Supporting Information for:

Thermodynamic Complexity of Carbon Capture in Alkylamine-Functionalized Metal-Organic Frameworks

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S1. Preparation of mmen-Mg₂(dobpdc)

mmen-Mg₂(dobpdc) sample was prepared at UC Berkeley according to the method used by McDonald *et al.* ¹ The synthesis and activation details were described elsewhere¹. Post activation sample was kept in a nitrogen-filled glovebox to keep away from air.



Figure S1. Triplicated differential enthalpy of CO_2 adsorption curves at **a**) 298 (blue), **b**) 323 (purple) and **c**) 348 K (red) on the same mmen-Mg₂(dobpdc) sample. **d**) differential enthalpies of CO_2 adsorption at 298 K on the mmen-Mg₂(dobpdc) sample with major chemisorption on the plateau range inhibited (green).

References

1 T. M. McDonald, W. R. Lee, J. A. Mason, B. M. Wiers, C. S. Hong and J. R. Long, *J Am Chem Soc*, 2012, **134**, 7056-7065.