

Supplementary Information

High and Selective CO₂ adsorption by a phthalocyanine nanoporous polymer

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Langmuir model fits and Van't Hoff Plots

Langmuir model fits

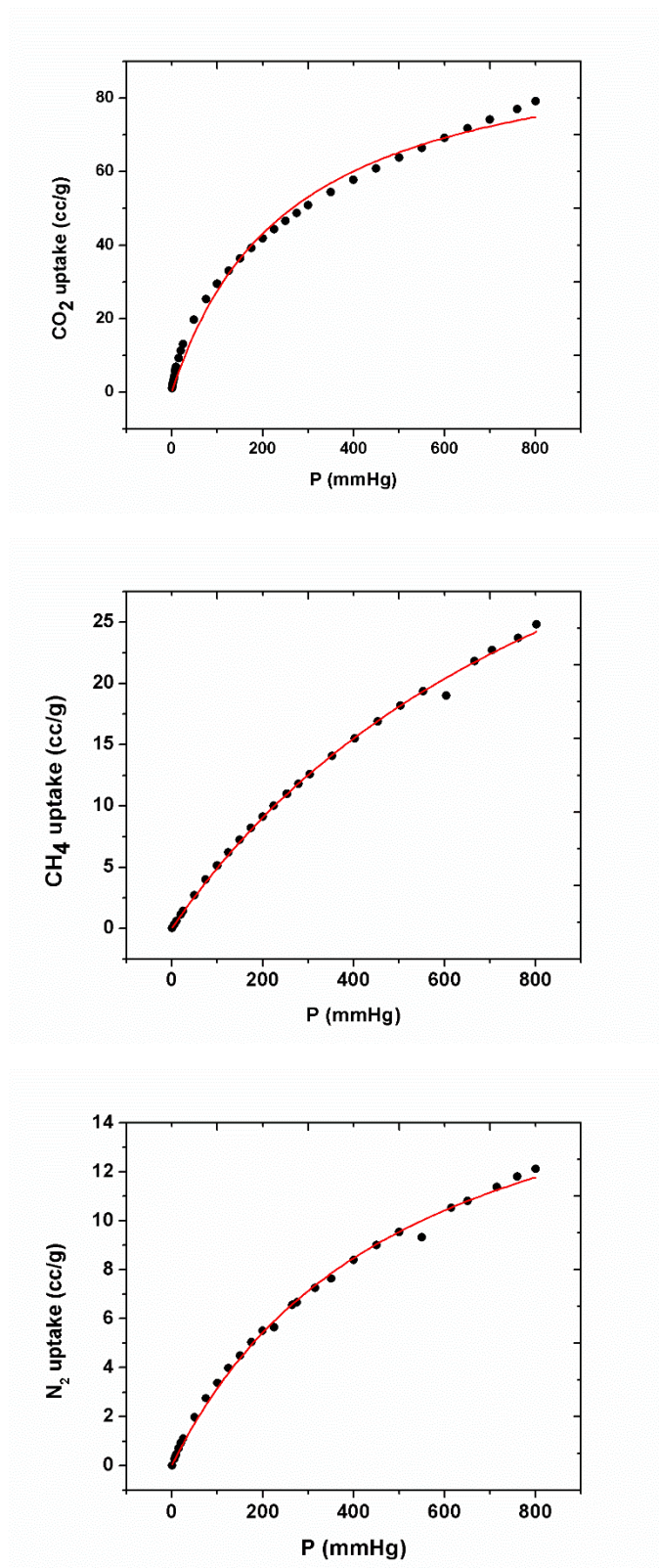


Figure S1. Langmuir model fits for CO₂ (top), CH₄ (middle), and N₂ adsorption (bottom) of CPP at 273K.

Henry's constant by the product of Langmuir constants, that is $K=a*b$. K_1 (273K) and K_2 (298K), $\ln K$ vs $1/T$ (below). Van't Hoff equation is used to get Q_{st} at zero coverage.

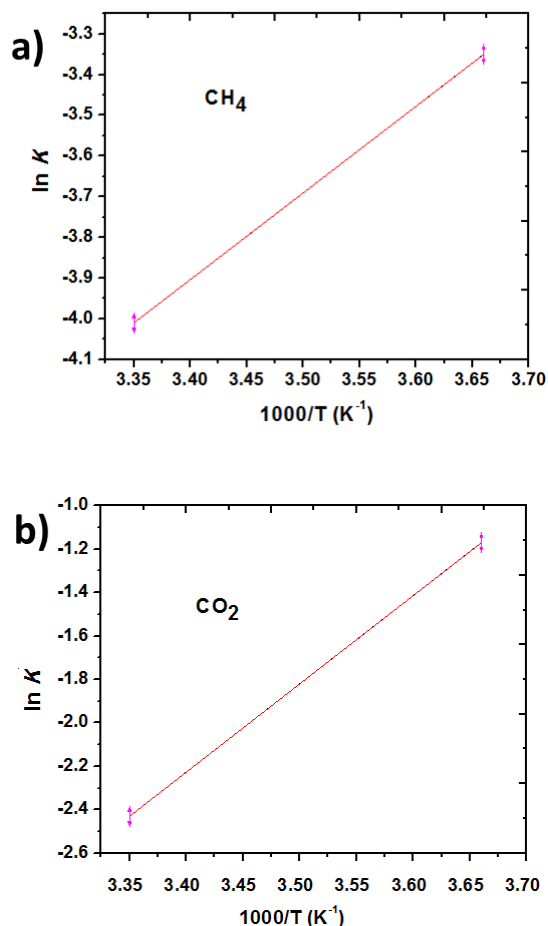


Figure S2. Van't Hoff plots of isosteric heat of adsorption for CH_4 (top) and CO_2 (bottom).

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

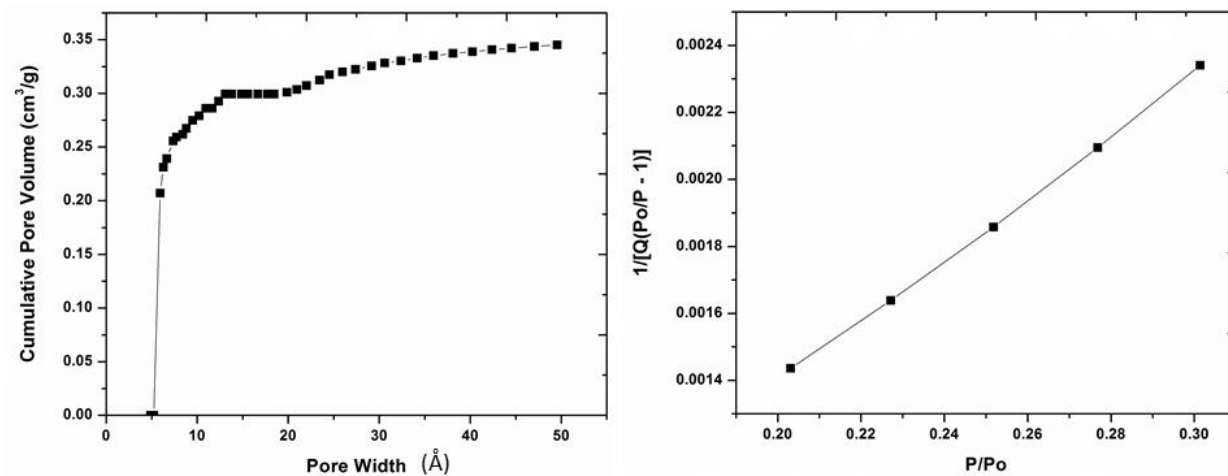


Figure S3. Cumulative (left) pore size distribution plot of CPP from the application of the NLDFT model to the N₂ isotherm. BET plot (right) for CPP calculated from isotherm data.