Paving the way for methane hydrate formation on metal-organic frameworks (MOFs)

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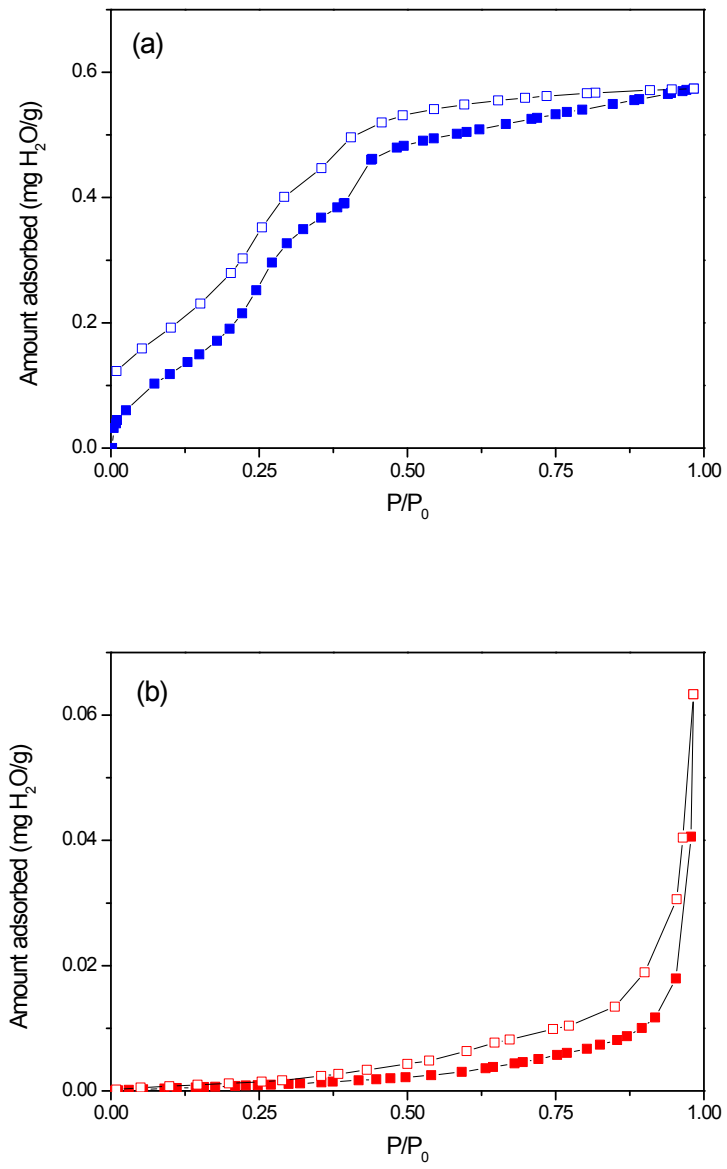

Figure S1. H_2O adsorption (full symbols)/desorption (empty symbols) isotherms at 25ºC for (a) MIL-100 (Fe) and (b) ZIF-8.

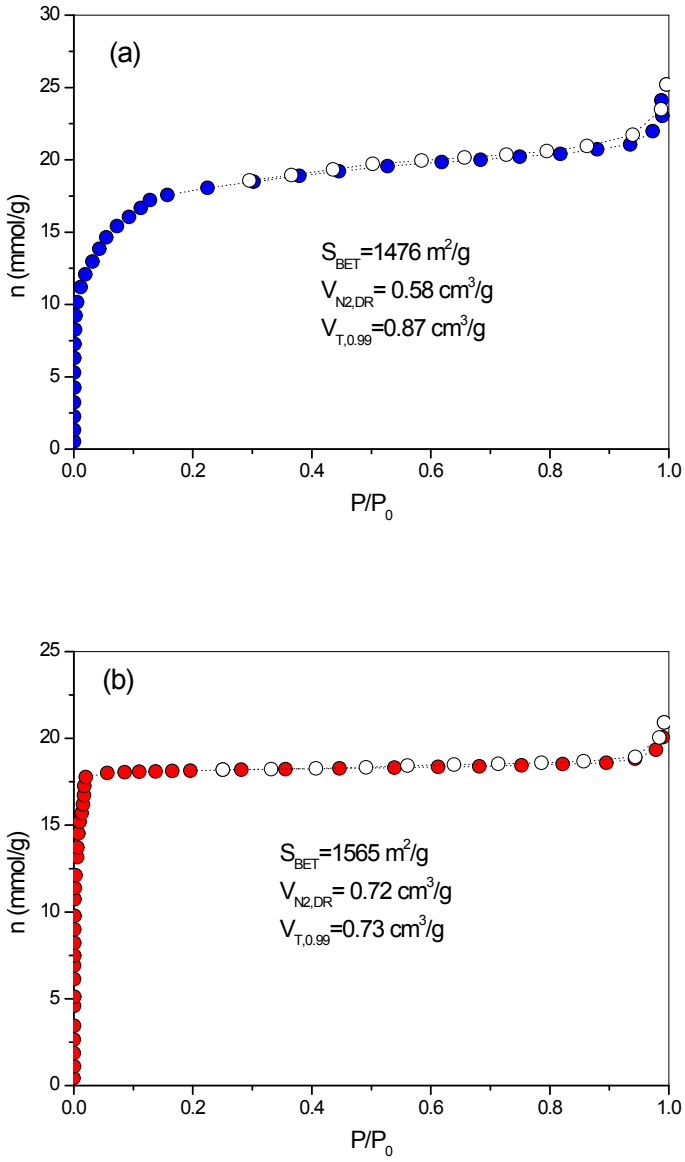

Figure S2. N_2 adsorption (full symbols)/desorption (empty symbols) isotherms at -196ºC for (a) MIL-100 (Fe) and (b) ZIF-8. Textural parameters calculated using the BET (S_{BET}) and the Dubinin-Radushkevitch (V_{DR}) equations are included.

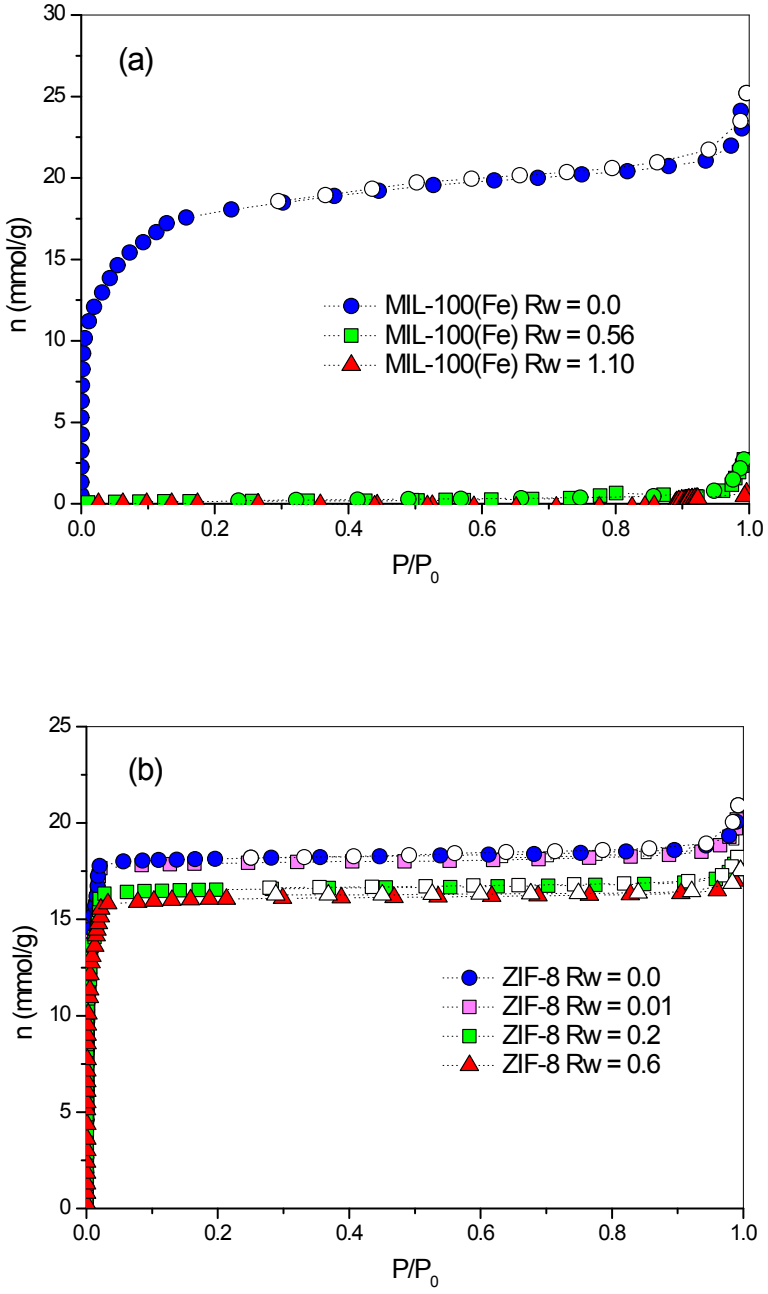

Figure S3. N_2 adsorption (full symbols)/desorption (empty symbols) isotherms at -196ºC for (a) MIL-100 (Fe) and (b) ZIF-8, before and after water pre-humidification.

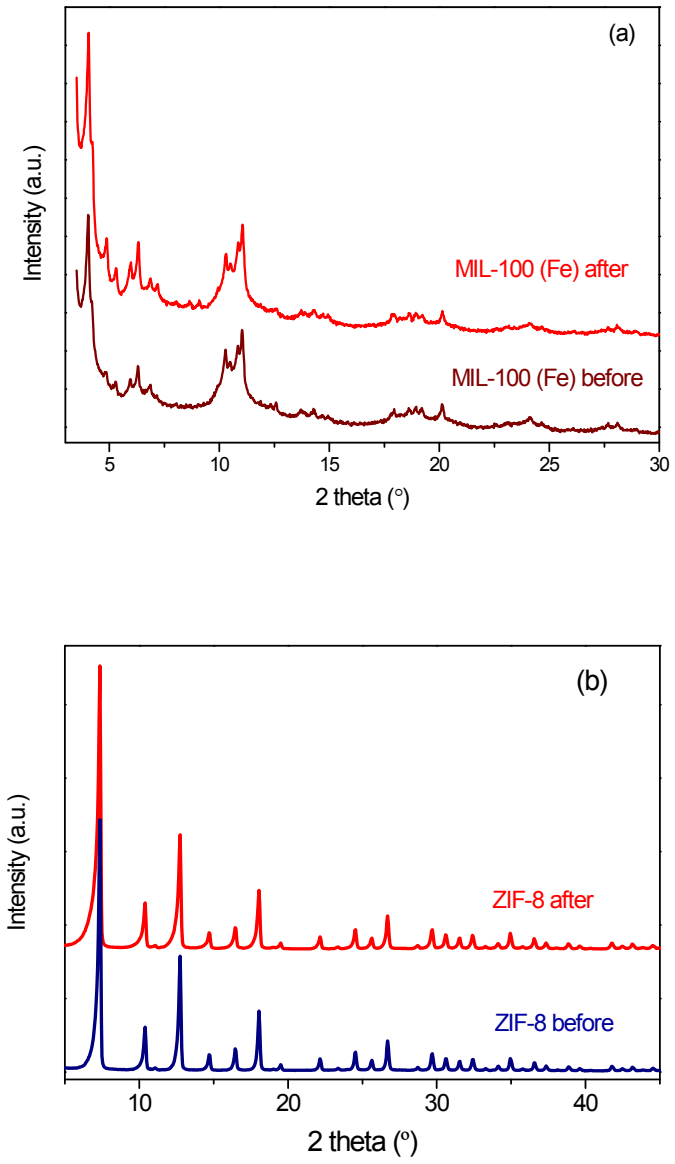

Figure S4. XRD pattern for (a) MIL-100(Fe) and (b) ZIF-8 before and after the formation of the methane hydrate.

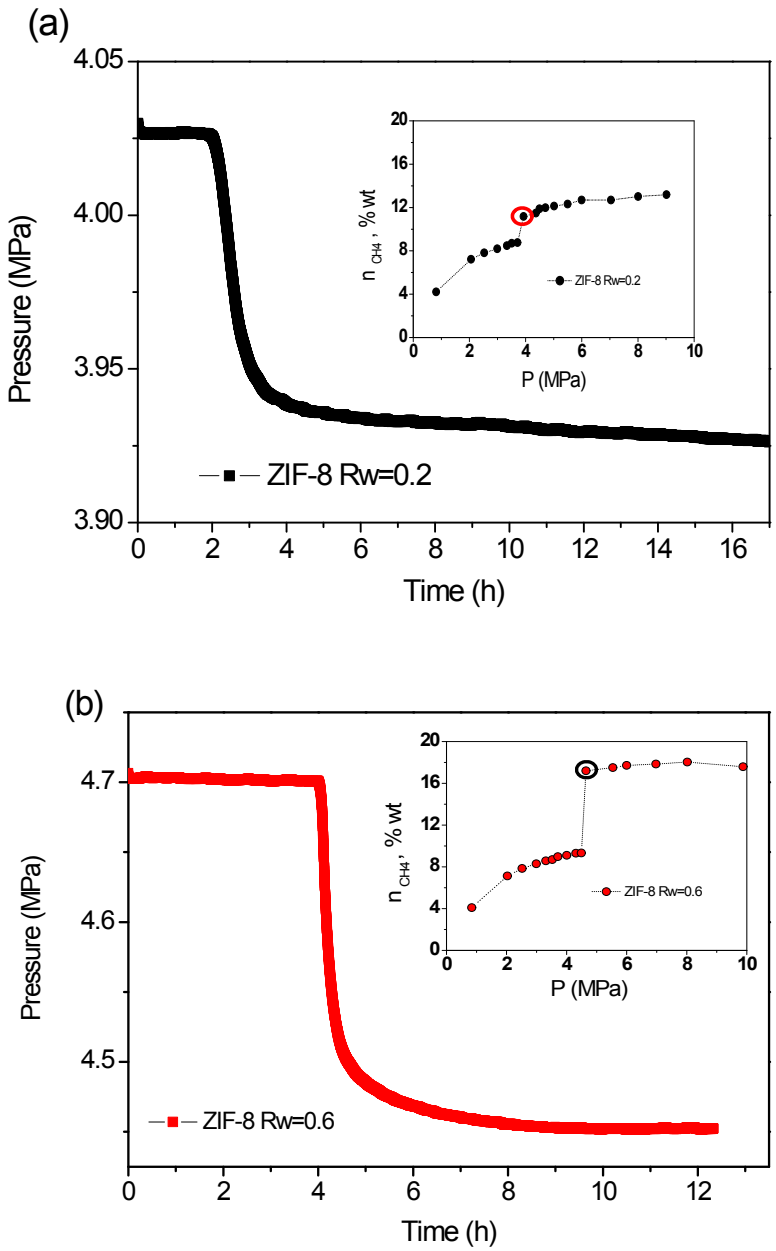

Figure S5. Adsorption kinetics for ZIF-8 after pre-humidification with (a) Rw=0.2 g/g and (b) Rw= 0.6 g/g, at the point of the adsorption isotherm associated with the jump (see inset).

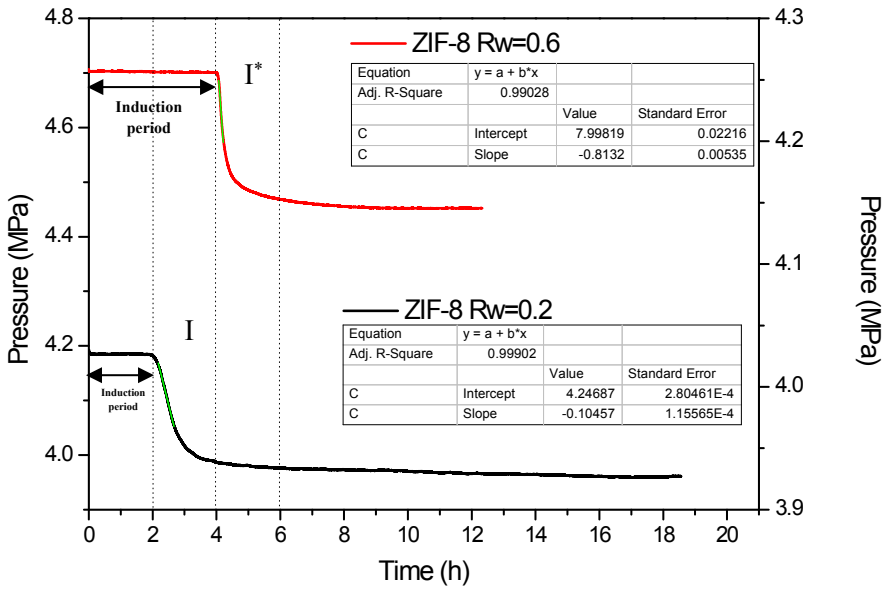

Figure S6. Comparative of the adsorption kinetics for ZIF-8 after pre-humidification with (a) Rw=0.2 g/g and (b) Rw= 0.6 g/g, at the point of the adsorption isotherm associated with the jump. The slope of the crystal growth zone (I and I*) is included in the inset table.