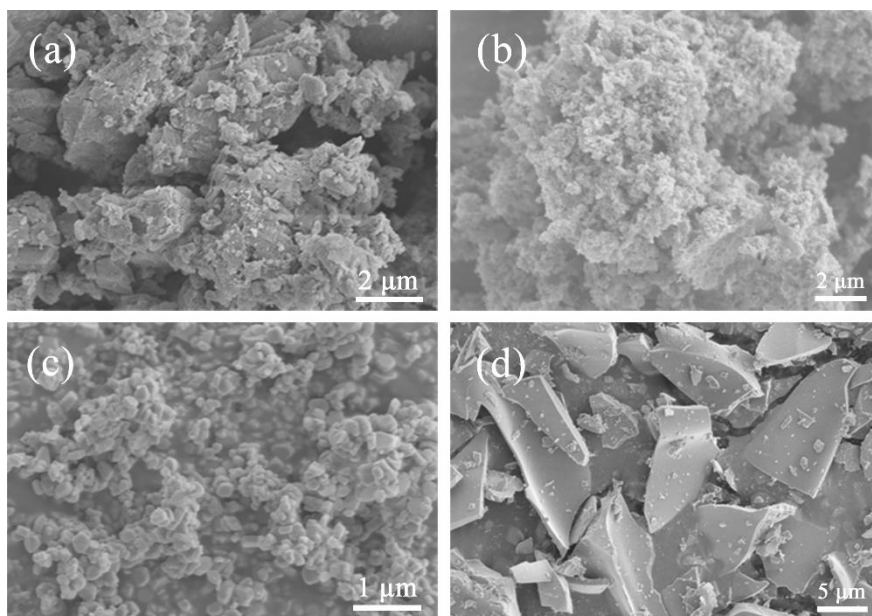


Fig. S3 FESEM images of (a) Cr/g-C₃N₄-350, (b) Cr/g-C₃N₄-400, (c) Cr/g-C₃N₄-500, and (d) Cr-300 samples.

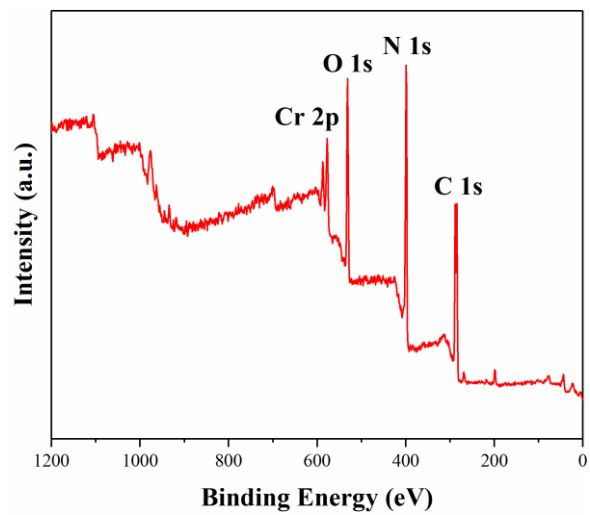


Fig. S4 Wide-range XPS spectrum of Cr/g-C₃N₄-300 composite.

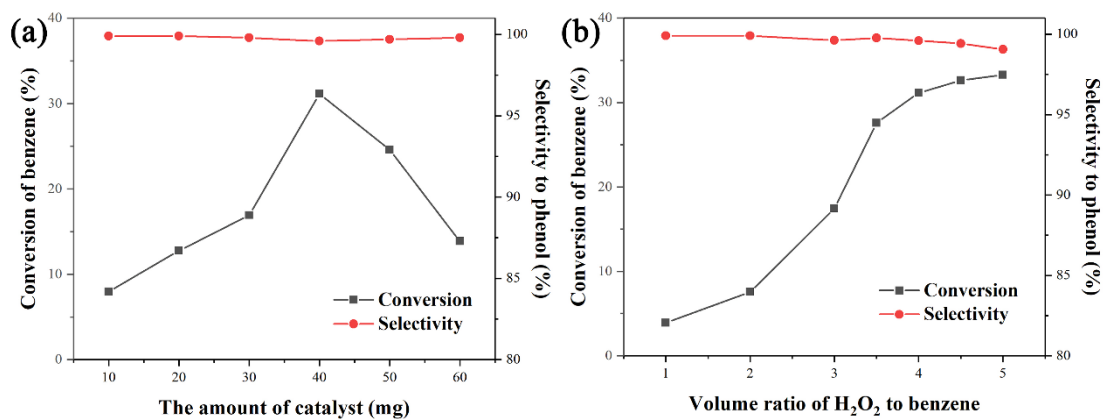


Fig. S5 Catalytic performance of Cr/ g-C₃N₄-300 catalyst under different (a) amount of catalyst and (b) volume ratio of H₂O₂ to benzene. Reaction conditions: 3.36 mmol of benzene, 2 mL of acetonitrile, T = 65 °C, t = 7 h, (a) 1.2 mL of 30 wt% H₂O₂, and (b) 40 mg of catalyst.