Electronic Supplementary Information (ESI)

One-Dimensional Channels Constructed from per-Hydroxylated Pillar[6]arene Molecules for Gas and Vapour Adsorption

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**Experimental section**

**Materials.** All solvents and reagents were used as supplied. *per*-hydroxylated pillar[6]arene (1) was synthesized according to the previous paper.$^{31}$

**Measurements.** The $^1$H NMR spectra were recorded at 500 MHz with a JEOL-ECA500 spectrometer. Gas and vapor sorption isotherms were obtained by a BELSORP-max (BEL Japan Inc., Osaka, Japan) sorption analyzer. The surface area was calculated by the Brunauer–Emmett–Teller (BET) method. Powder XRD patterns were obtained on Smart Lab (Rigaku) with CuKα radiation (tube voltage, 40 kV, tube current, 20 mA).

**Sample Preparation.** 1 was dissolved in acetone, and then the evaporation of the acetone afforded the one-dimensional channels. Heating the powder 1 at 120 °C for 48 h afforded the powder of 1 with pores.
Detail x-ray single-crystal structures of per-hydroxylated pillar[6]arene 1

(b) from a axis

(a) from b axis

(c) from c axis

Fig. S1 X-ray single-crystal structures of per-hydroxylated pillar[6]arene from the (a) a, (b) b and (c) c axis. Solvents are omitted for clarity. The hydroxyl groups are disordered.
\(^{1}\text{H NMR spectra of the powder of 1 before and after heating}

**Fig. S2** \(^{1}\text{H NMR Spectra (DMSO-}\text{d}_6, 25 \, ^\circ\text{C}) of the powder of 1 (a) before and (b) after heating at 120 \, ^\circ\text{C} for 48 h. Heating the powder of 1 at 120 \, ^\circ\text{C} for 48 h was sufficient to completely remove the acetone molecules.**
Horvath-Kawazoe plots

Fig. S3 Horvath-Kawazoe plots from nitrogen adsorption experiment at 77 K.
References