Supplementary Information

High and Selective CO$_2$ adsorption by a phthalocyanine nanoporous polymer

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Langmuir model fits and Van’t Hoff Plots
Langmuir model fits

Figure S1. Langmuir model fits for CO$_2$ (top), CH$_4$ (middle), and N$_2$ adsorption (bottom) of CPP at 273K.
Henry’s constant by the product of Langmuir constants, that is K = a*b. K1 (273K) and K2 (298K), ln K vs 1/T (below). Van’t Hoff equation is used to get Q_st at zero coverage.

Figure S2. Van’t Hoff plots of isosteric heat of adsorption for CH₄ (top) and CO₂ (bottom).

Calculation of isosteric heat of adsorption

The adsorption enthalpy at zero coverage was calculated from Henry’s constant using the Van’t Hoff equation as

\[ \ln K = -\frac{\Delta H}{RT} + \frac{\Delta S}{R} \]

K is the Henry’s constant, T is the temperature, plotting ln K vs. 1000/T
Surface Area Measurements

**Figure S3.** Cumulative (left) pore size distribution plot of CPP from the application of the NLDFT model to the N\textsubscript{2} isotherm. BET plot (right) for CPP calculated from isotherm data.