

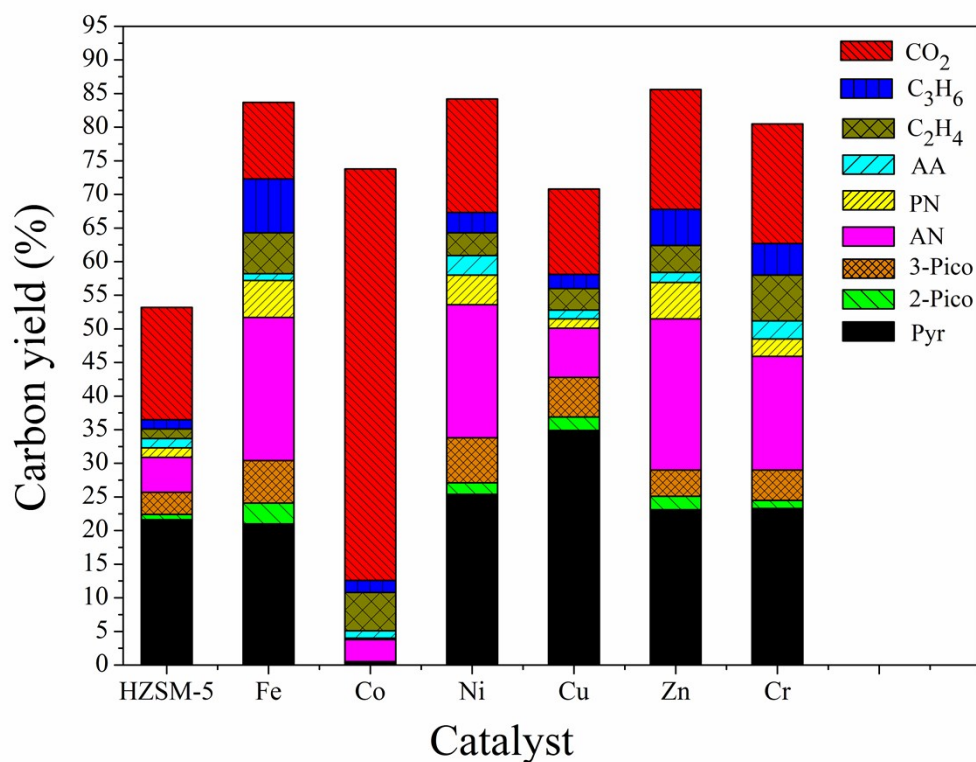


Fig. S7 (1) Effect of doped metal on the performance of the HZSM-5(38) based catalysts under optimized conditions.

Pyr: pyridine; 2-Pico: 2-picoline; 3-Pico: 3-picoline; AN: acetonitrile; PN: propionitrile; AA: acetaldehyde.

Catalyst: Fe: 4.6%Fe/HZSM-5(38); Co: 4.6%Co/HZSM-5(38); Ni: 4.6%Ni/HZSM-5(38); Cu: 4.6%Cu/HZSM-5(38); Zn: 4.6%Zn/HZSM-5(38); Cr: 4.6%Cr/HZSM-5(38).

Reaction conditions: reaction temperature 520°C, ammonia/glycerol molar ratio 7:1, atmospheric pressure, GHSV 300 h⁻¹, time on stream 2–4 h. 20 wt% glycerol aqueous solution 0.05 ml/min, NH₃ 18 ml/min.

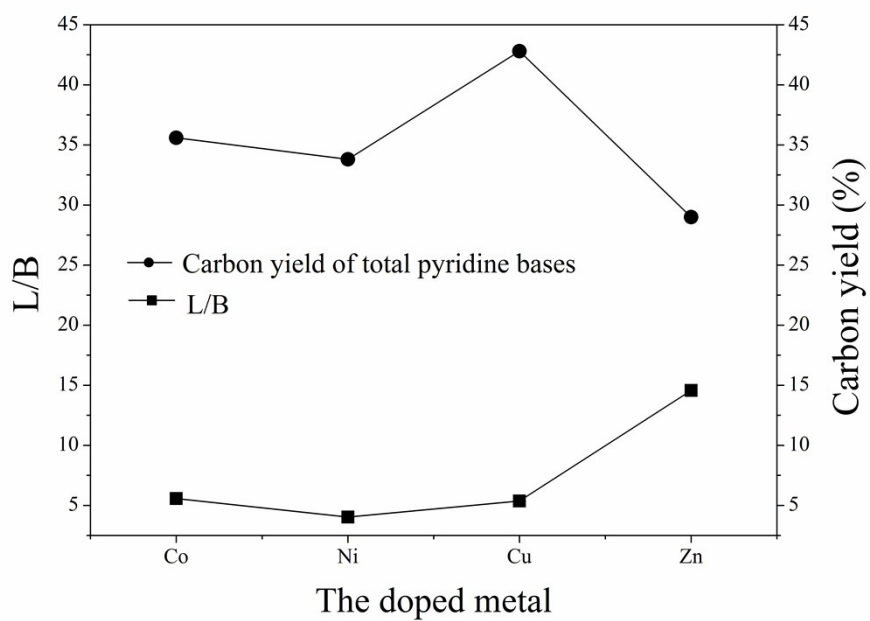


Fig. S7 (2) Effects of doped metal on the L/B ratio and the performance of the HZSM-5(38).

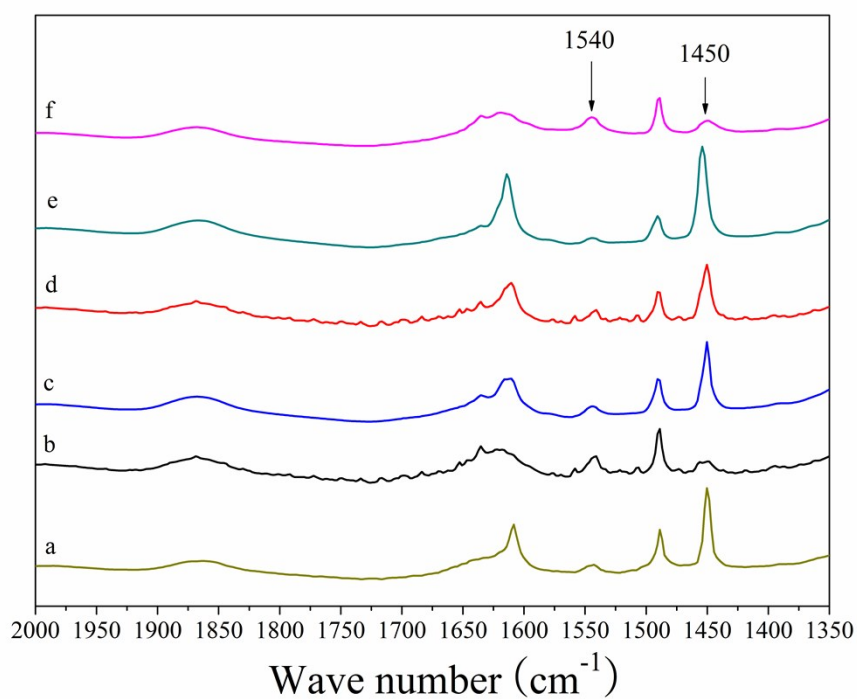


Fig. S7 (3) IR spectra of pyridine adsorbed on the catalysts. (a) 4.6%Cu/HZSM-5(38); (b) 4.6%Fe/HZSM-5(38); (c) 4.6%Co/HZSM-5(38); (d) 4.6%Ni/HZSM-5(38); (e) 4.6%Zn/HZSM-5(38); (f) 4.6%Cr/HZSM-5(38).