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Electronic Supporting Information

Redox-buffer effect of Fe^{2+} ion on selective olefin/paraffin separation and hydrogen tolerance of Cu^{+}-based mesoporous adsorbent

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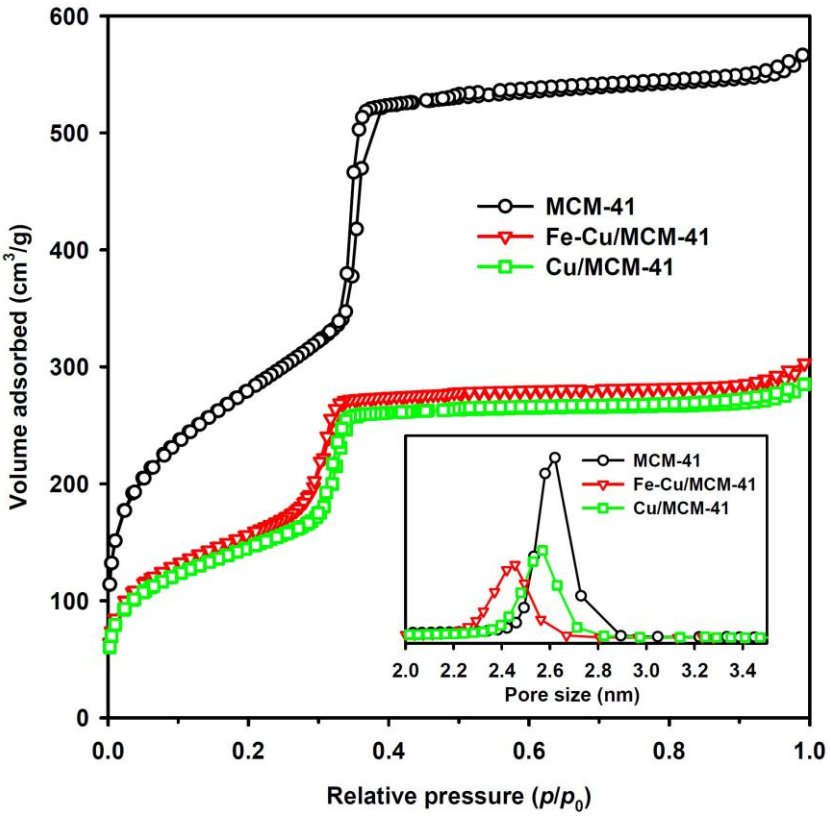

Fig. S1 N_2 adsorption-desorption isotherms for MCM-41, Fe-Cu/MCM-41 and Cu/MCM-41. Inset is the corresponding BJH pore size distribution curves.

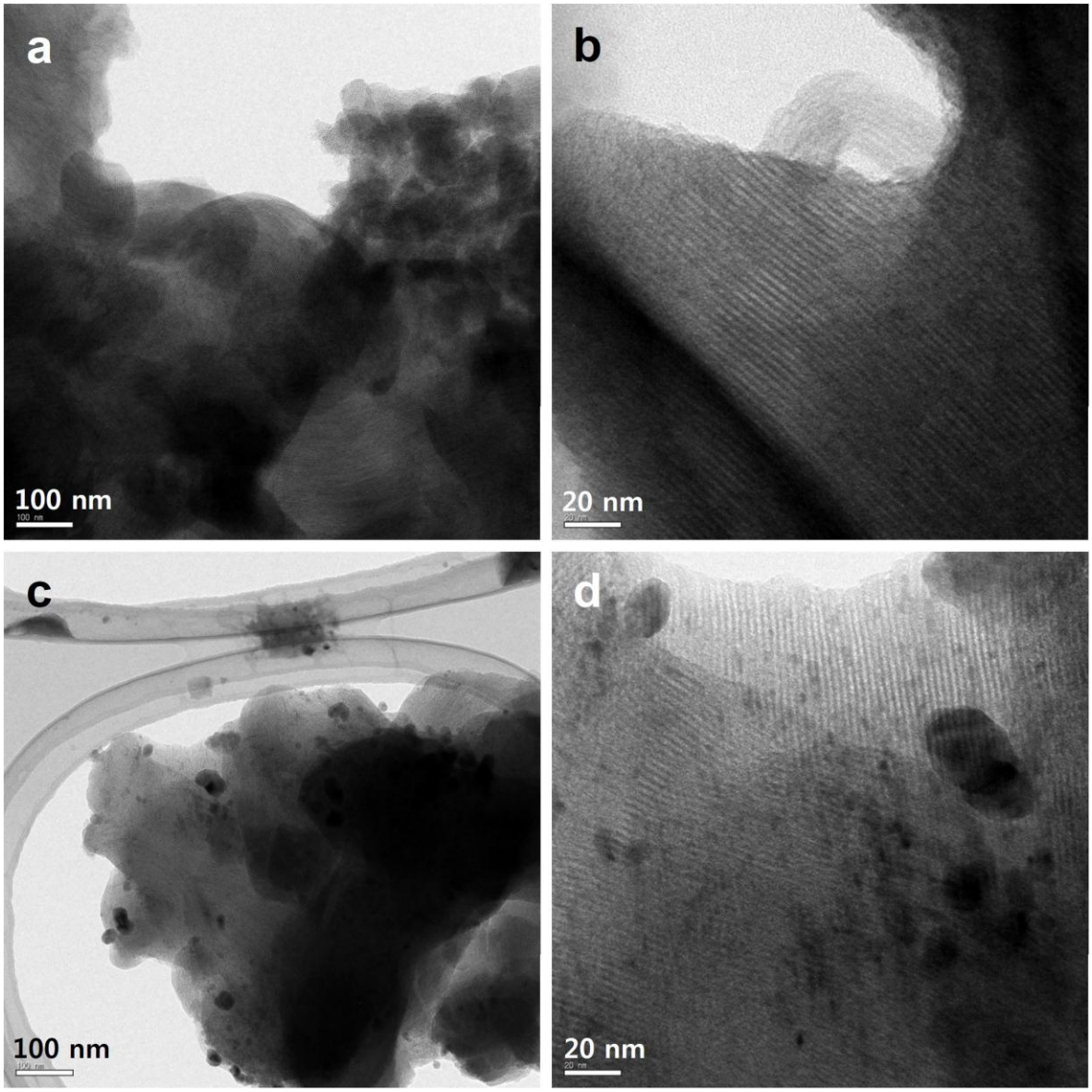

Fig. S2 Transmission electron microscopic images of (a,b) Fe-Cu/MCM-41 and (c,d) Cu/MCM-41.

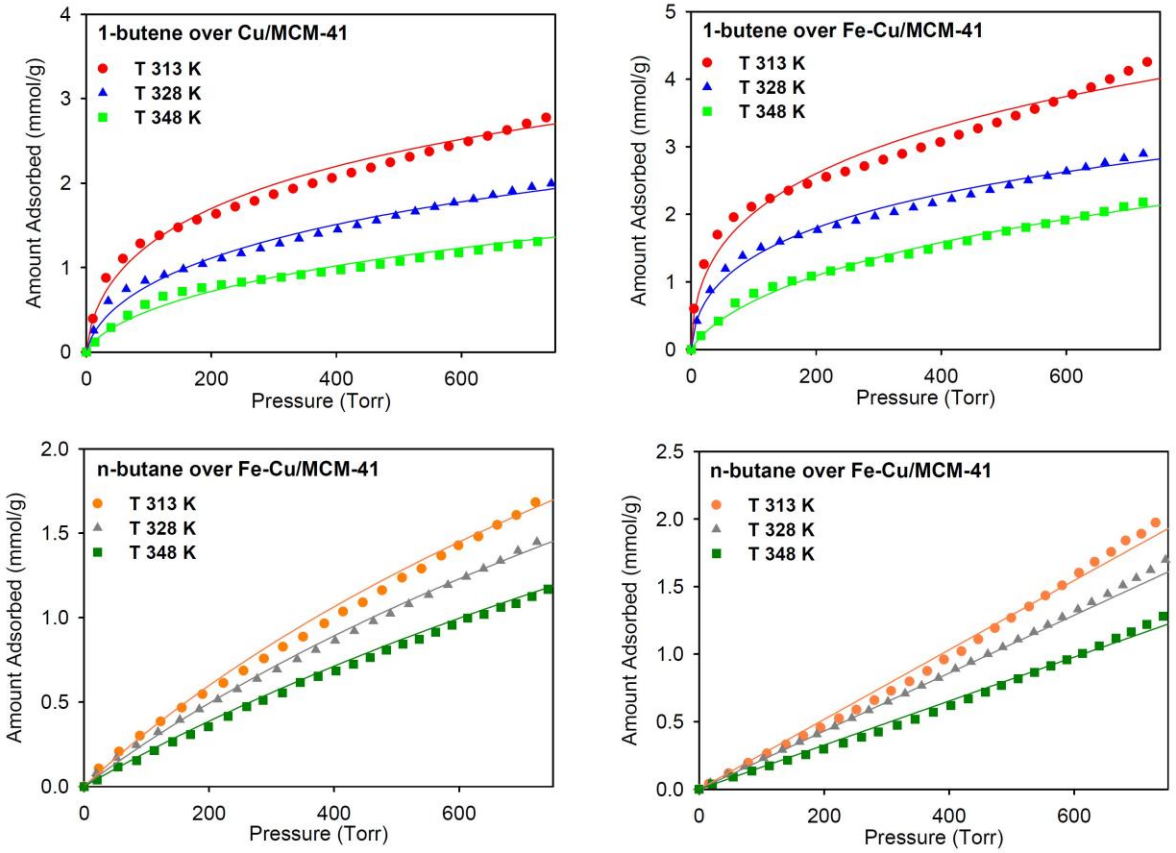

Fig. S3 Adsorption isotherms of 1-butene and *n*-butane over Fe-Cu/MCM-41 and Cu/MCM-41 at different temperatures (313 K, 328 K and 348 K).

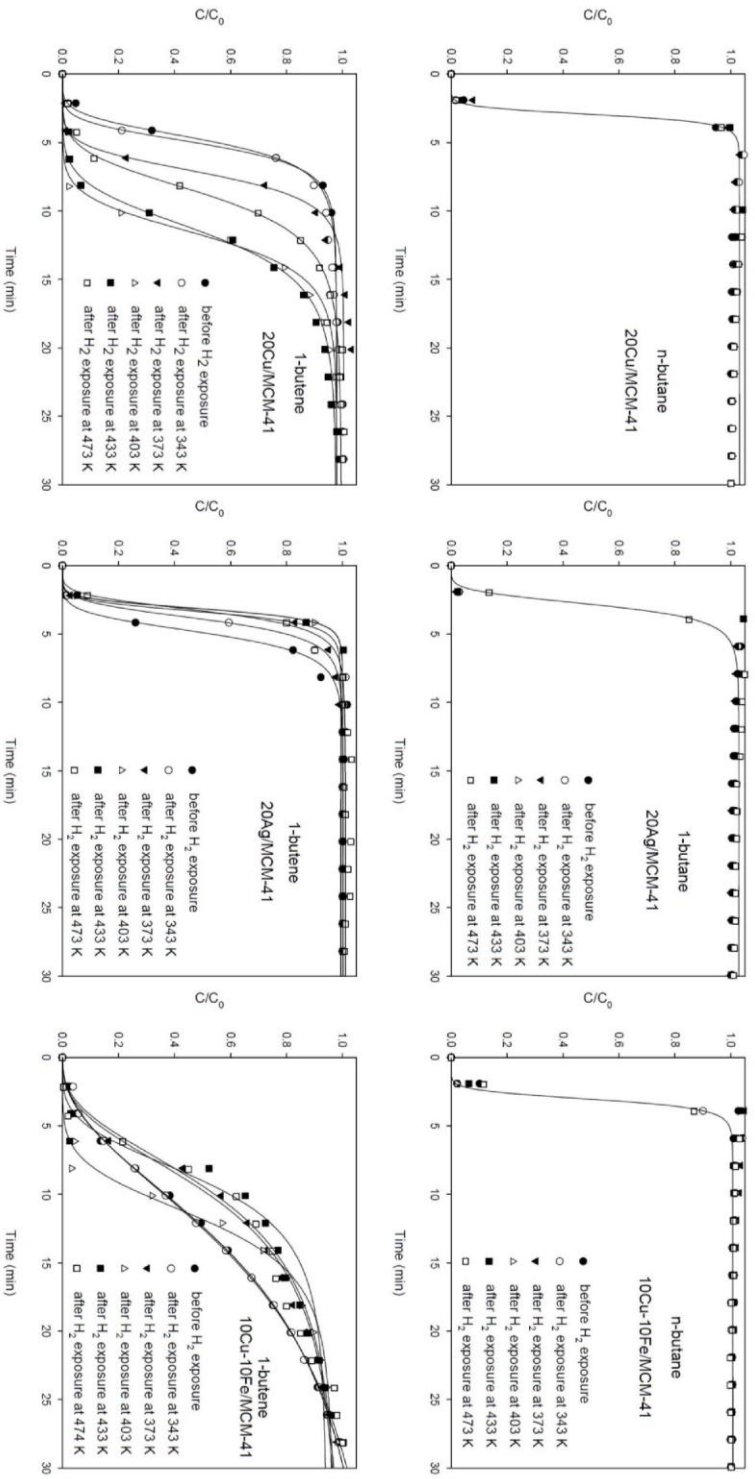

Fig. S4 Breakthrough curves of 1-butene and *n*-butane over Cu/MCM-41, Ag/MCM-41 and Fe-Cu/MCM-41 after H_2-exposure at different temperatures (343 K – 473 K).

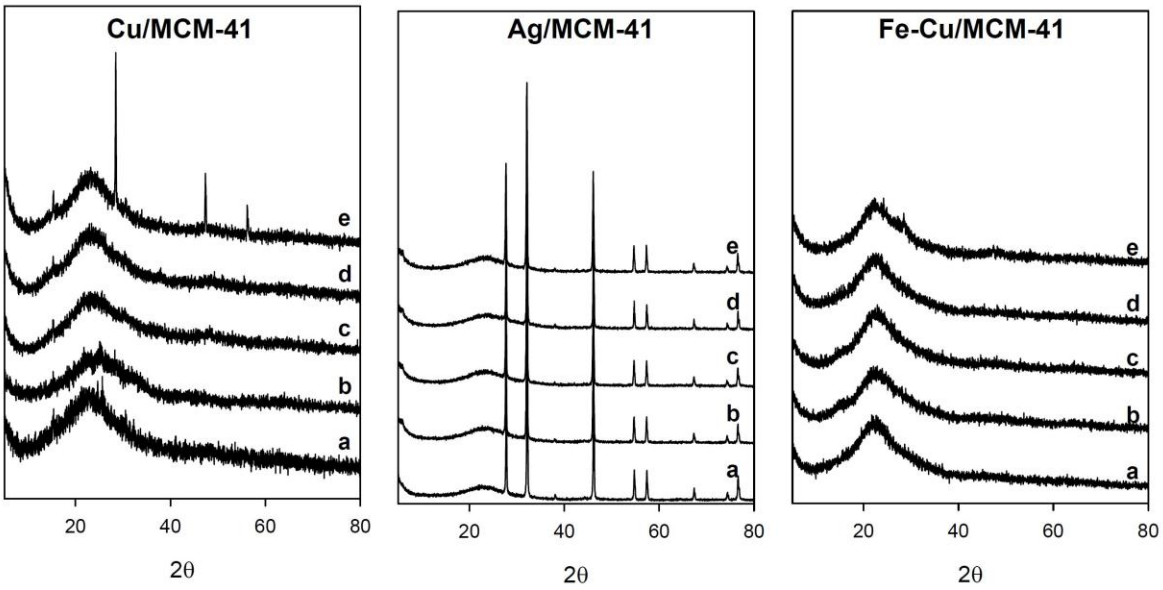

Fig. S5 X-ray diffraction patterns of Cu/MCM-41, Ag/MCM-41 and Fe-Cu/MCM-41 after H_2-exposure at different temperatures: (a) 343 K, (b) 373 K, (c) 403 K, (d) 433 K, and (e) 473 K