Electronic Supplementary Material (ESI) for New Journal of Chemistry.

The Structural and Surface Modification of Zeolitic Imidazolate Framework Towards Reduction of Encapsulated CO_2

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Fig. S1. XRD patterns of ZIF-8 (CH, NH_3-25, 100, 200).

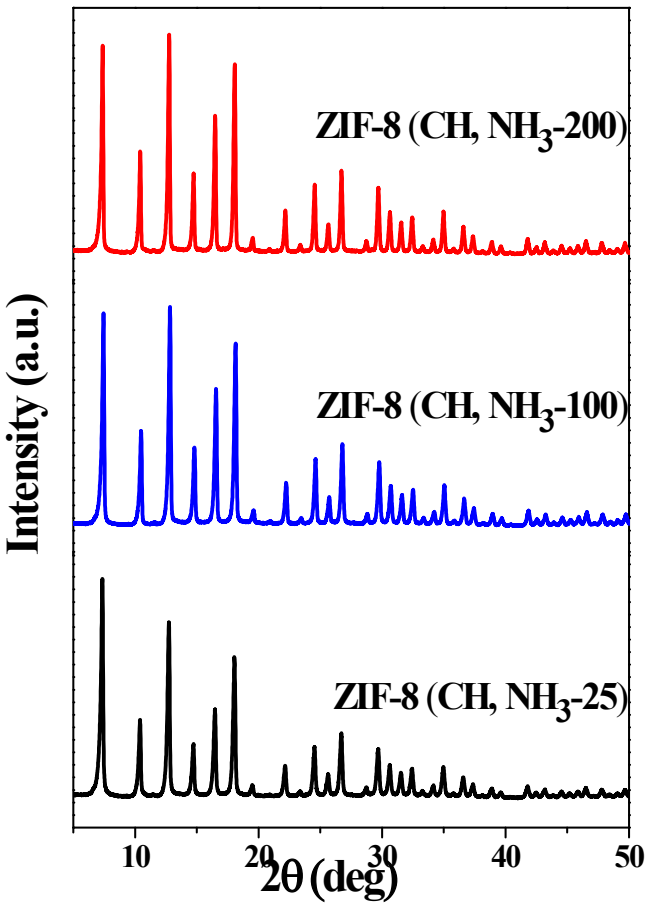


Fig. S2. In *situ* temperature XRD patterns of (a) ZIF-8 (MH), and (b) ZIF-8 (CH, NH_3-200) (# indicates (100) (002) (101) (102) planes of ZnO).

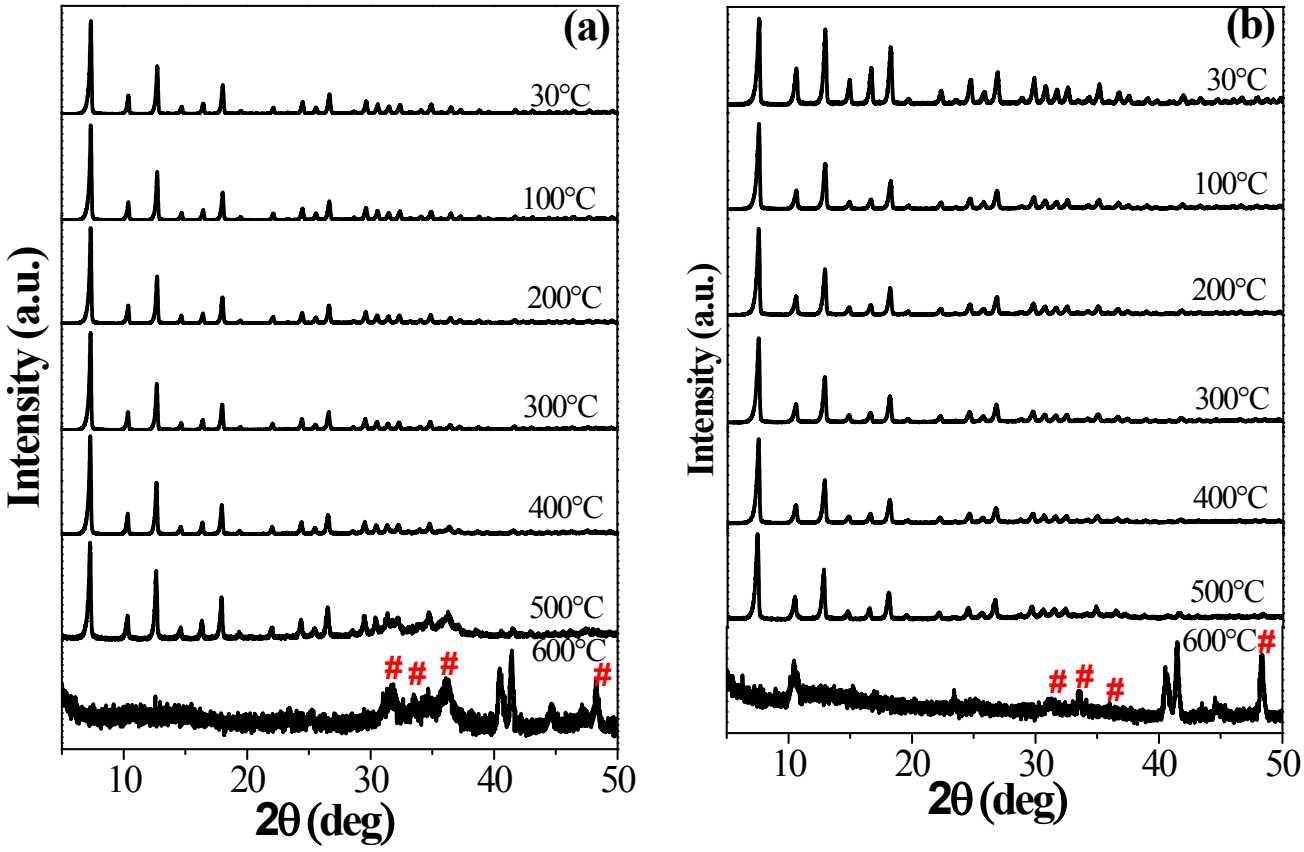


Fig. S3. (a) The LCMS data showing presence of NH_4OH in water after TGA of ZIF-8 (CH, NH_3-200), (b) FTIR of ZIF-8 (MH), calcined and as-prepared ZIF-8 (CH, NH_3-200).

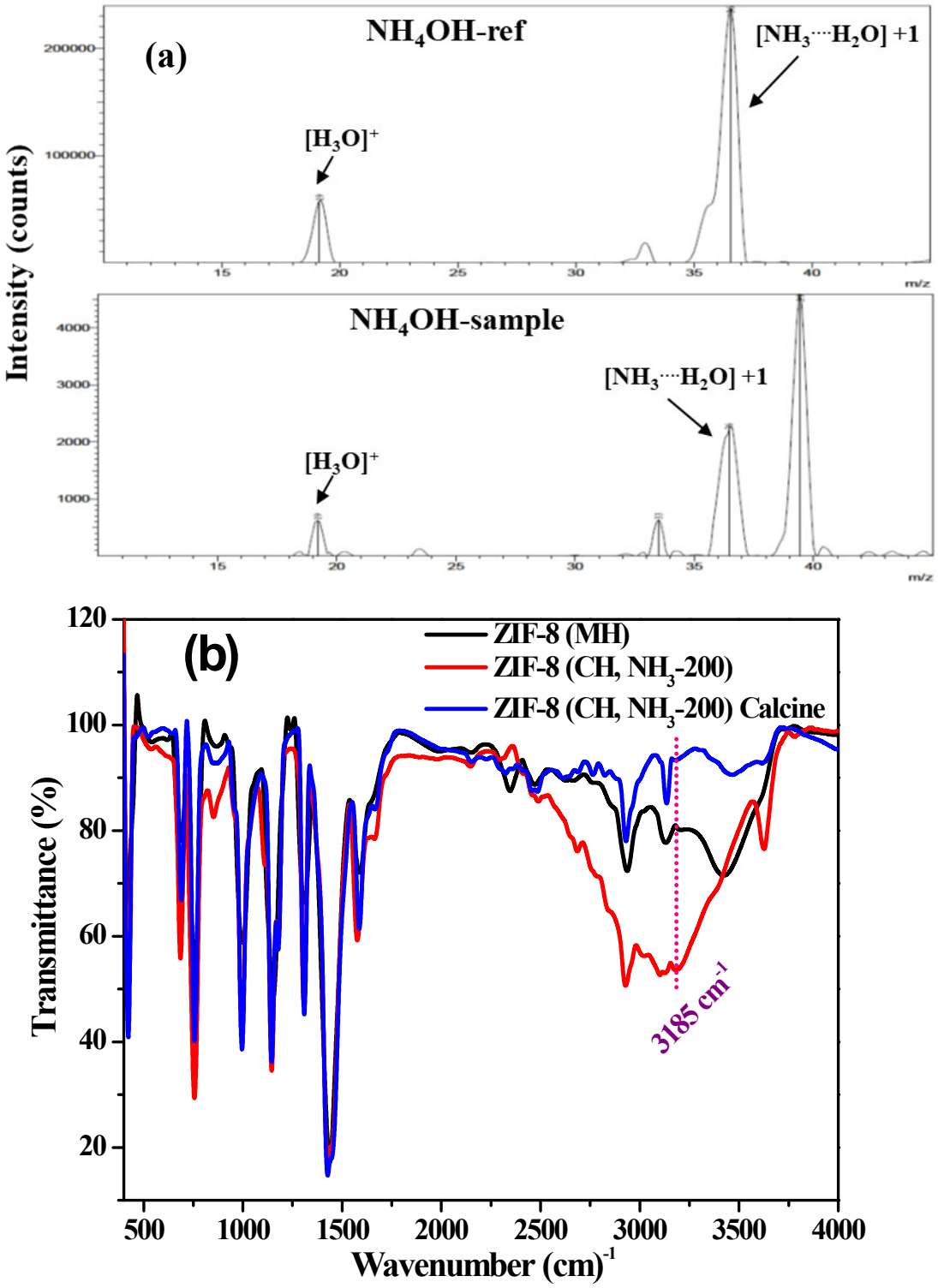


Fig. S4. The particle size distribution of (a) ZIF-8 (MH) and (b) ZIF-8 (CH, NH_3-200), and FE-SEM images of (c,d,e) ZIF-8 (CH, NH_3-25), and (f,g,h) ZIF-8 (CH, NH_3-100).

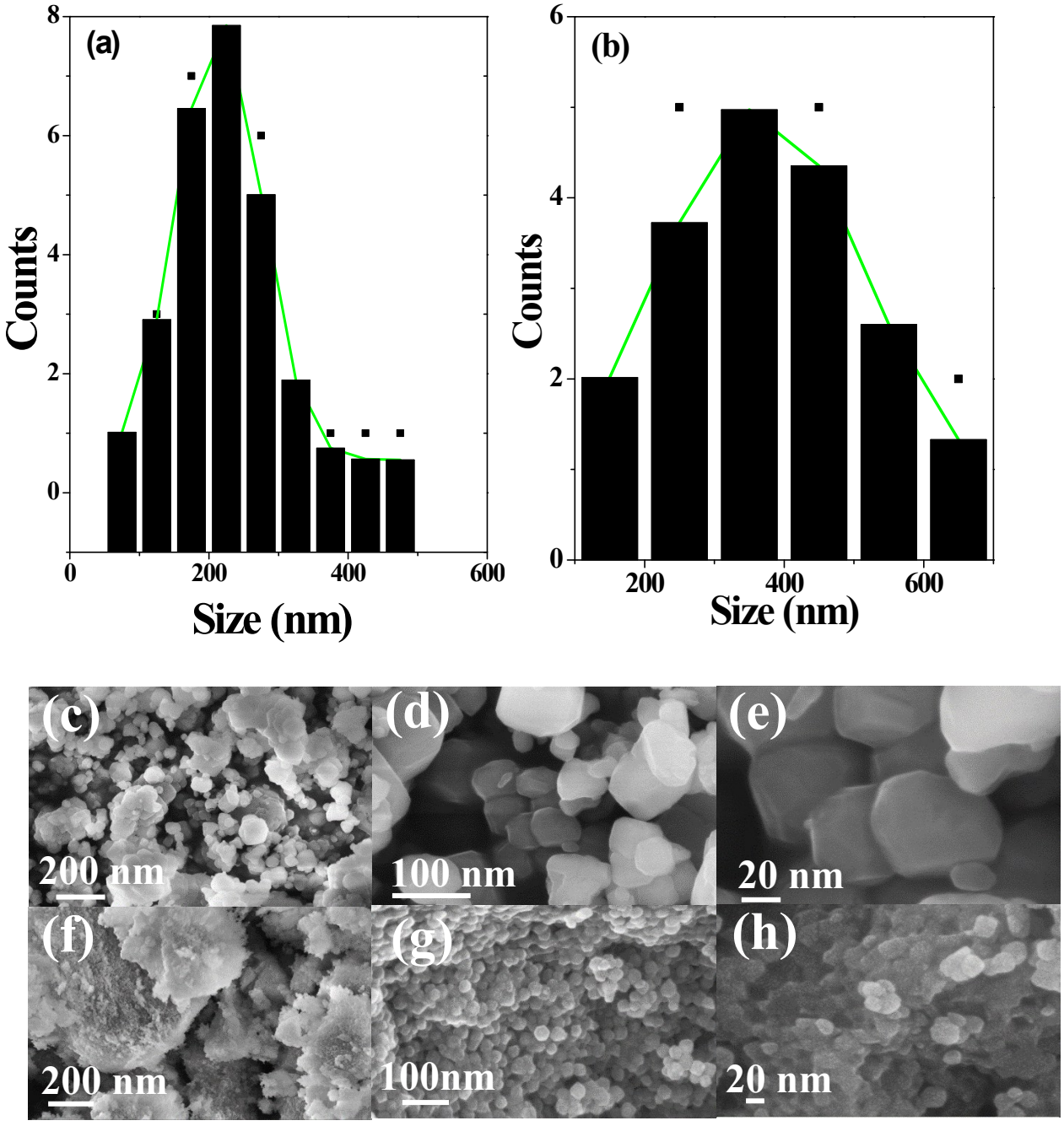
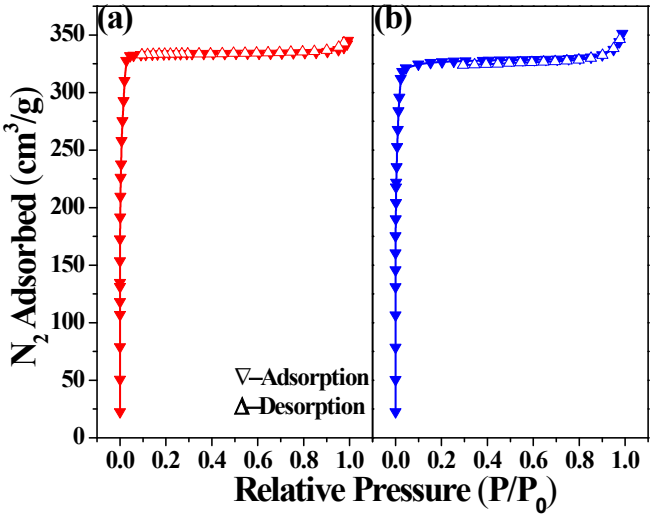
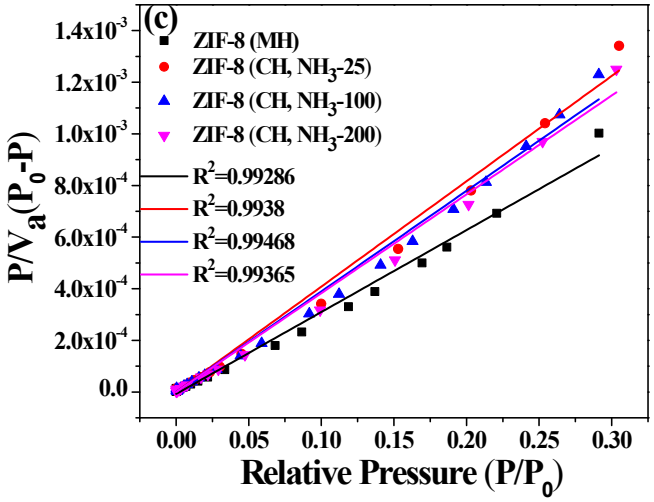
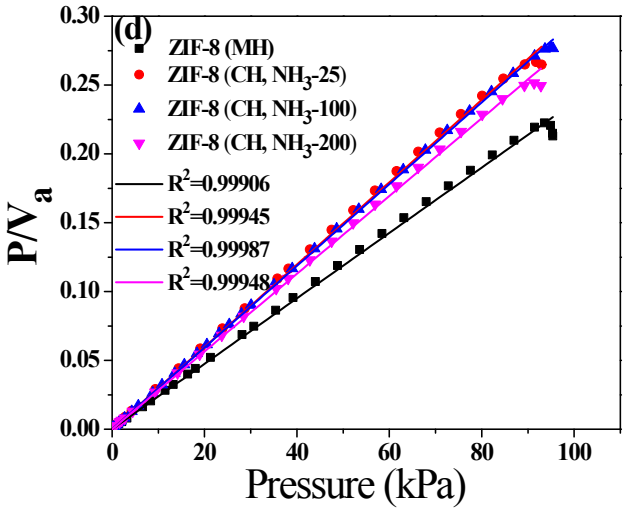
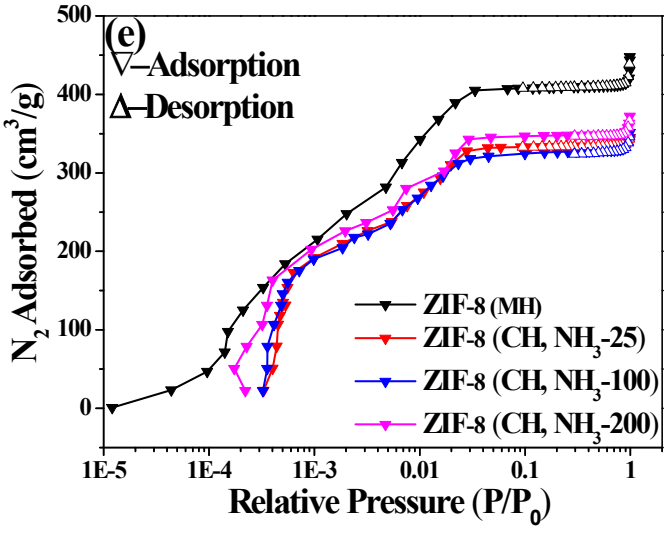


Fig. S5. N_2 adsorption-desorption of (a) ZIF-8 (CH, NH_3-25), and (b) ZIF-8 (CH, NH_3-100), (c) BET fitting, (d) Langmuir fitting, (e) adsorption – desorption profile in log scale, and (f) pore size distribution of the synthesized catalysts.









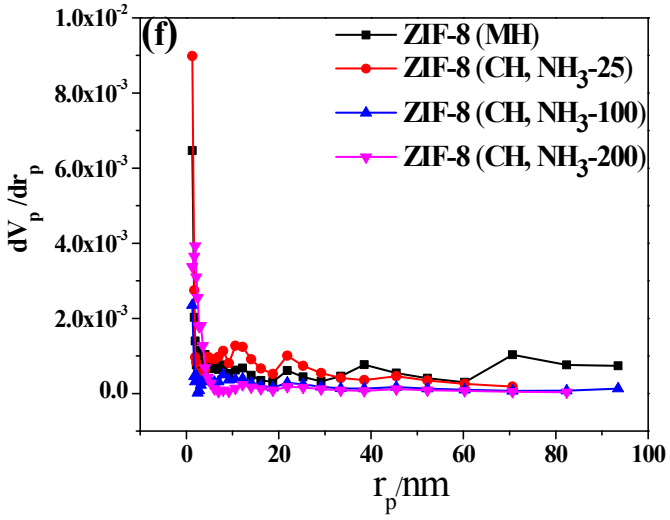
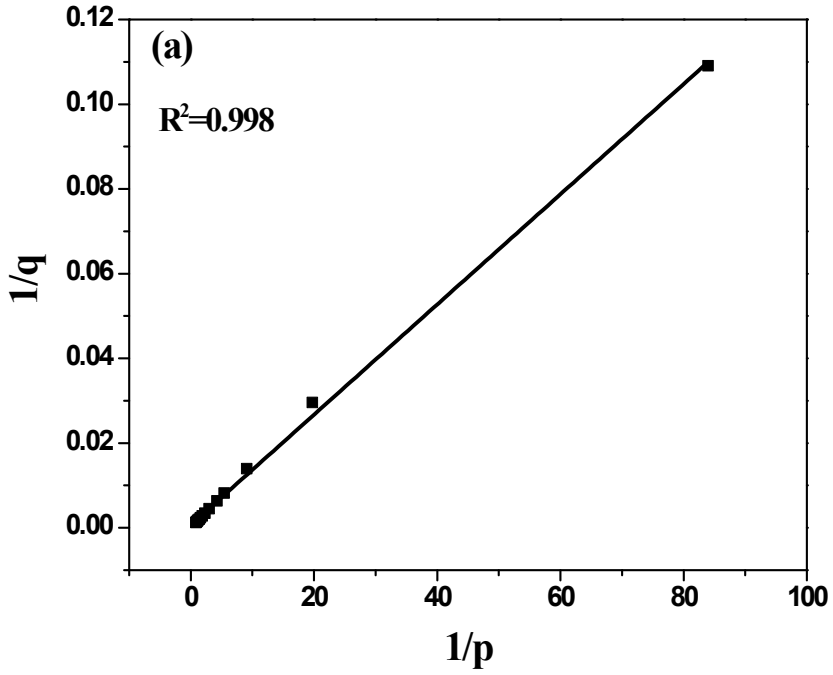


Fig. S6. Langmuir fitting of experimentally observed CO_2 adsorption-desorption profile of (a) ZIF-8 (MH) and (b) ZIF-8 (CH, NH_3-200).



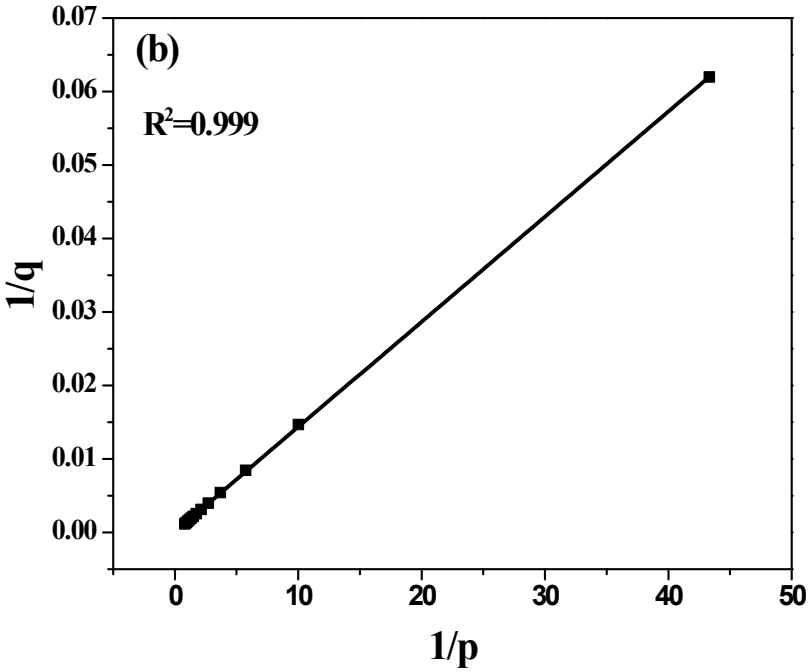


Fig. S7. Variation scan rate study of (a,b) ZIF-8 (MH), (c,d) ZIF-8 (CH, NH_3-200).

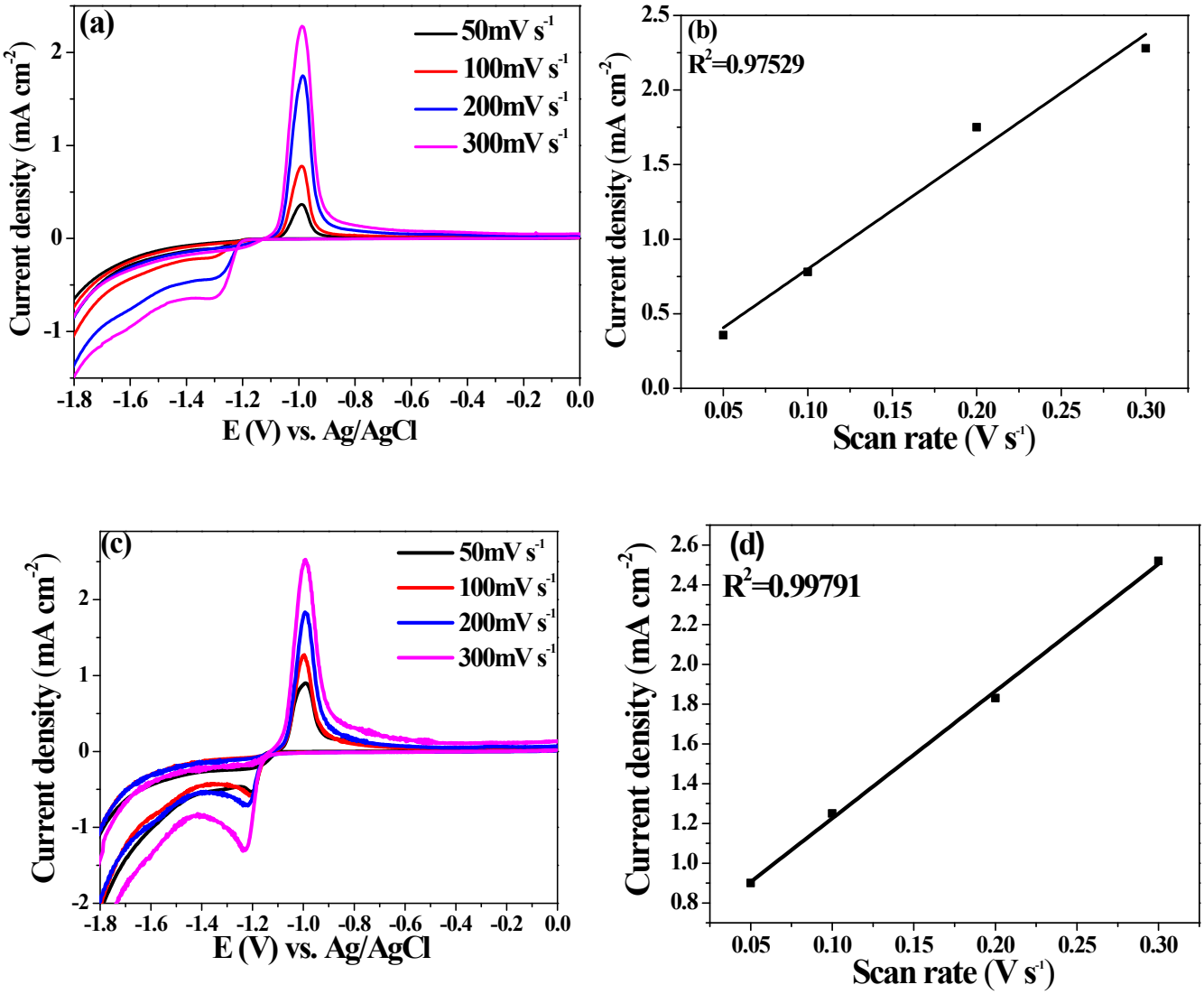


Table. S1.

Material	BET surface area ($m^2 g^{-1}$)	Langmuir surface area ($m^2 g^{-1}$)	Total pore volume($cm^3 g^{-1}$)	Mean pore size(Å)
ZIF-8 (CH, NH_3-25)	1287.5	1448.3	0.543	16.87
ZIF-8 (CH, NH_3-100)	1288.7	1458	0.530	16.40