

Supporting Information

Highly selective benzene hydrogenation to cyclohexene over supported Ru catalyst without additives

Huizhen Liu, Tao Jiang*, Buxing Han*, Shuguang Liang, Weitao Wang, Tianbin Wu, Guanying Yang

Beijing National Laboratory for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China

E-mail: Jiangt@iccas.ac.cn, Hanbx@iccas.ac.cn

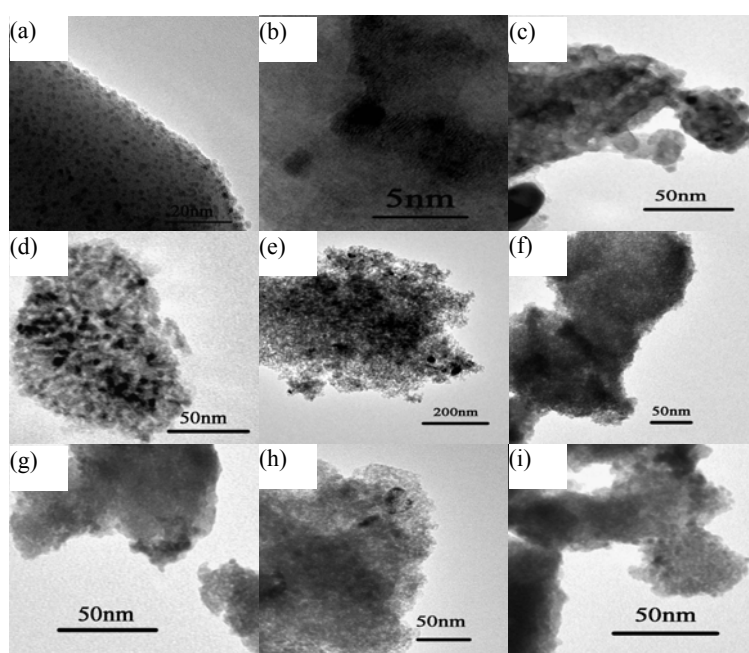


Fig. S1 TEM images of the catalysts, (a,b) Ru/ZnO, (c) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=10:1), (d) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=10:3), (e) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=10:5), (f) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=10:7), (g) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=1:1), (h) Ru/ZnO-ZrO_x(OH)_y (Zn:Zr=1:2), (i) Ru/ZrO_x(OH)_y.

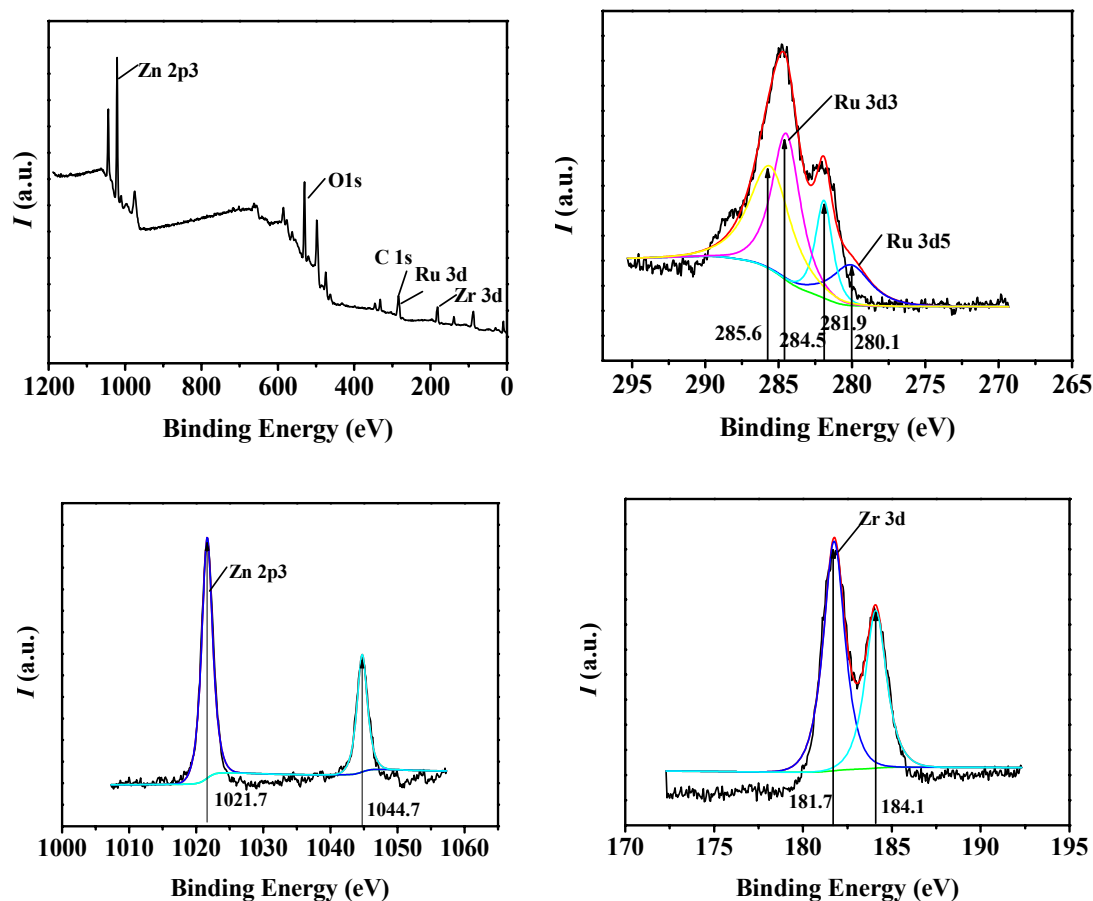


Fig. S2 XPS spectra of catalyst Ru/ZnO-ZrO_x(OH)_y (10:1).

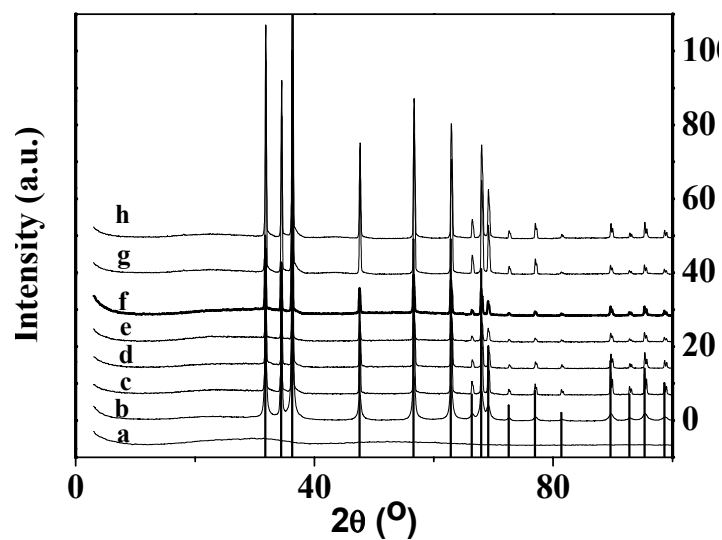


Fig. S3 X-ray diffraction patterns of (a) Ru/ZrO_x(OH)_y, (b) Ru/ZnO-ZrO_x(OH)_y (10:1), (c) Ru/ZnO-ZrO_x(OH)_y (10:3), (d) Ru/ZnO-ZrO_x(OH)_y (10:5), (e) Ru/ZnO-ZrO_x(OH)_y (10:7), (f) Ru/ZnO-ZrO_x(OH)_y (1:1), (g) Ru/ZnO-ZrO_x(OH)_y (1:2), (h) Ru/ZnO. The bar graph at the bottom indicates the diffraction lines of ZnO.