SUPPORTING INFORMATION

Experimental demonstration of dynamic temperature-dependent behaviour of UiO-66 metal-organic-framework: Compaction of hydroxylated and deydroxylated forms of UiO-66 for high pressure hydrogen storage

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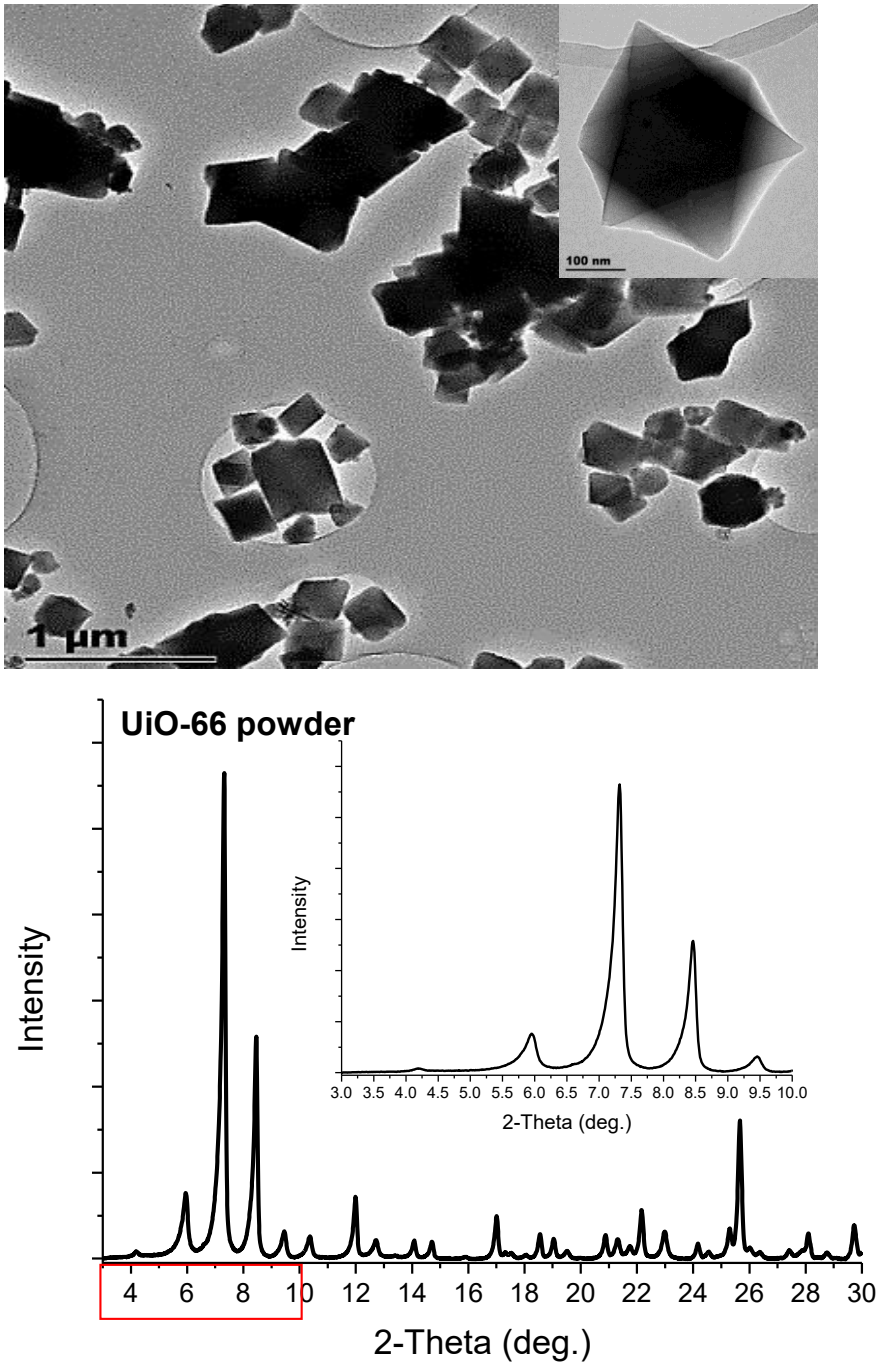

Figure S1: Transmission electron microscope (TEM) images and PXRD pattern for UiO-66 powder. The inset shows the region highlighted in red (2-Theta ~ 3 to 10º).

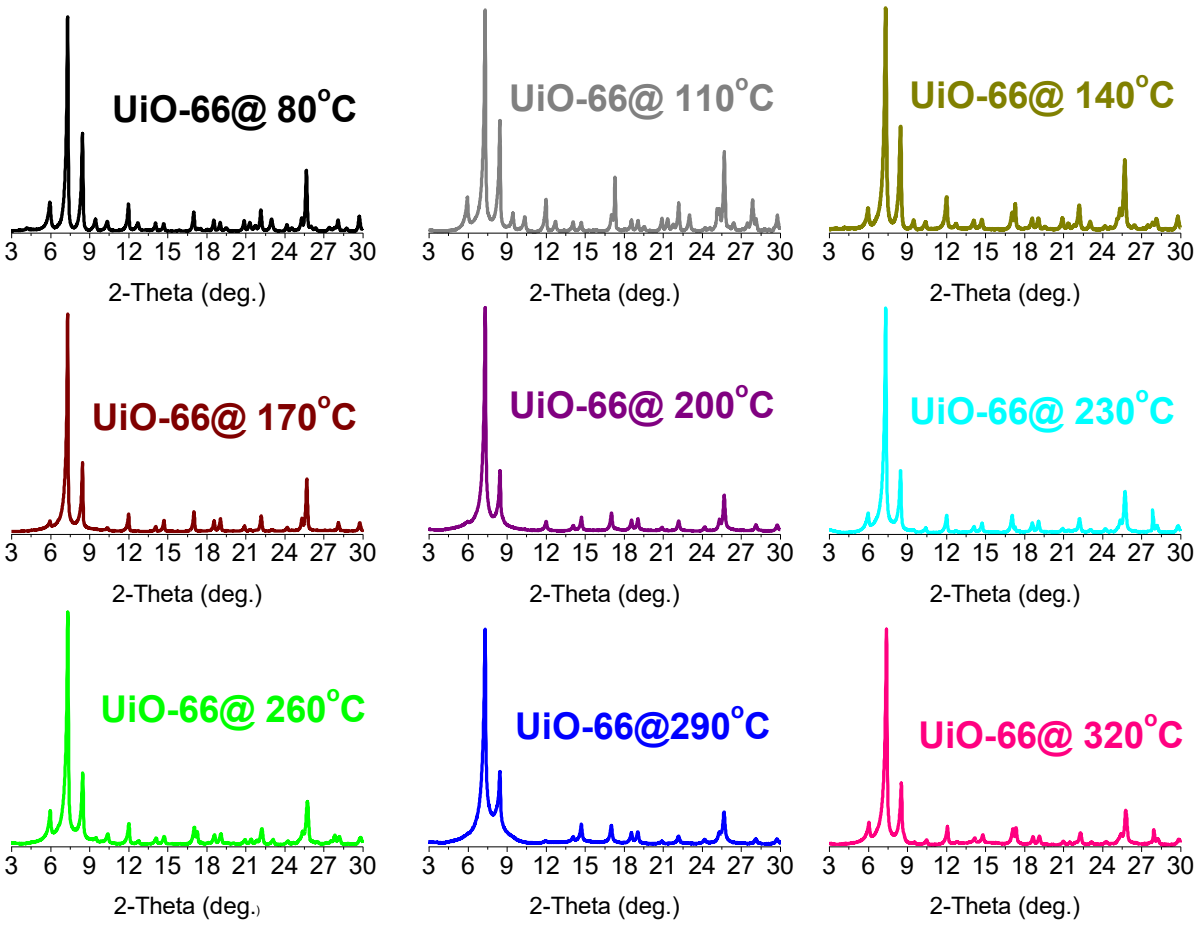

Figure S2: PXRD patterns for UiO-66 powder at different activation temperatures.

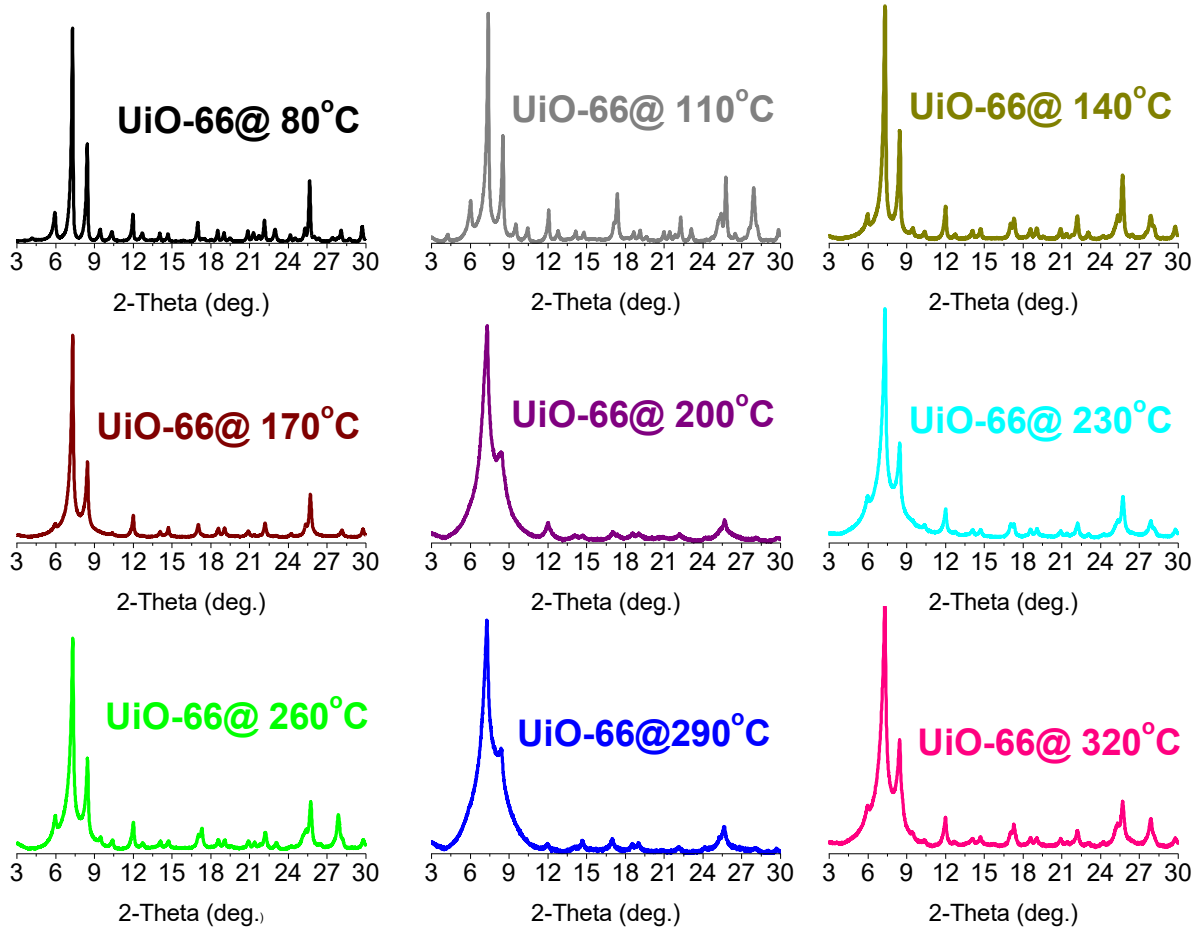

Figure S3: PXRD patterns for UiO-66 pellets at different activation temperatures.

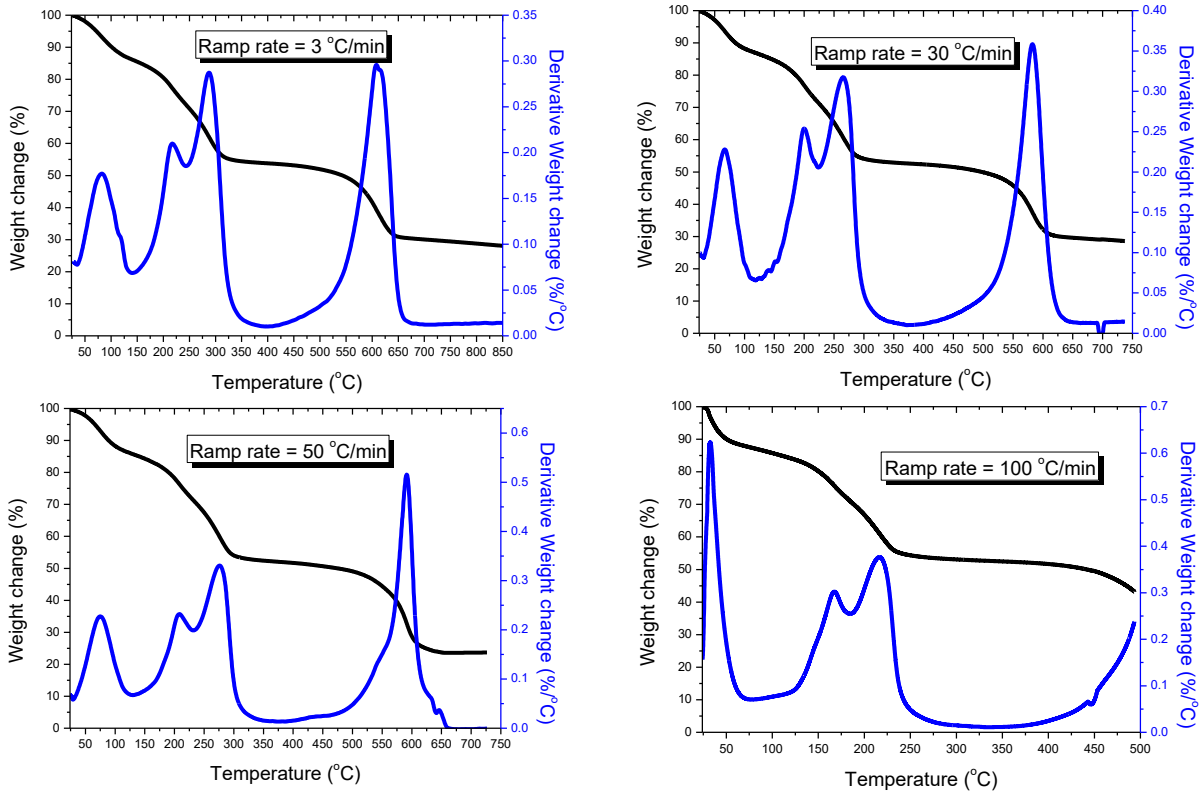

Figure S4: TGA profiles for solvent exchanged UiO-66 samples obtained at different heating rates under 100 mL/h nitrogen (N_2) flow.

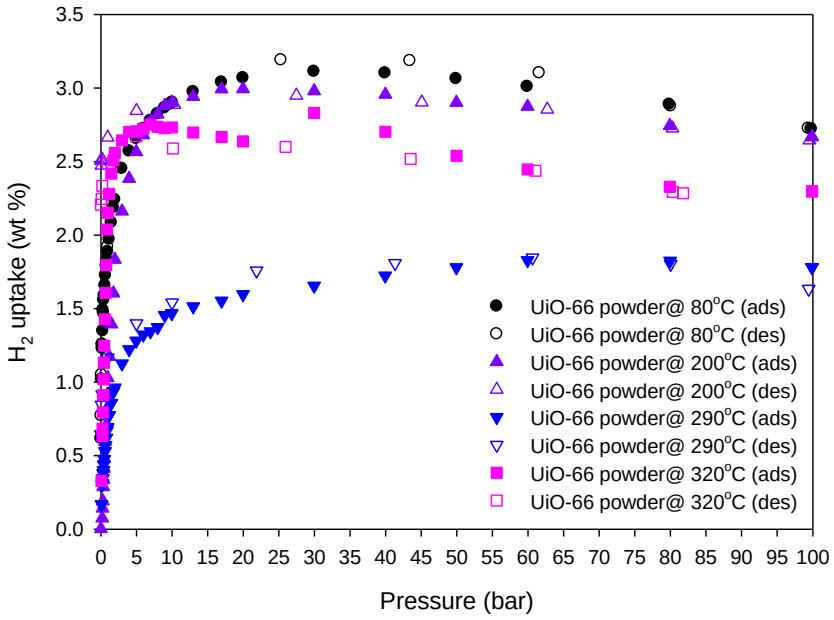

Figure S5: Excess H_2 adsorption/desorption isotherms at 77 K for UiO-66 powders activated at 80, 200, 290, and 320 ºC.

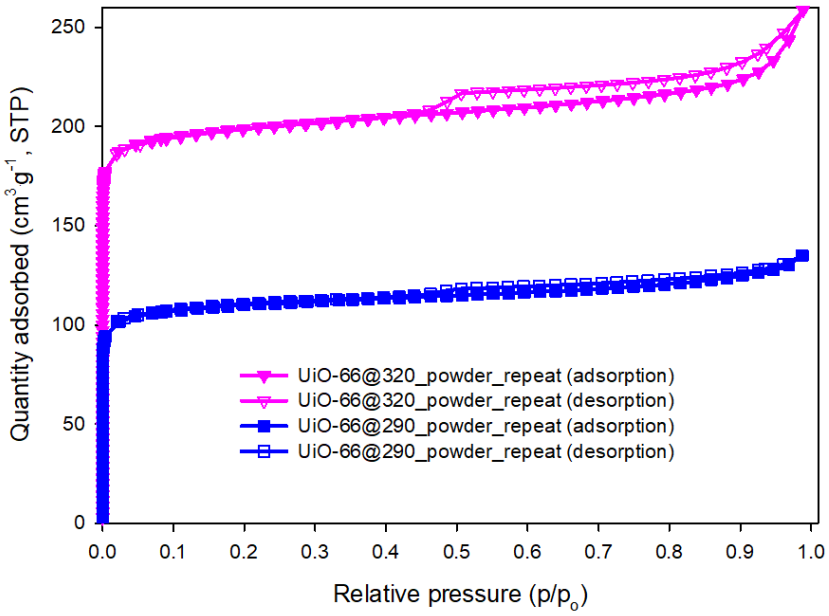

Figure S6: N_2 adsorption/desorption isotherms obtained for repeat samples of UiO-66 powder after their heat treatment at 290 and 320 °C.

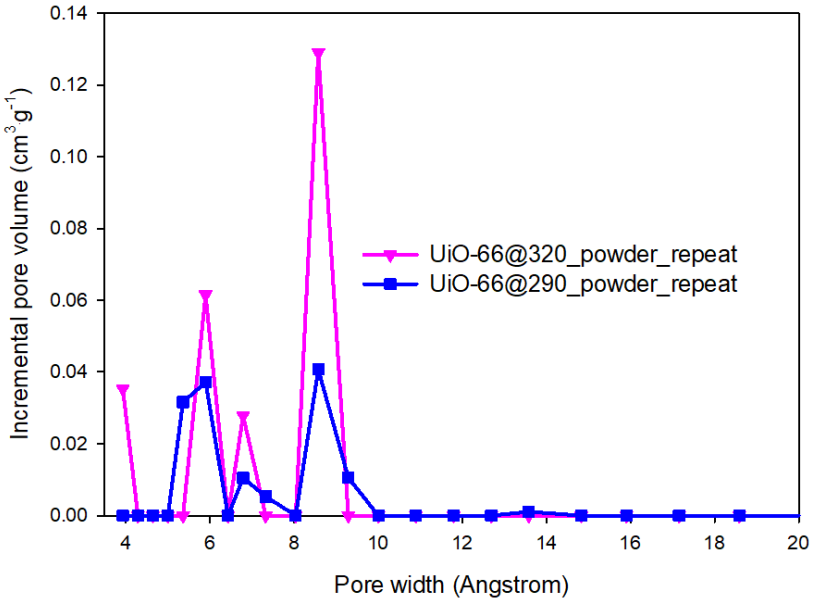

Figure S7: NLDFT pore size distribution curves obtained for repeat samples of UiO-66 powder after their heat treatment at 290 and 320 °C.

Table S1: Textural properties of UiO-66 powder repeat samples activated/degassed at 290 and 320 ^{o}C.

Sample (repeat samples)	**Surface area[a] ($m^2 \cdot g^{-1}$)**	**Pore volume[b] ($cm^3 \cdot g^{-1}$)**
UiO-66 powder@290^{o}C	414 (356, 86%)	0.21 (0.15, 71%)
UiO-66 powder@320^{o}C	749 (662, 88%)	0.40 (0.27, 68%)

[a]Values in parenthesis are micropore surface area and percentage micropore surface area of the total surface area. [b]Values in parenthesis are micropore volume and percentage micropore of the total pore volume.