Supplementary Information

Highly selective separation of C_2H_2/CO_2 and C_2H_2/C_2H_4 in an N-rich cage-based microporous metal-organic framework

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Figure S1 to S13:

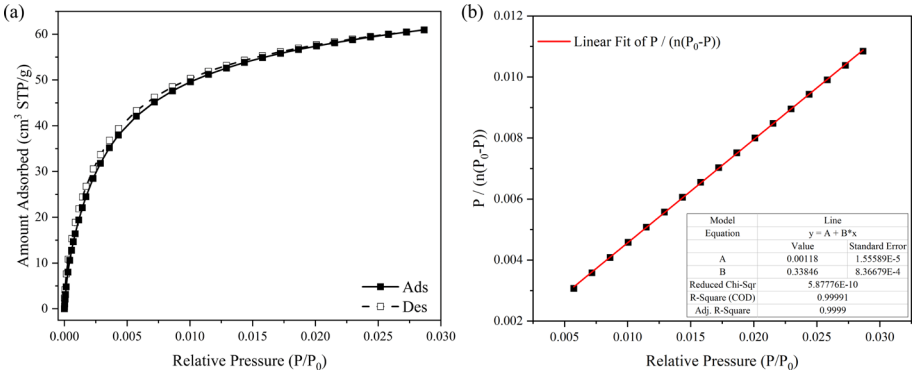

Figure S1. (a) CO_2 sorption isotherms for Cd-TZ at 273 K. (b) BET plot for CO_2 adsorption on Cd-TZ at 273 K.

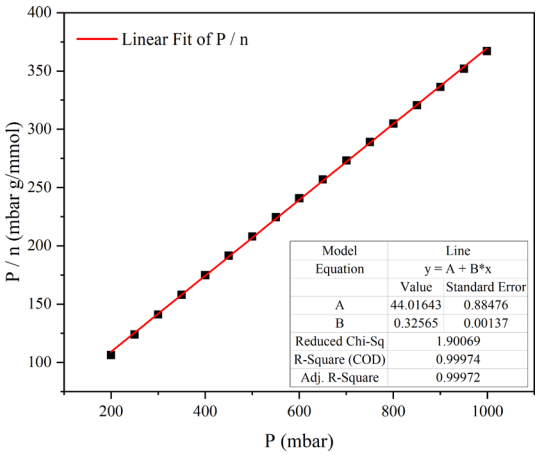

Figure S2. Langmuir plot for CO_2 adsorption on Cd-TZ at 273 K.

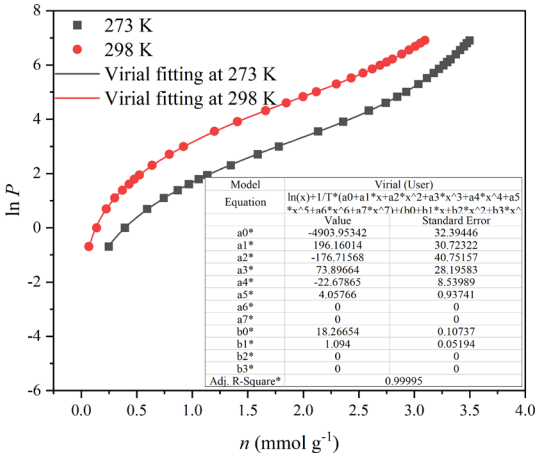

Figure S3. C_2H_2 isotherms for Cd-TZ global fitting using Virial method.

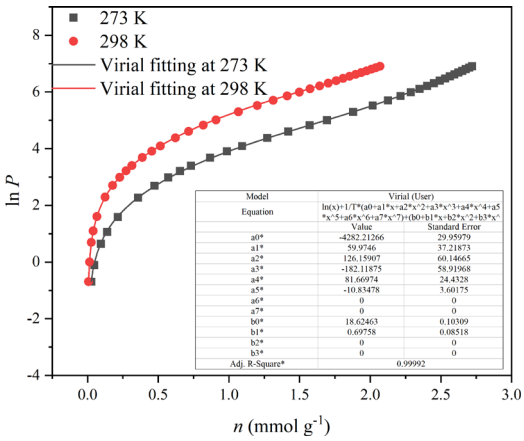

Figure S4. CO_2 isotherms for Cd-TZ global fitting using Virial method.

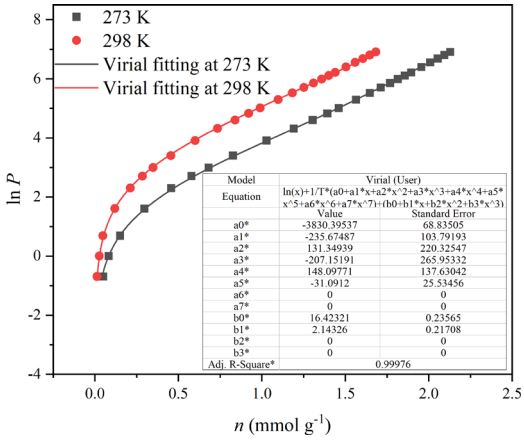

Figure S5. C_2H_4 isotherms for Cd-TZ global fitting using Virial method.

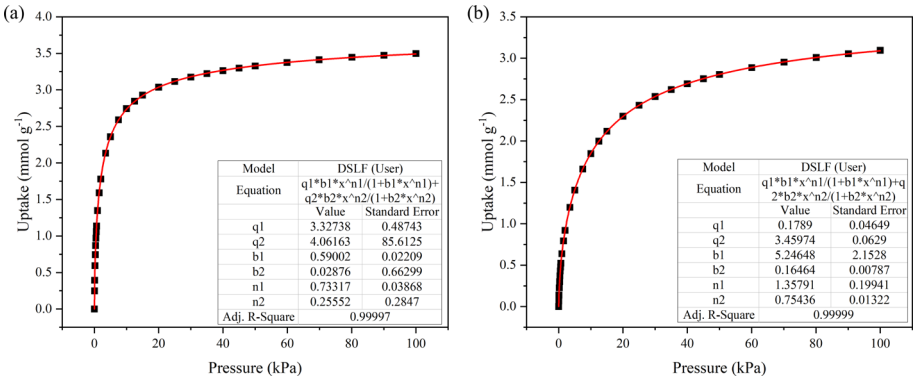

Figure S6. DSLF fitting of the C_2H_2 sorption data at 273 K (a) and 298 K (b) for Cd-TZ.

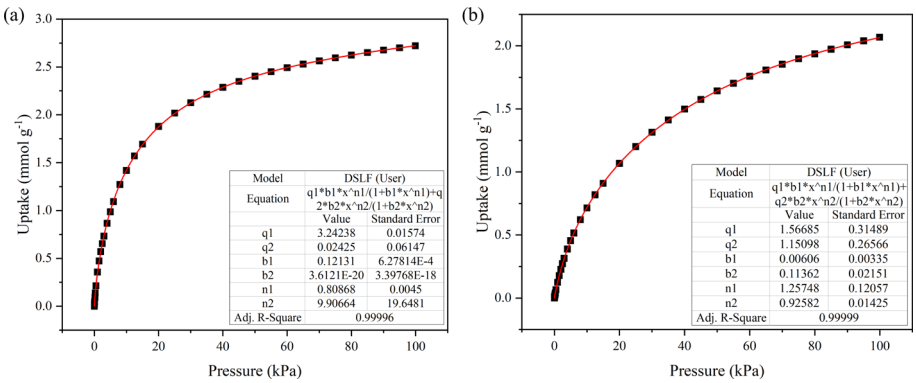

Figure S7. DSLF fitting of the CO_2 sorption data at 273 K (a) and 298 K (b) for Cd-TZ.

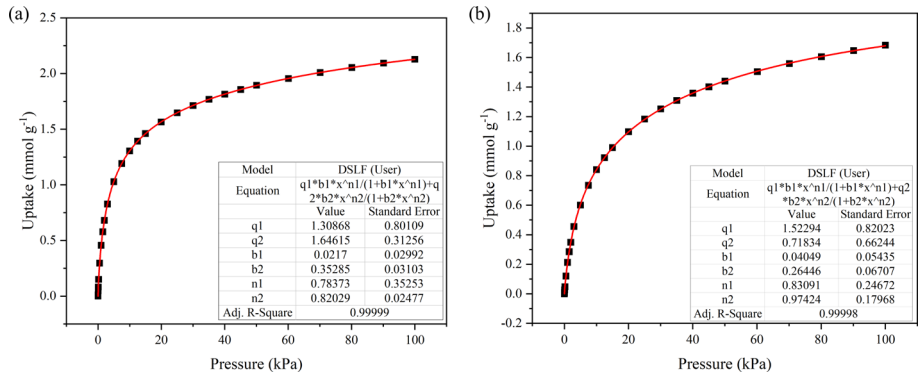

Figure S8. DSLF fitting of the C2H4 sorption data at 273 K (a) and 298 K (b) for Cd-TZ.

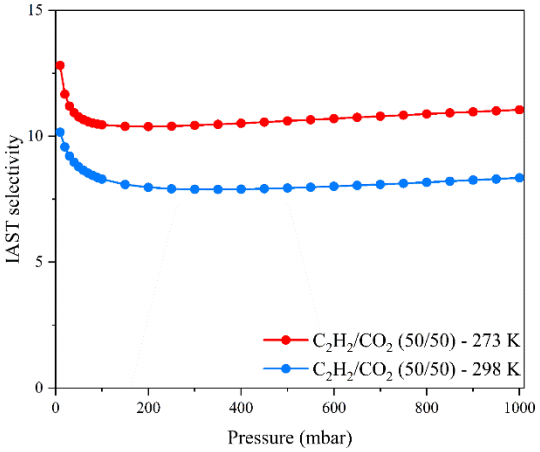

Figure S9. IAST selectivities for C_2H_2/CO_2 with compositions of 50/50 at 298 K and 273 K.

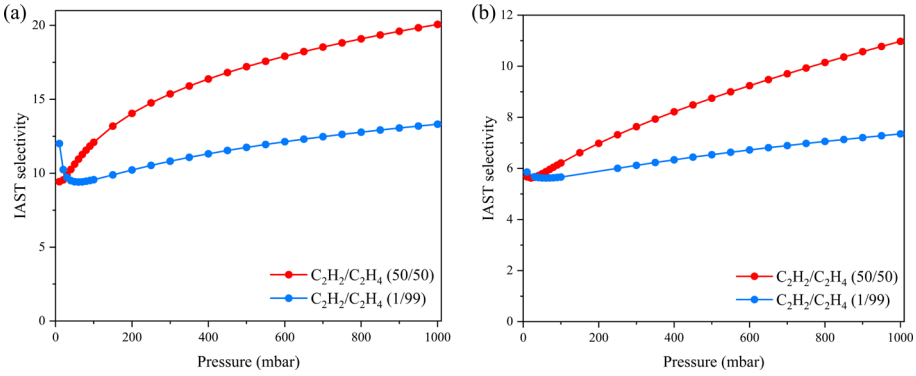

Figure S10. IAST selectivities for C_2H_2/C_2H_4 with compositions of 50/50 and 1/99 at (a) 273 K and (b) 298 K

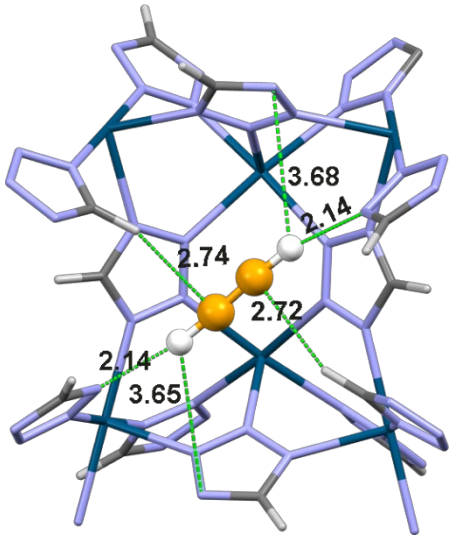

Figure S11. The interaction between Cd-TZ and C_2H_2 in the preferential adsorption sites. Cd, C, N and H in Cd-TZ are represented by dark blue, bright grey, lavender and white, respectively; C and H in C_2H_2 is represented by bright yellow and white, respectively. The labeled distance is measured in Å.

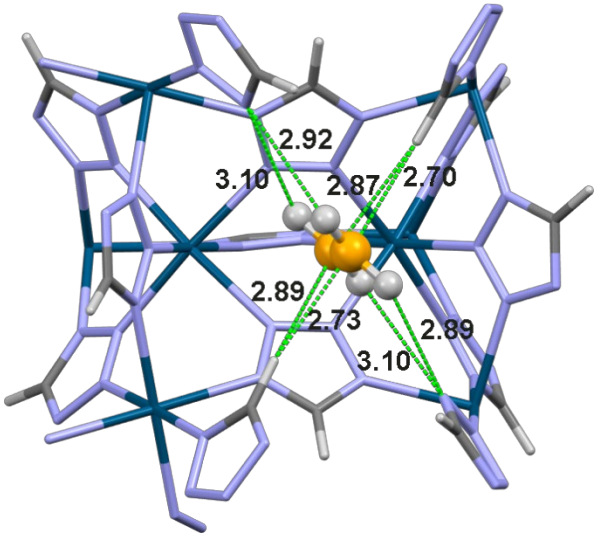

Figure S12. The interaction between Cd-TZ and C_2H_4 in the preferential adsorption sites. Cd, C, N and H in Cd-TZ are represented by dark blue, bright grey, lavender and white, respectively; C and H in C_2H_4 is represented by bright yellow and white, respectively. The labeled distance is measured in Å.

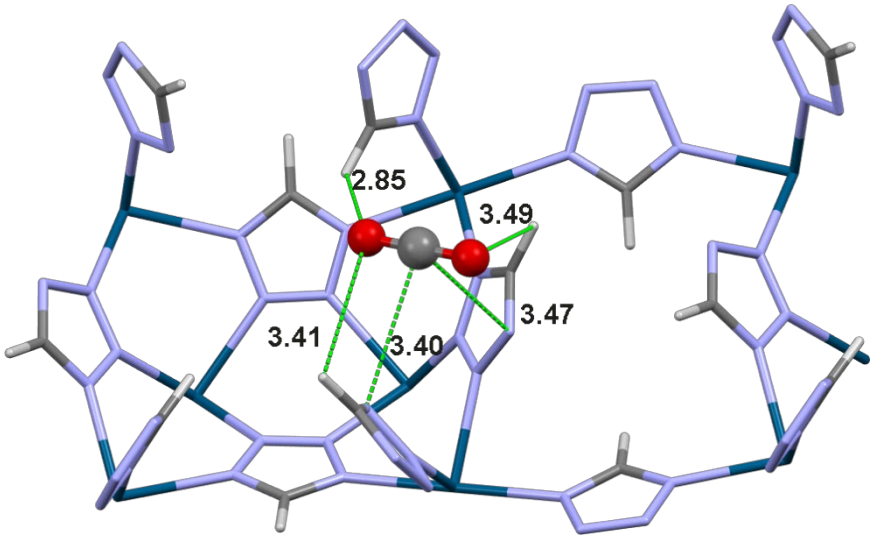

Figure S13. The interaction between Cd-TZ and CO_2 in the preferential adsorption sites. Cd, C, N, O, H in Cd-TZ and CO_2 are represented by dark blue, bright grey, lavender, red and white, respectively. The labeled distance is measured in Å.