

## Supporting information

### Adsorption properties of CH<sub>4</sub> and CO<sub>2</sub> in quartz nanopores studied by molecular simulation

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Table S1. Parameters of the Langmuir isotherms model of pure CH<sub>4</sub> in nanopore

Temperature (K)	Langmuir constants		correlation coefficient (R <sup>2</sup> )
	$V_L$ (N/nanopore)	$b$ (1/kPa)	
313	75.12	$9.39 \times 10^{-5}$	0.9997
323	74.03	$8.44 \times 10^{-5}$	0.9998
333	73.88	$1.10 \times 10^{-4}$	0.9995
353	71.95	$7.05 \times 10^{-5}$	0.9994
373	69.16	$6.19 \times 10^{-5}$	0.9996

Table S2. Parameters of the Langmuir isotherms model of pure CO<sub>2</sub> in nanopore

Temperature (K)	Langmuir constants		correlation coefficient (R <sup>2</sup> )
	$V_L$ (N/nanopore)	$b$ (1/kPa)	
303	95.48	$8.25 \times 10^{-4}$	0.9989
313	94.87	$6.18 \times 10^{-4}$	0.9993
323	93.81	$4.86 \times 10^{-4}$	0.9988
333	91.61	$4.25 \times 10^{-4}$	0.9981
353	90.23	$2.87 \times 10^{-4}$	0.9994
373	89.55	$1.97 \times 10^{-4}$	0.9980