

Supporting Information

Superior Ion Release Properties and Antibacterial Efficacy of Nanostructured Zeolites Ion-Exchanged with Zinc, Copper, and Iron

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Table S1. Amount of zinc, copper, and iron ions released from zeolites (1.0 mg/mL) in saline (0.9%, NaCl; w/v) for different contact times.

Sample	Metal ion content ^a (mmol/g)	Ion release amount (mmol/g); Release extent (%) ^a		
		3 min	1 h	2 h
Zn-mZeo	1.38 (1)	0.58 (3); 42.2 (21)	0.68 (2); 49.5 (17)	0.69 (2); 50.3 (9)
Zn-nZeo	1.12 (3)	0.70 (3); 62.7 (26)	0.81 (3); 72.4 (29)	0.82 (2); 73.3 (27)
Cu-mZeo	1.77 (2)	0.16 (2); 8.80 (89)	0.23 (1); 12.7 (4)	0.22 (1); 12.3 (3)
Cu-nZeo	1.30 (2)	0.41 (1); 31.4 (12)	0.47 (1); 36.3 (12)	0.46 (2); 35.6 (13)
Fe-mZeo	1.32 (1)	0.00 (0); 0.1 (0)	0.00 (0); 0.0 (0)	0.00 (0); 0.0 (0)
Fe-nZeo	0.934 (4)	0.00 (6); 0.1 (1)	0.00 (0); 0.2 (1)	0.00 (0); 0.3 (1)

^aStandard deviations are shown in parentheses.

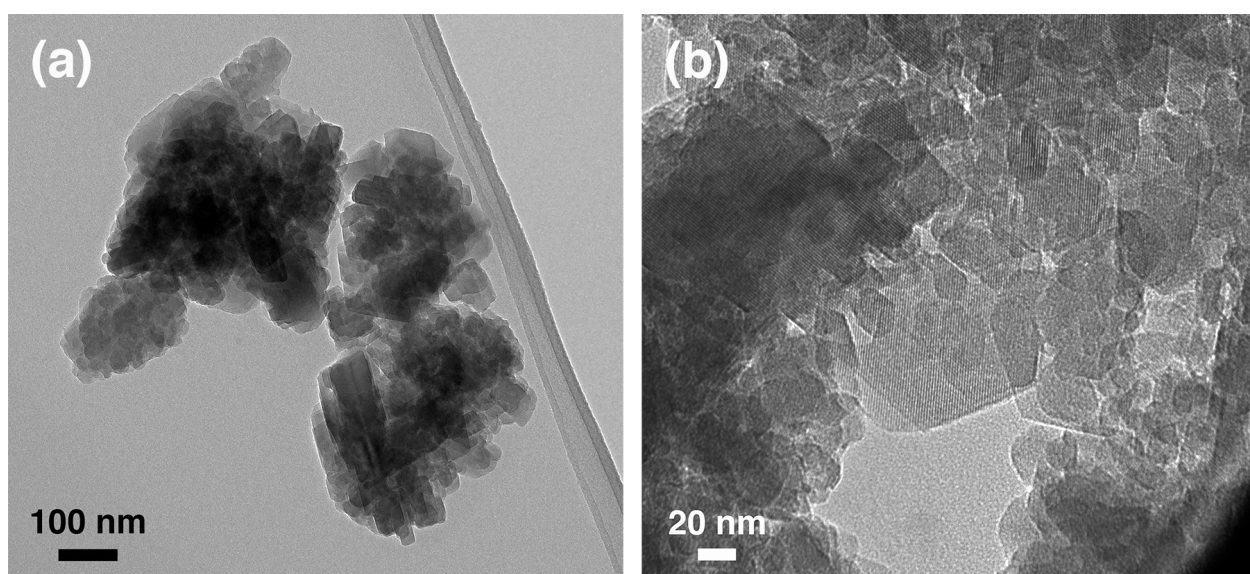


Fig. S1 Transmission electron microscopy images of parent nanostructured zeolites (Na-nZeo) in (a) low and (b) high magnification ratios.

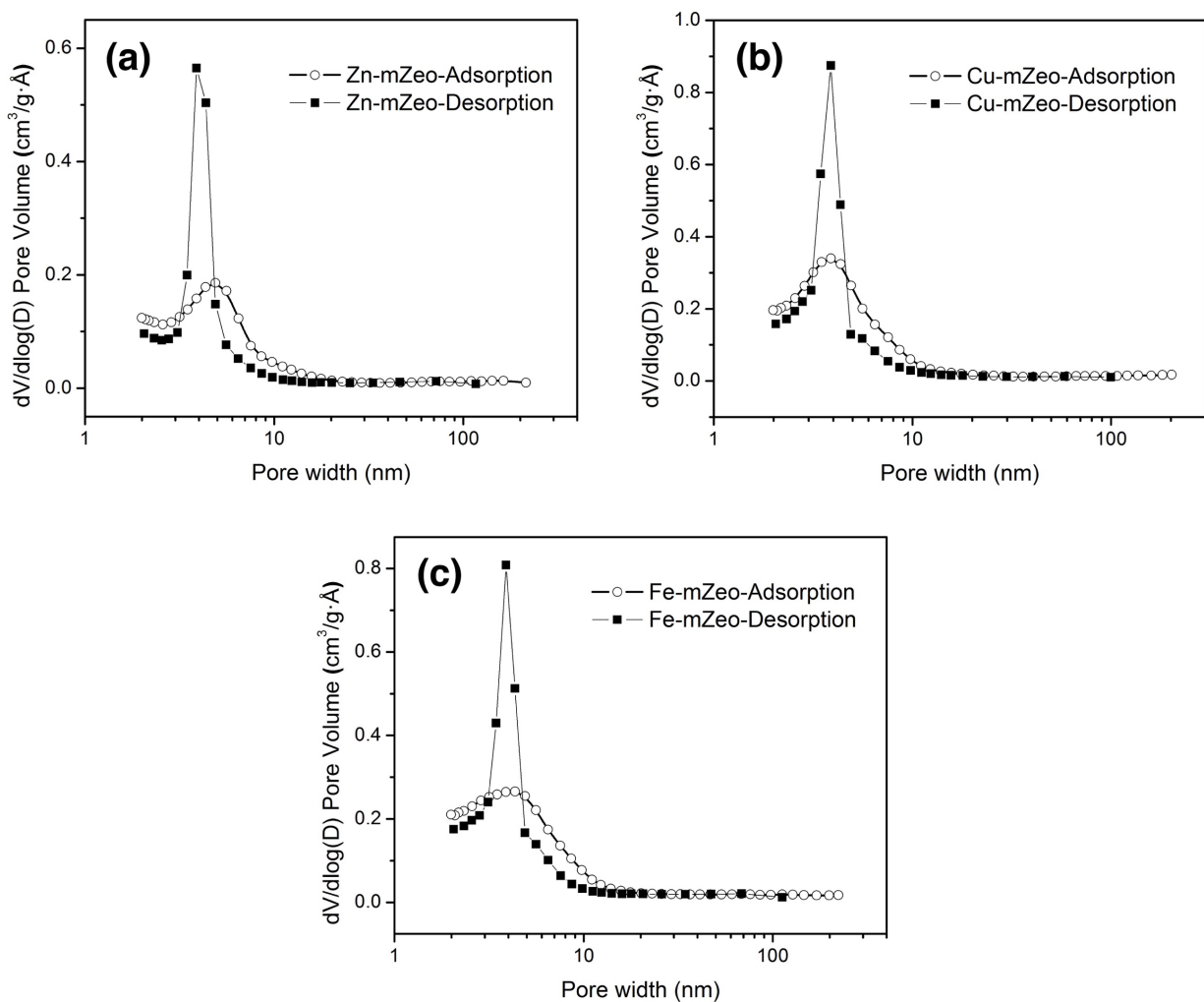


Fig. S2 The BJH pore width distributions of (a) Zn-mZeolite, (b) Cu-mZeolite, and (c) Fe-mZeolite from both adsorption and desorption branches. The distribution curves from the desorption branch showed a very sharp peak, which is an artificial peak caused by the spontaneous evaporation of metastable pore liquid (due to the tensile strength effect).¹

References

1. S. Lowell, J. E. Shields, M. A. Thomas and M. Thommes, *Characterization of porous solids and powders: surface area, pore size and density*, Springer Science & Business Media, 2012.