Supporting Information

Enhanced isosteric heat, selectivity, and uptake capacity of CO_2 adsorption in a metal-organic framework by impregnated metal ions

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Experimental Section

General Methods. All chemicals and solvents used in the syntheses were of reagents grade and used without further purification. 2,4,6-tris-(4-carboxyphenoxy)-1,3,5-triazine (H_3TCPT) was prepared by modifying the methods previously reported.[S1] NMR spectra were measured on a Bruker Spectrospin 300 spectrometer. Infrared spectra were recorded with a Perkin-Elmer Spectrum One FT-IR spectrophotometer. Elemental analyses were performed with a Perkin-Elmer 2400 Series II CHN analyzer. Thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC) were carried out at a scan rate of 5 °C/min, using TGA Q50 and DSC Q10 of TA instruments, respectively. Powder X-ray diffraction (PXRD) data were obtained on a Bruker New D8 diffractometer at 40 kV and 40 mA for Cu Kα (λ = 1.54050 Å) with a scan speed of 5°/min and a step size of 0.02° in 2θ. For the determination of M/Zn^{2+}, samples of desolvated **SNU-100'-M** were digested in concentrated nitric acid and Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) were performed on a Perkin-Elmer Optima-4300 DV instrument.

Synthesis of 2,4,6-Tris-(4-carboxyphenoxy)-1,3,5-triazine (H_3TCPT). 4-Bromophenol (6.06 g, 35.0 mmol) and cyanuric chloride (1.84 g, 10.0 mmol) were added to a schlenk tube (100 mL). The two solids were heated and stirred under reflux in an oil bath at 210 ^{o}C for 8 h. Once the brown-white solid was formed, it allowed to cool at room temperature. The solid was then washed with ethanol (30 mL) by heating and stirring the mixture at 80 ^{o}C for 30 min. An off-white solid was obtained by filtration, which was recrystallized from chloroform (300 mL). The white needle-shaped crystals of 2,4,6-tris-(4-bromophenoxy)-1,3,5-triazine were filtered and dried under vacuum. ^{1}H NMR ($CDCl_3$), δ: 7.03 (d, 6H), 7.50 (d, 6H) ppm. 2,4,6-tris-(4-bromophenoxy)-1,3,5-triazine (2.00 g, 3.39 mmol) was dissolved in distilled THF (100 mL) with stirring. The reaction mixture was cooled to -78 ^{o}C with dry ice/acetone slush. The solution of butyllithium (1.6 M in *n*-hexane, 10 mL) was added to the stirring solution under nitrogen. After 2 h, crushed dry ice was added to the mixture, and then it allowed to stand at room temperature. For acidification, acetic acid was added to the solution until white precipitates were dissolved. After filtration, the resulting solution

was poured into water (300 mL), which induced the formation of white precipitates. The precipitates were filtered, washed with water (300 mL), and dried under vacuum. FT-IR (KBr): 1697 (s, O=C-O) cm^{-1}. ^1H NMR (DMSO), δ: 7.37 (d, 6H), 8.00 (d, 6H), 12.5-13.5 (br, 3H) ppm.

Preparation of $[Zn_3(TCPT)_2(HCOO)][NH_2(CH_3)_2]\cdot 5DMF$ (SNU-100). A DMF (2.5 mL) solution of H_3TCPT (49.4 mg, 0.101 mmol) and a DMF (2.5 mL) solution of $Zn(NO_3)_2\cdot 6H_2O$ (90.7 mg, 0.305 mmol) were mixed in a glass serum bottle, which was tightly capped with a silicon stopper and aluminum seal. The bottle was heated at 90 ^oC for 24 h and then cooled to room temperature. Colorless rod-shaped crystals formed, which were filtered, and washed briefly with DMF. Yield: 45 mg (28%). Anal. Calcd: C, 48.77; H, 4.22; N, 10.34. Found: C, 48.45; H, 4.16; N, 10.48. FT-IR (Nujol mull): $\nu_{C=O(guest\ DMF)}$, 1670(s); ν_{N-H}, 3062(m); $\nu_{O-C=O}$, 1611(s), $\nu_{C-C=C}$, 1574(s) cm^{-1}.

Preparation of $[Zn_3(TCPT)_2(HCOO)][NH_2(CH_3)_2]\cdot 6MeOH$ (SNU-100m). The crystals of **SNU-100** as synthesized, which were still in the mother liquor, were transferred to a 20 mL vial. The mother liquor was decanted, and the crystals were washed with anhydrous MeOH (2 x 20 mL). The product was immersed in anhydrous MeOH (20 mL) for 2 days. During the guest exchange process, MeOH was replenished four times. Anal. Calcd: C, 47.14; H, 3.96; N, 6.75. Found: C, 47.40; H, 4.20; N, 6.80. FT-IR (Nujol mull): ν_{O-H}, 3342(br), ν_{N-H}, 3067(m); $\nu_{O-C=O}$, 1613(s), $\nu_{C-C=C}$, 1573(s) cm^{-1}.

Preparation of $[Zn_3(TCPT)_2(HCOO)][NH_2(CH_3)_2]$ (SNU-100'). Solid **SNU-100m** was dried by heating in a Schlenk tube at room temperature under vacuum for 2 h. Anal. Calcd: C, 48.62; H, 2.64; N, 7.78. Found: C, 48.46; H, 3.33; N, 8.09. FT-IR (Nujol mull): ν, 3067(m); $\nu_{O-C=O}$, 1613(s), $\nu_{C-C=C}$,1573(s) cm^{-1}.

Preparation of Cation Exchanged Frameworks with Metal Ions, SNU-100'-M (M= Li^+, Mg^{2+}, Ca^{2+}, Co^{2+}, Ni^{2+}, Cu^{2+}). Crystals of MeOH-exchanged **SNU-100m** (ca. 0.10 mmol) were immersed in anhydrous methanol solution (0.0970–0.126 M) of LiCl, $Mg(NO_3)_2\cdot 6H_2O$, $Ca(NO_3)_2\cdot 4H_2O$, $Co(NO_3)_2\cdot 6H_2O$, and $Ni(NO_3)_2\cdot 6H_2O$. The crystals were soaked for 10 days, and

the methanol solution of metal ions refreshed two times daily. During the cation exchange process with Co^{2+} and Ni^{2+}, colorless crystals of **SNU-100m** had turned pink and light green, respectively. **SNU-100m** remained colorless after soaking in MeOH solution of $LiCl·H_2O$, $Mg(NO_3)_2·6H_2O$, and $Ca(NO_3)_2·4H_2O$. Upon decanting the metal solutions, the cation exchanged crystals were rinsed with MeOH and then soaked in MeOH for 2 days to remove residual free metal ions and counter-anions from the pores. The solid was filtered off, washed with MeOH, and dried at 60 ^oC under vacuum for 12 h.

X-ray Crystallography. The diffraction data of **SNU-100** was measured at 100 K with synchrotron radiation on a ADSC Quantum-210 detector at 6B MX-I and 2D SMC with a silicon (111) double-crystal monochromator at the Pohang Accelerator Laboratory (PAL), Korea. The crystals were coated with Paraton oil to prevent the loss of guest molecules. The ADSC Quantum-210 ADX program (Ver. 1.96)[S2] was used for data collection and HKL2000 program (Ver. 0.98.699)[S3] was used for cell refinement, reduction, and absorption correction. The structure was solved by the direct method with sir92[S4] and refined by full-matrix least-squares refinement using the SHELXL-97 computer program.[S5] The positions of all non-hydrogen atoms were refined with anisotropic displacement factors. The hydrogen atoms except those in coordinating formate and dimethylammonium were positioned geometrically using a riding model. Although carbon atoms (C9 and C10) of formate and dimethylammonium have high thermal parameters, the coordinating formate and the guest dimethylammonium cation could be refined by the X-ray diffraction data measured at 100 K. Since electron densities of the guest molecules of **SNU-100** were not observed, the formula of **SNU-100** was determined by the IR, elemental analysis, and thermogravimetric analysis (TGA) data. Crystallographic data for the structures reported in this paper have been deposited with the Cambridge Crystallographic Data Centre as supplementary publication no. CCDC-869629. These data can be obtained free of charge from The Cambridge Crystallographic Data Centre via www.ccdc.cam. ac.uk/data_request/cif.

Water Stability Tests. (1) The desolvated solids **SNU-100'** (ca. 0.10 mmol) and **SNU-100'-M** (ca. 0.10 mmol) were exposed to water vapor at 30 ^{o}C for 7 days. (2) The desolvated solids **SNU-100'** (ca. 0.10 mmol) and **SNU-100'-M** (ca. 0.10 mmol) were immersed in distilled water (10 mL) for 7 days.

Low Pressure Gas Sorption Measurements. The gas adsorption-desorption experiments were performed by using an automated micropore gas analyzer Autosorb-3B (Quantachrome Instruments). All gases used were of 99.999% purity. Gas sorption isotherms for N_2 were monitored at 77 and 298 K, H_2 gas sorption isotherms were measured at 77, 87, and 298 K, and CO_2 and CH_4 gas sorption isotherms were conducted at 195, 231, 273, and 298 K at each equilibrium pressure by the static volumetric method. Water vapor adsorption isotherms were measured by using an automated micropore gas analyzer Autosorb-1 (Quantachrome Instruments) at 293 K. An exactly measured amount of the pre-desolvated solid was introduced into the gas-sorption apparatus, and the sample was reactivated at 60 ^{o}C under vacuum for 2 h. After each gas sorption measurement, the sample was precisely weighted again. Surface area and pore volume were determined from the N_2 gas isotherms at 77 K. Multipoint BET and the Langmuir surface areas were estimated by using the data recorded at P/P_0 = 0.0001 - 0.1 atm.

Estimation of Isosteric Heat of H_2 Adsorption. The isosteric heat of H_2 adsorption was estimated from the H_2 sorption data measured at 77 and 87 K. The data were fit to equation (1) by using the R statistical software package.[S6] A virial-type expression was used (eq 1), which is composed of parameters a_i and b_i that are independent of temperature.[S7] In eq 1, P is pressure (atm), N is the amount adsorbed H_2 gas (mg g^{-1}), T is temperature (K), and m and n represent the number of coefficients required to adequately describe the isotherms.

$$\ln P = \ln N + \frac{1}{T}\sum_{i=0}^{m} a_i N^i + \sum_{i=0}^{n} b_i N^i \qquad \textbf{(1)}$$

To estimate the values of the isosteric heat of H_2 adsorption, Eq (2) was applied, where R is the universal gas constant.

$$Q_{st} = -R\sum_{i=0}^{m} a_i N^i \qquad \textbf{(2)}$$

Calculation of Isosteric Heats of CO_2 and CH_4 Adsorption. Pressure as a function of the amount of adsorbed CO_2 and that of adsorbed CH_4 was determined by fitting the adsorption isotherms at 231, 273, and 298 K to the dual-site Langmuir equation (eq 3) and Langmuir-Freundlich equation (eq 4), respectively. In eq 3 and eq 4, P is pressure (atm), N is the amount adsorbed gas (mmolg^{-1}), N_m is the amount adsorbed gas at saturation, and b and c are constants. The isosteric heats of CO_2 and CH_4 adsorption were calculated by applying these fits to the Clausius-Clapeyron equation (eq 5).[S7]

$$N = \frac{N_{m,A} b_A P}{1 + b_A P} + \frac{N_{m,B} b_B P}{1 + b_B P} \qquad \textbf{(3)}$$

$$N = \frac{N_m b P^{1/c}}{1 + b P^{1/c}} \qquad \textbf{(4)}$$

$$\frac{\partial(\ln P)}{\partial(1/T)} = -\frac{Q_{st}}{R} \qquad \textbf{(5)}$$

Calculation of Selectivity for CO_2 over CH_4, N_2, and H_2 at 298 K. Henry constants were obtained from the adsorption isotherms for CO_2, CH_4, N_2, and H_2 at 298 K by using Eq (6), and the selectivity was calculated by using Eq (7).

$$N = \frac{K_H P}{1 + \frac{K_H}{N_m} P} \qquad \textbf{(6)}$$

$$S_{ij} = K_{Hi}/K_{Hj} \qquad \textbf{(7)}$$

Gas Cycling Experiment. Prior to gas cycling experiment, the sample was pre-desolvated in a Schlenk tube at 60 ^{o}C under vacuum for 12 h. The pre-desolvated sample was introduced into a thermogravimetric apparatus under N_2, and then the CO_2 gas cycling experiments were performed at 298 K on a TGA Q50 by using a flow of 15% (v/v) CO_2 mixture in N_2, followed by a flow of pure N_2. A flow rate of 60 mL/min was employed.

Theoretical Determination of Binding Sites for the Extra-Framework Cations, Simulated Adsorption Accessibility, and Adsorption Enthalpy. To find the preferential locations of the extra-framework cations within the framework, we conducted "locate simulations" by using a Sorption module of Materials Studio.[S8] The 'Metropolis Monte Carlo' method was chosen for the calculation of the global minimum locations and optimized structures. 'COMPASS' was selected for the energy calculation, and 'Forcefield assigned' option was used for the calculation of point atomic charges. Ewald sum was implemented for electrostatic interactions. A spherical cut-off of 12.5 Å was used in evaluating the van der Waals interactions. The simulation box contained one unit cell of **SNU-100'**, in which 4 Li^+ or $[NH_2(CH_3)_2]^+$ cations and 2 Mg^{2+}, Ca^{2+}, Co^{2+}, or Ni^{2+} cations were accommodated as the case might be. To characterize the accessibility of the host structures for the extra-framework cations, the accessible surface area and total free volume of each cation-exchanged framework were estimated using the Atoms Volume & Surfaces calculation module of Materials Studio. The surface area and free volume were calculated by using a Monte Carlo integration technique, where the probe molecule with a diameter equal to the kinetic diameter of N_2 (3.64 Å) is rolled over the simulated framework surface. To estimate the isosteric heatsof CO_2 and CH_4, we also performed "adsorption isotherm simulations" using a Sorption module of Materials Studio.[S8] The Metropolis Monte Carlo method was chosen for the calculation of CO_2 and CH_4 loading in the frameworks under a given fugacity. COMPASS was selected for the energy calculation, and 'Forcefield assigned' option was used for the calculation of point atomic charges. For the simulation of each framework, forty (20) fugacity steps in logarithmic scale (10^{-3} - 100 kPa) were calculated to obtain isosteric heat. Simulation temperature: 298 K; equilibrium steps: 500000;

Production steps: 100000. These steps were chosen to assure the creation/destruction steps ratio about 1.00. To elucidate the effects of electrostatic interaction on Q_{st} of the exchanged frameworks, additional simulations were carried out by switching off the option for the charge calculation.

References

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S5. G. M. Sheldrick, SHELXL97, Program for the crystal structure refinement; University of Göttingen: Göttingen, Germany, 1997.

S6. The software package is available online at http://www.r-project.org.

S7. L. Czepirski, J. Jagiello, Chem. Eng. Sci. 1989, **44**, 797–801.

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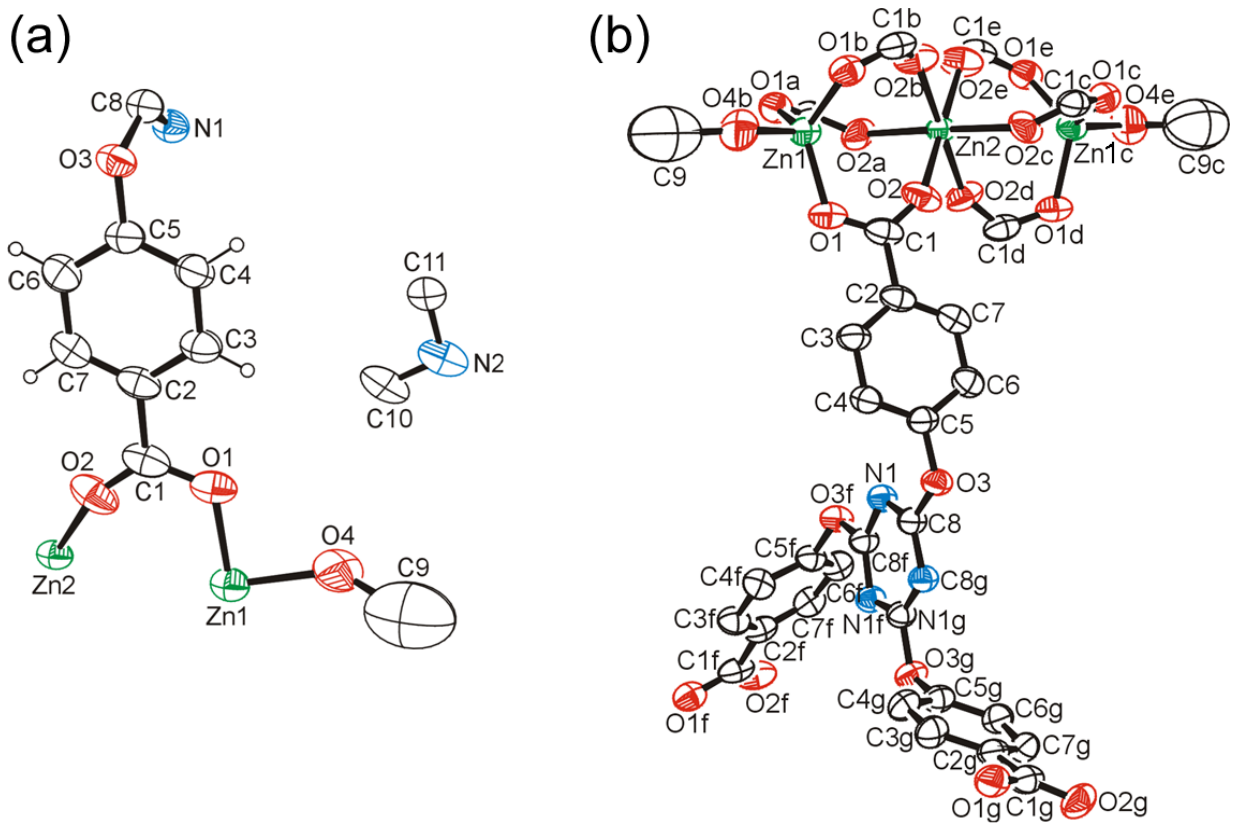

Figure S1. (a) An ORTEP drawing of asymmetric unit for **SNU-100**. (b) An ORTEP drawing of **SNU-100**, showing the coordination environment of two independent Zn(II) ions. Thermal ellipsoids are drawn with 30% probability. Symmetry transformation: a, (-y+1, x-y, z); b, (y-x+1, -x+1, z); c, (x, x-y, -z+3/2); d, (y-x+1, y, -z+3/2); e, (-y+1, -x+1, -z+3/2); f, (y-x+1, -x+2, z); g, (-y+2, x-y+1, z).

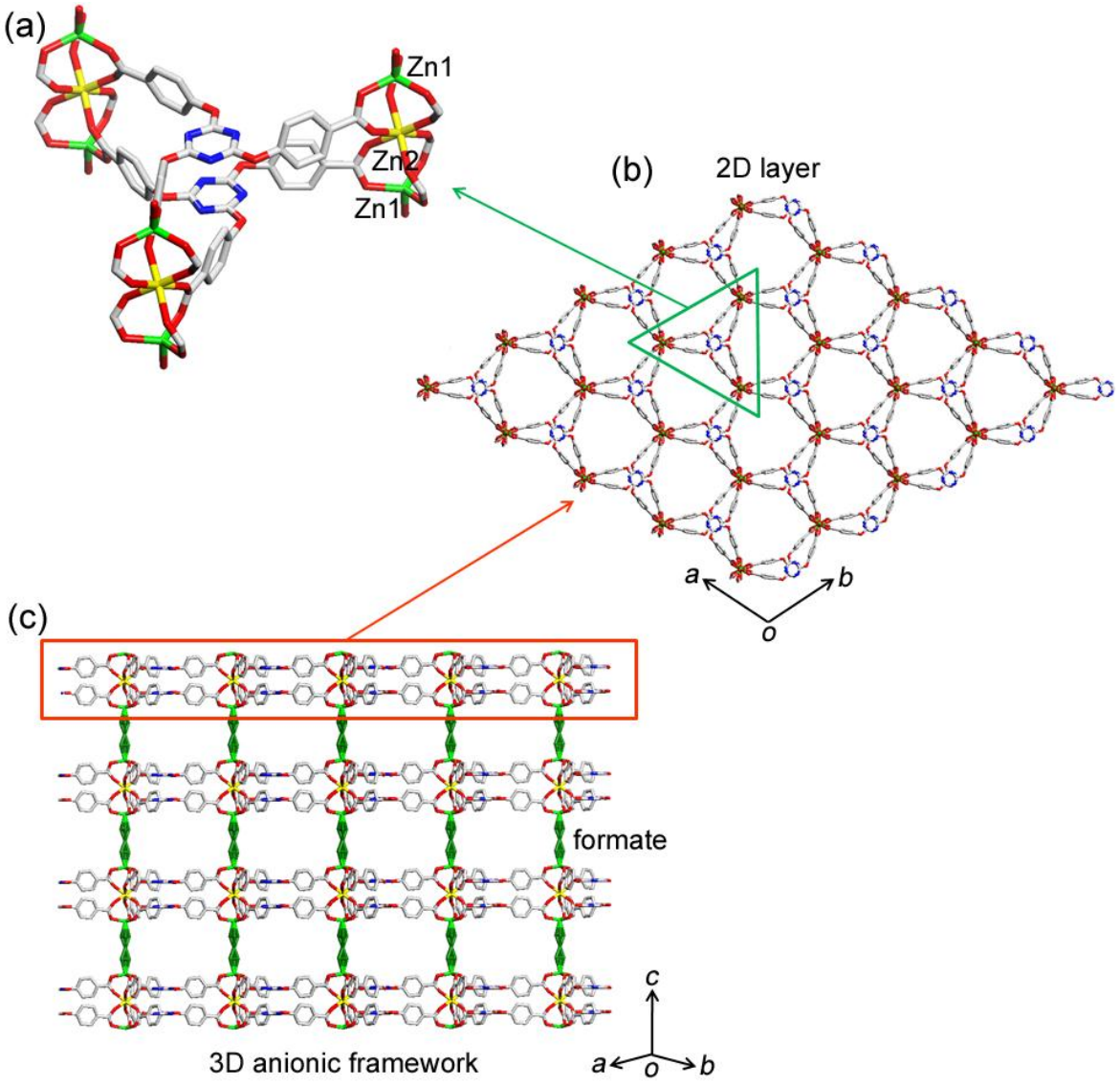

Figure S2. X-ray crystal structure of **SNU-100**. (a) D_3-Piedfort unit of two $TCPT^{3-}$ connecting three Zn_3 cluster units. (b) A 2D layer running parallel to the *ab* plane. (c) 3D anionic framework formed from the 2D layers linked by formate species along the *c* axis. Zn1 has a tetrahedral coordination geometry by being coordinated with three oxygen atoms of three different $TCPT^{3-}$ carboxylate ligands and an oxygen atom of a formate. Zn2 has an octahedral coordination geometry by being coordinated with six oxygen atoms of six different $TCPT^{3-}$ ligands. The Zn1-O bond [1.933(2) Å] is shorter than Zn2-O bond [2.082(2) Å]. In $TCPT^{3-}$, the dihedral angle between the carboxyphenoxy groups and the plane of triazine core is 78.42(8)° and the C-O-C angles is 118.45(19)°.

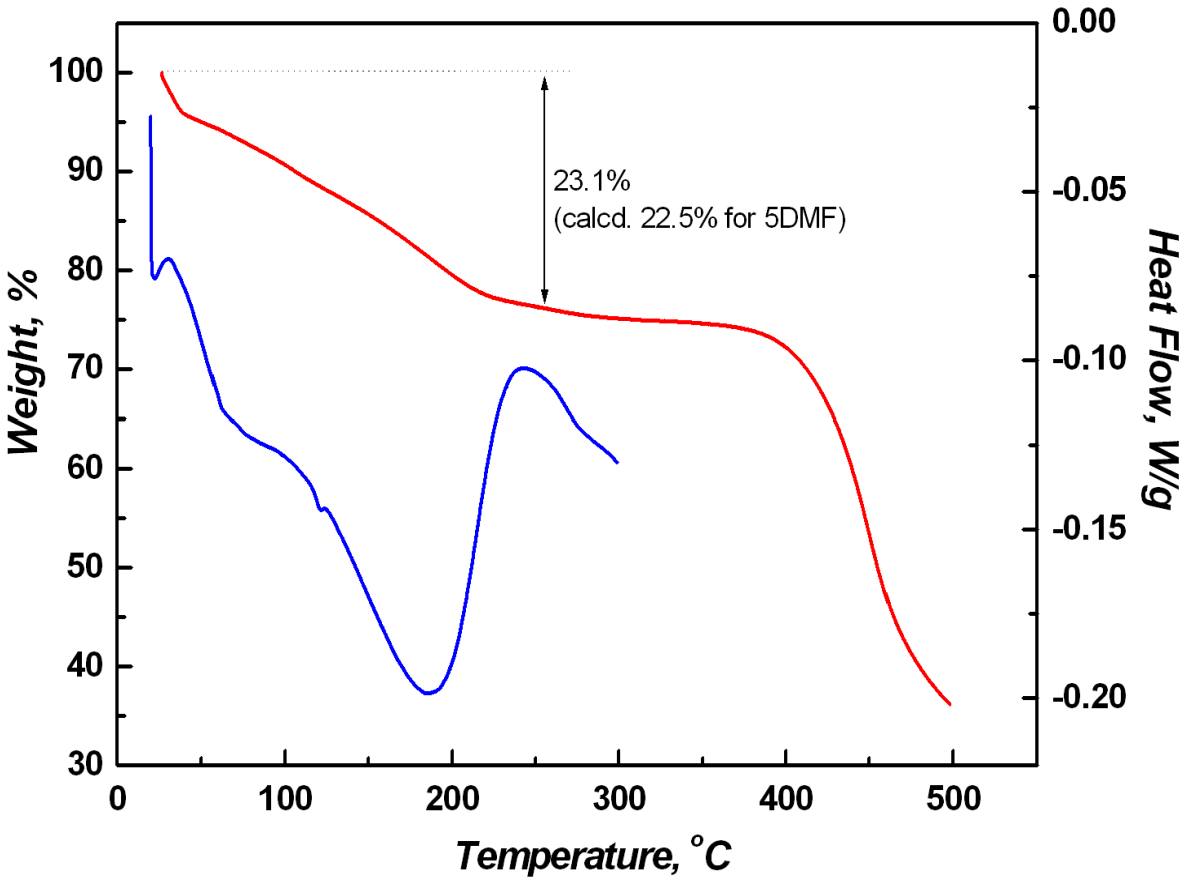

Figure S3. TGA (red) /DSC (blue) traces for **SNU-100**. TGA curve reveals 23.1% weight loss at 50-220 ^{o}C, corresponding to the loss of five DMF guest molecules per formula unit (calcd. 22.5%).

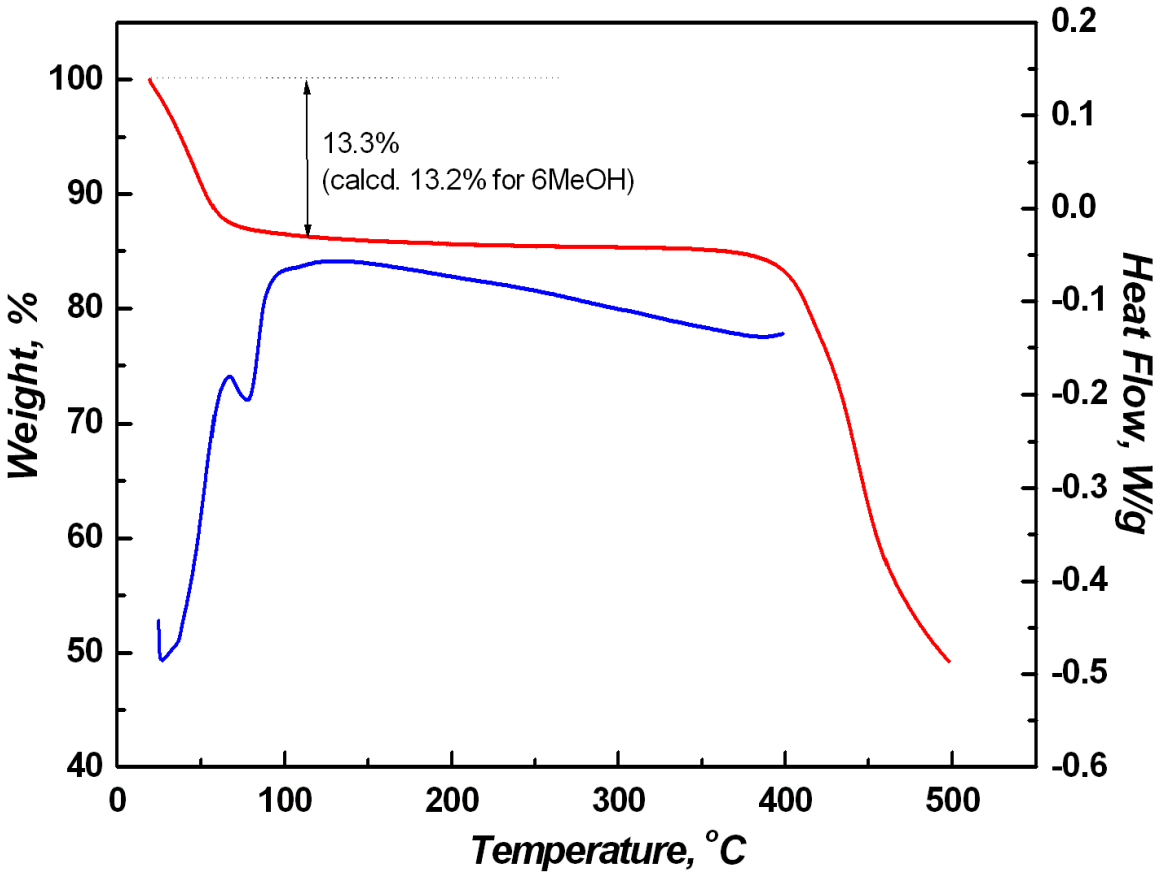

Figure S4. TGA (red) /DSC (blue) traces for **SNU-100m**. TGA data of **SNU-100m** reveals 13.3% weight loss at 25–80 °C, which corresponds to the loss of six MeOH guest molecules (calcd. 13.2%).

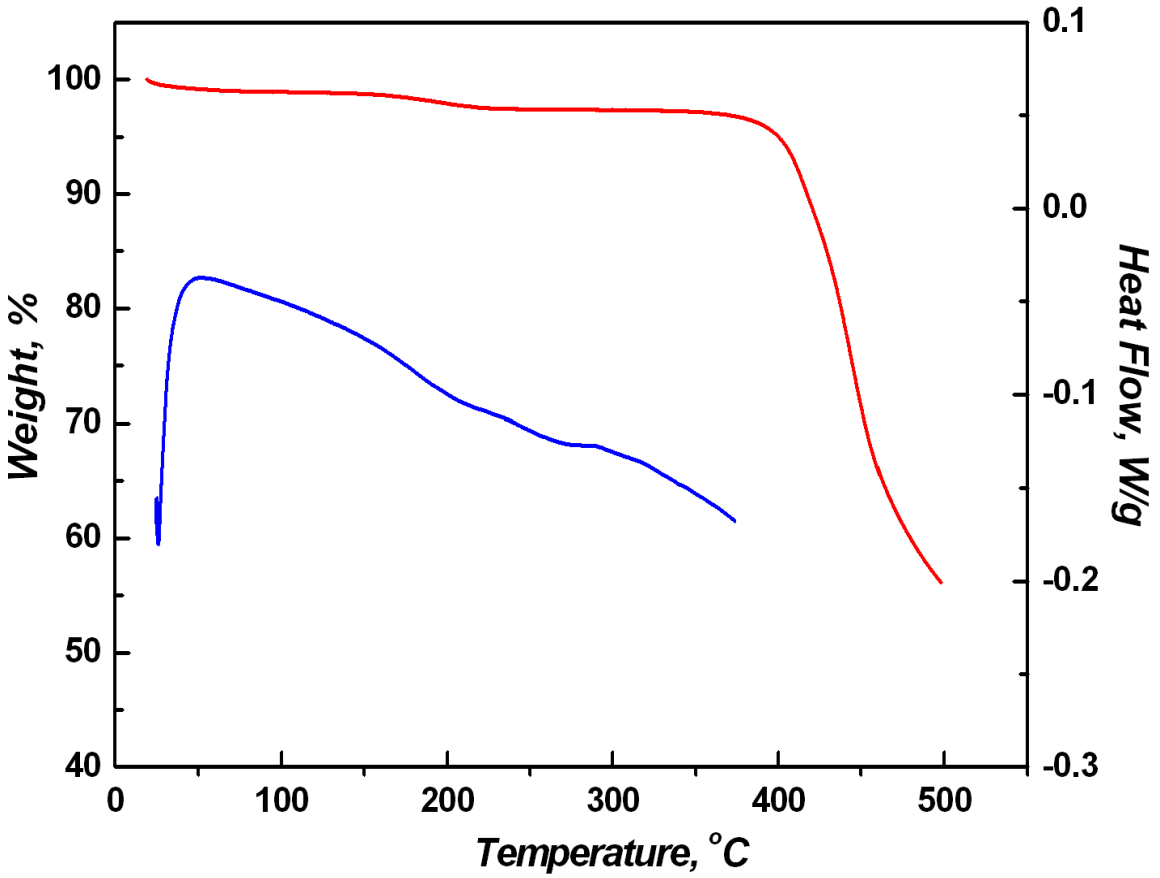

Figure S5. TGA (red) /DSC (blue) traces for **SNU-100'**.

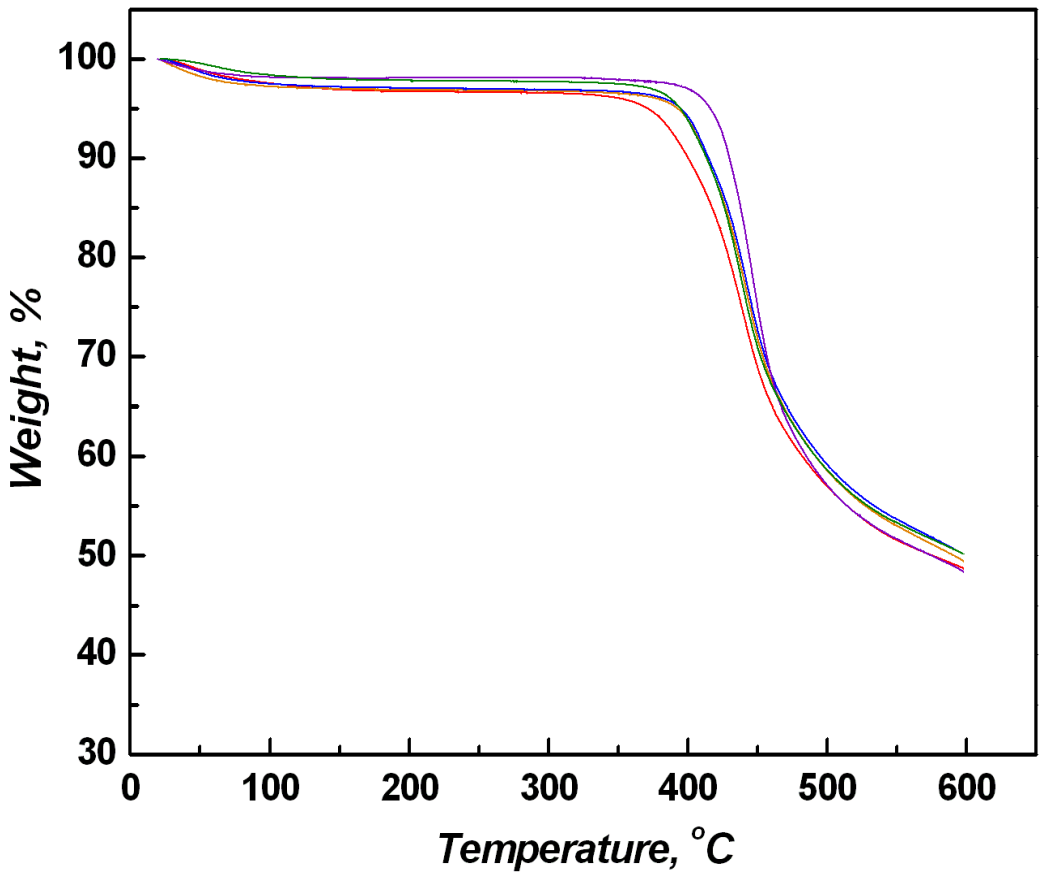

Figure S6. TGA traces for **SNU-100'-Li** (red), **SNU-100'-Mg** (orange), **SNU-100'-Ca** (blue), **SNU-100'-Co** (purple), and **SNU-100'-Ni** (green).

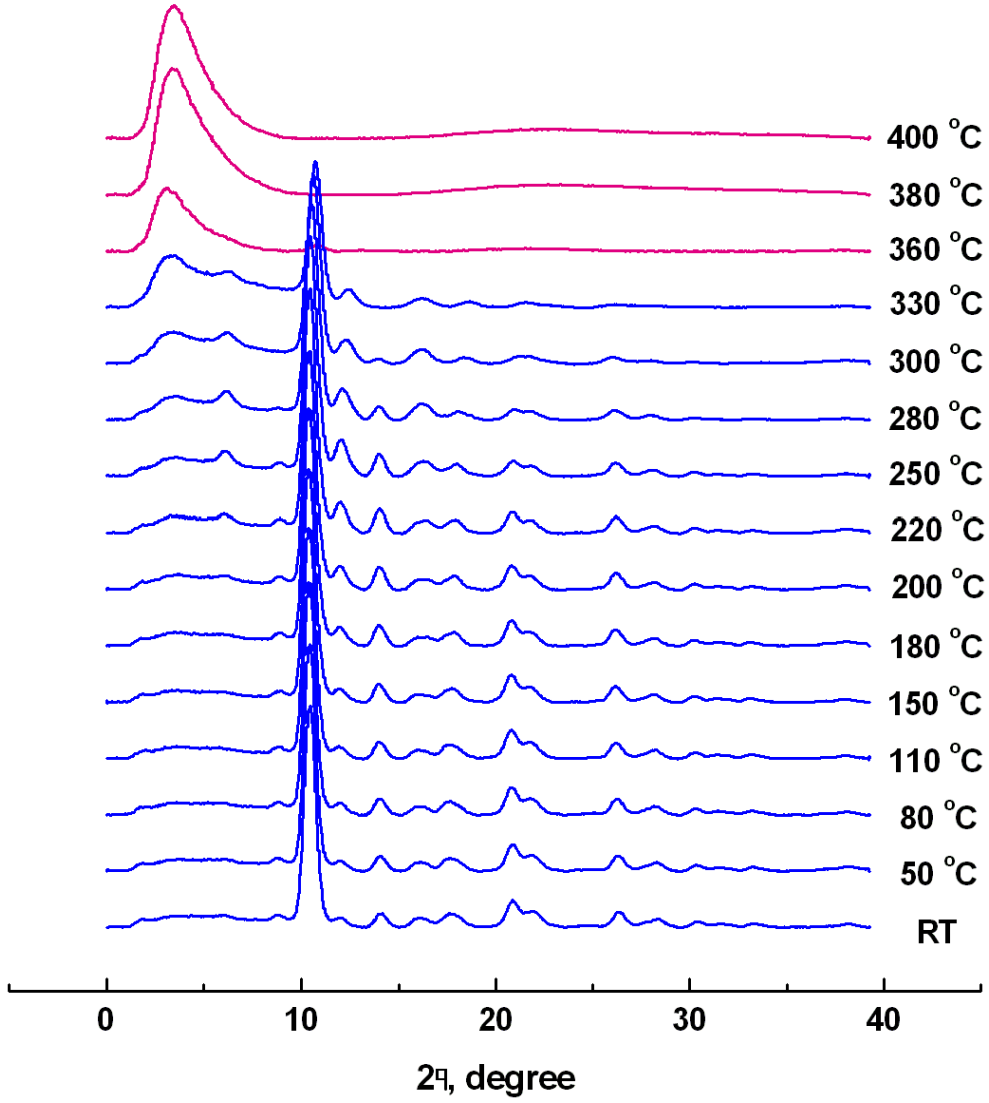

Figure S7. The temperature dependent powder X-ray diffraction (PXRD) patterns of **SNU-100** (from R.T. to 400 °C). The host framework is thermally stable up to 350 °C.

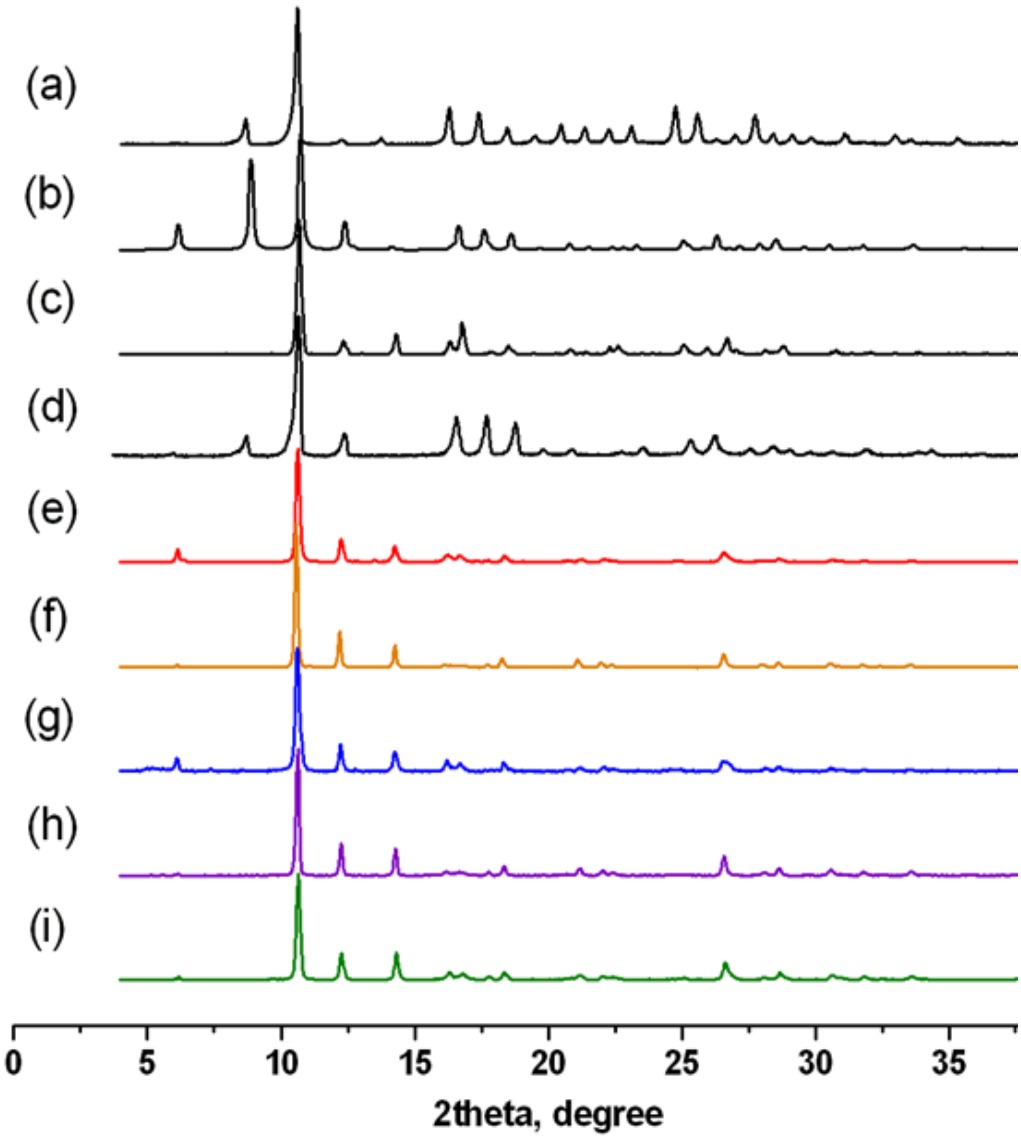

Figure S8. The PXRD patterns for (a) **SNU-100** as synthesized, (b) simulated pattern based on the single-crystal X-ray data of **SNU-100**, (c) MeOH exchanged solid (**SNU-100m**), (d) desolvated solid (**SNU-100'**), (e) **SNU-100'-Li**, (f) **SNU-100'-Mg**, (g) **SNU-100'-Ca**, (h) **SNU-100'-Co**, and (i) **SNU-100'-Ni**.

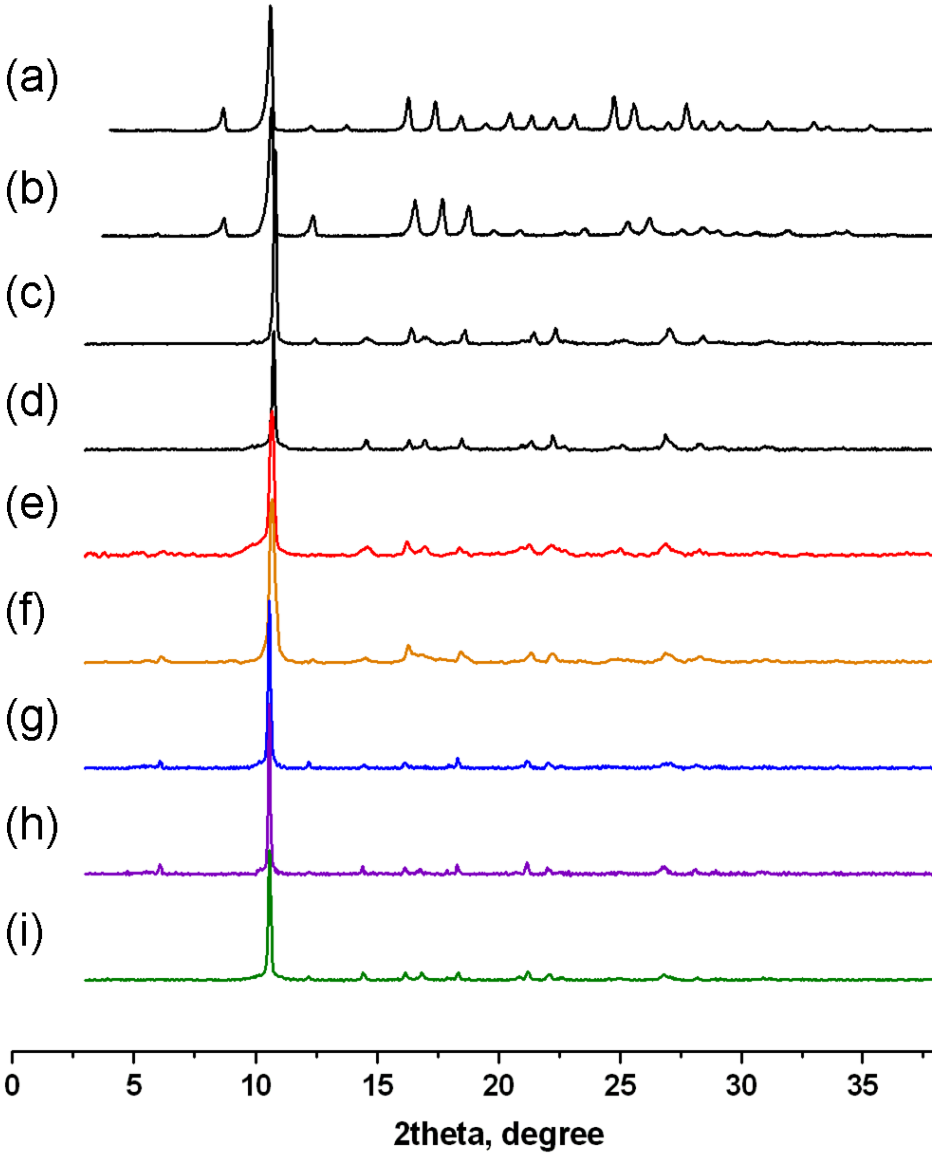

Figure S9. The PXRD patterns for (a) **SNU-100** as synthesized, (b) desolvated solid (**SNU-100'**), (c) **SNU-100'** after exposure to water vapor for 7 days, (d) **SNU-100'** after immersion in water for 7 days, (e) **SNU-100'-Li** after exposure to water vapor for 7 days, (f) **SNU-100'-Mg** after exposure to water vapor for 7 days, (g) **SNU-100'-Ca** after exposure to water vapor for 7 days, (h) **SNU-100'-Co** after exposure to water vapor for 7 days, and (i) **SNU-100'-Ni** after exposure to water vapor for 7 days.

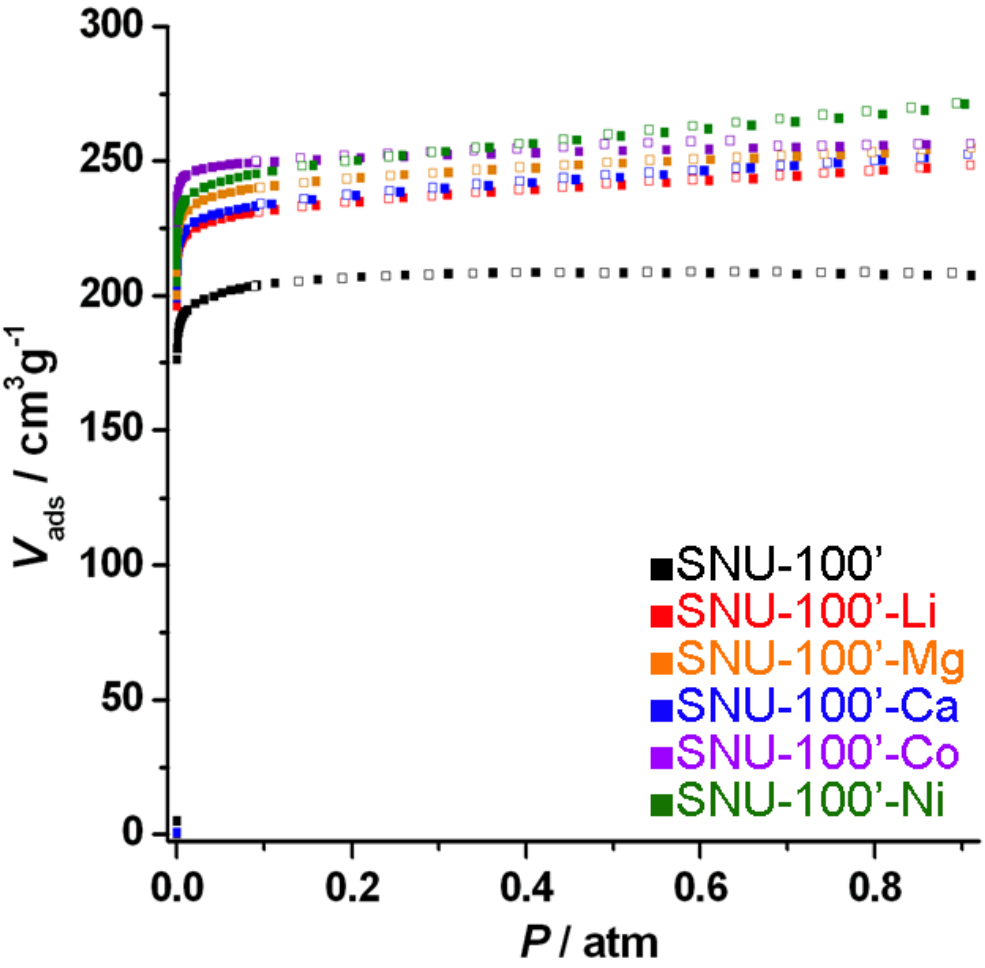

Figure S10. N_2 sorption isotherms at 77 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

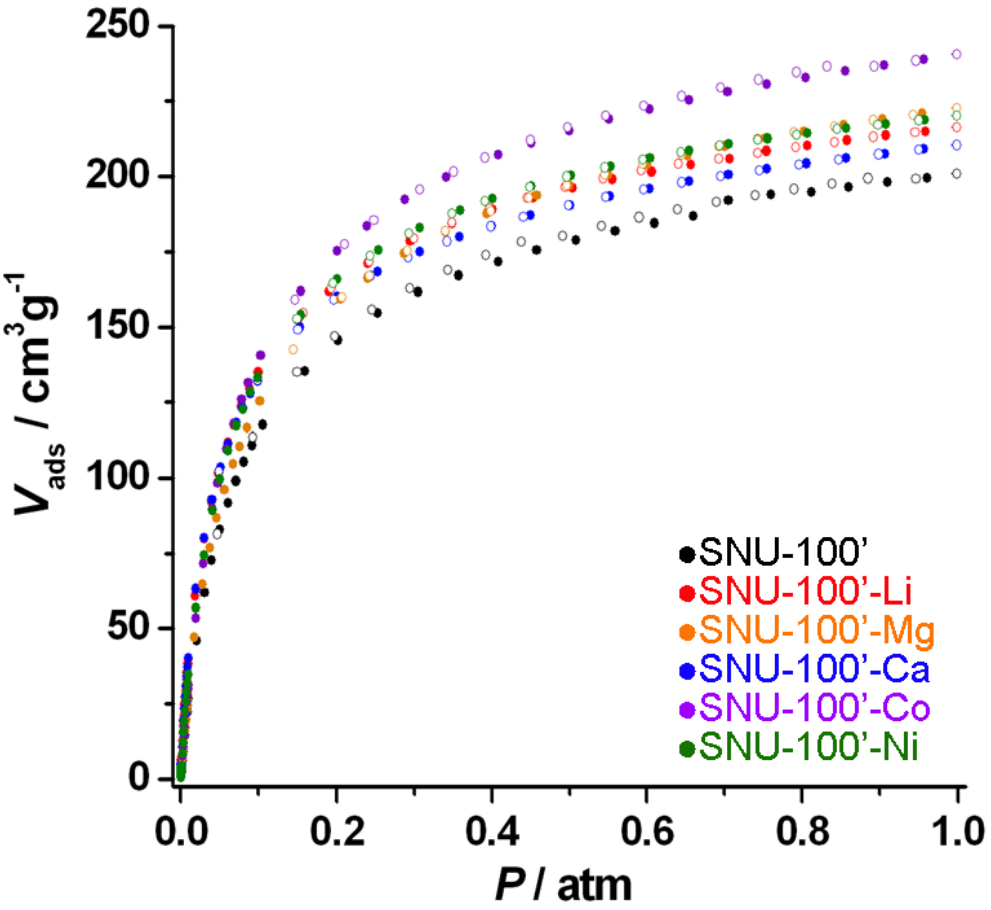

Figure S11. H_2 sorption isotherms at 77 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

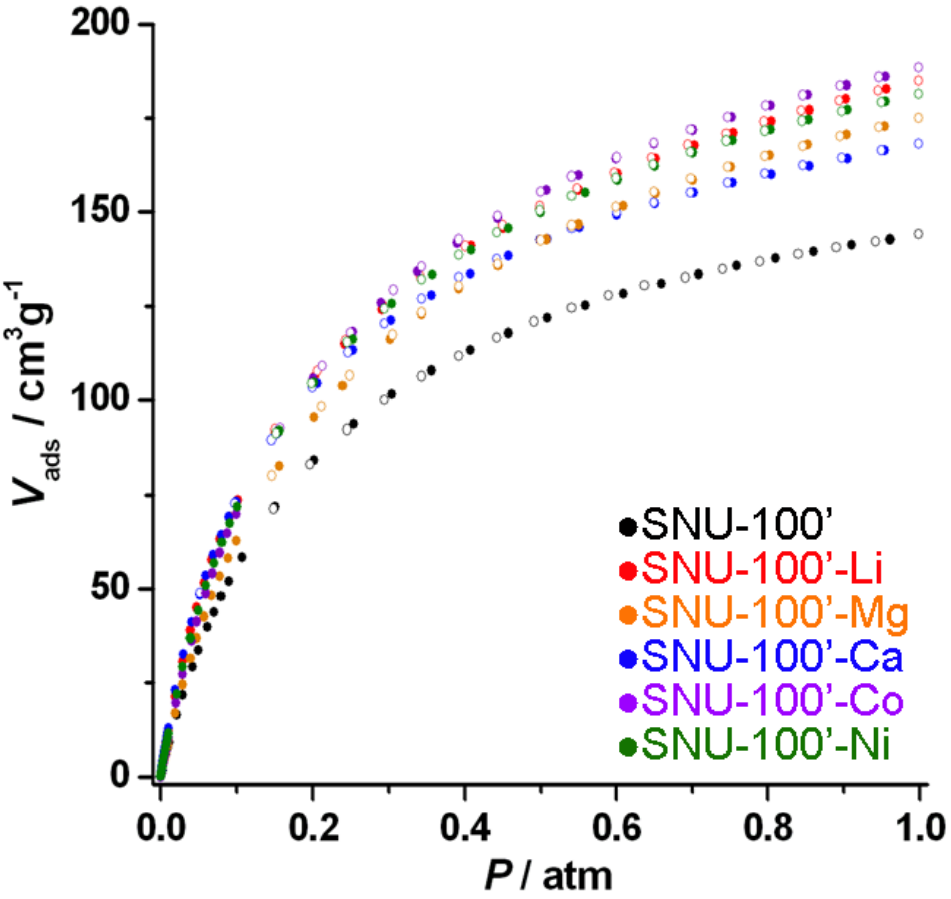

Figure S12. H_2 sorption isotherms at 87 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

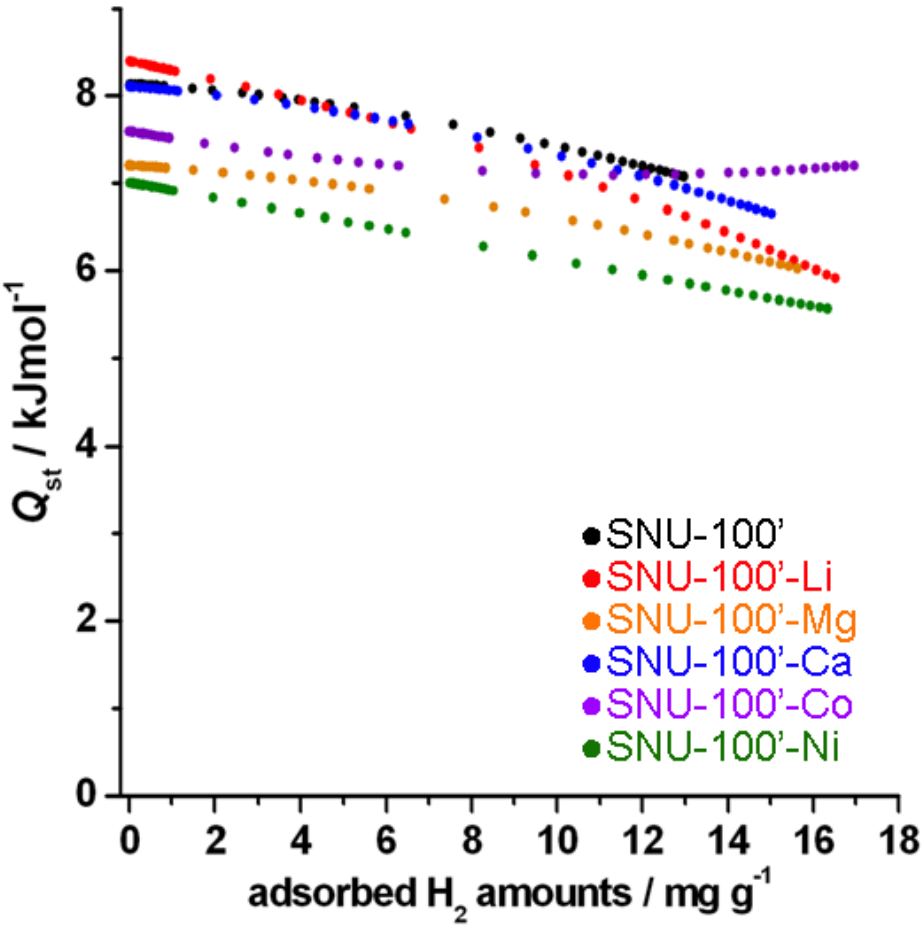

Figure S13. Isosteric heats of the H_2 adsorption for the series of **SNU-100'-M**.

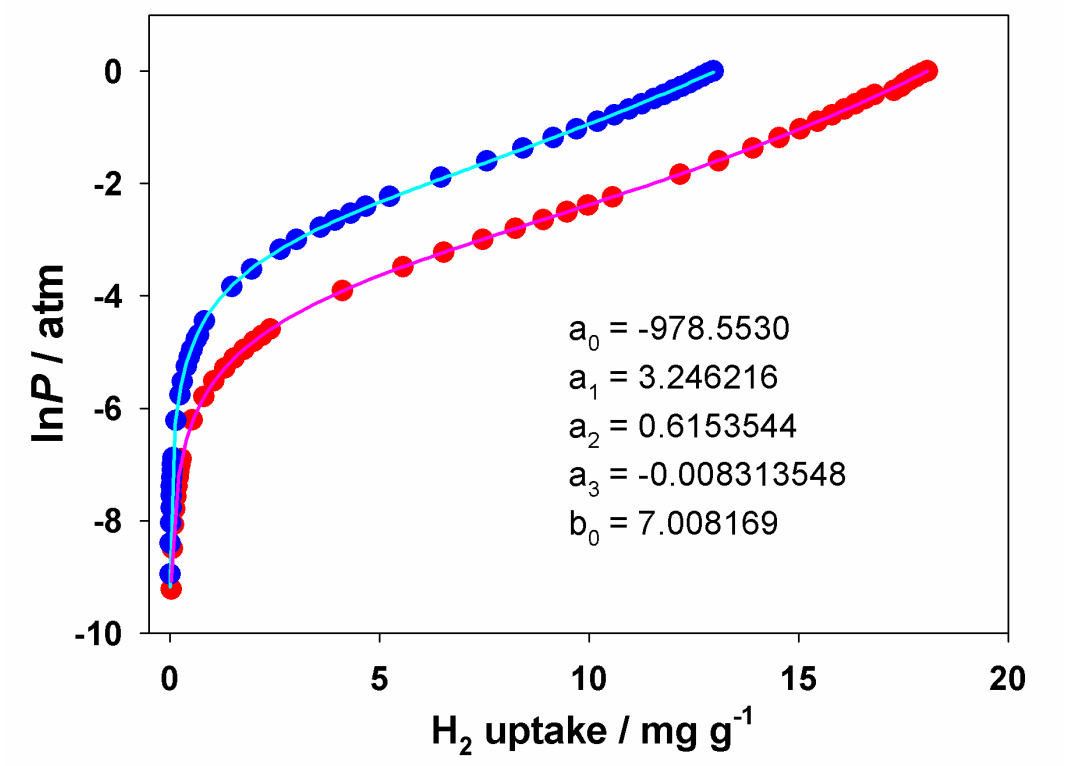

Figure S14. The virial fit for the H_2 adsorption isotherms of **SNU-100'** measured at 77 K (red) and 87 K (blue). R = 0.9961.

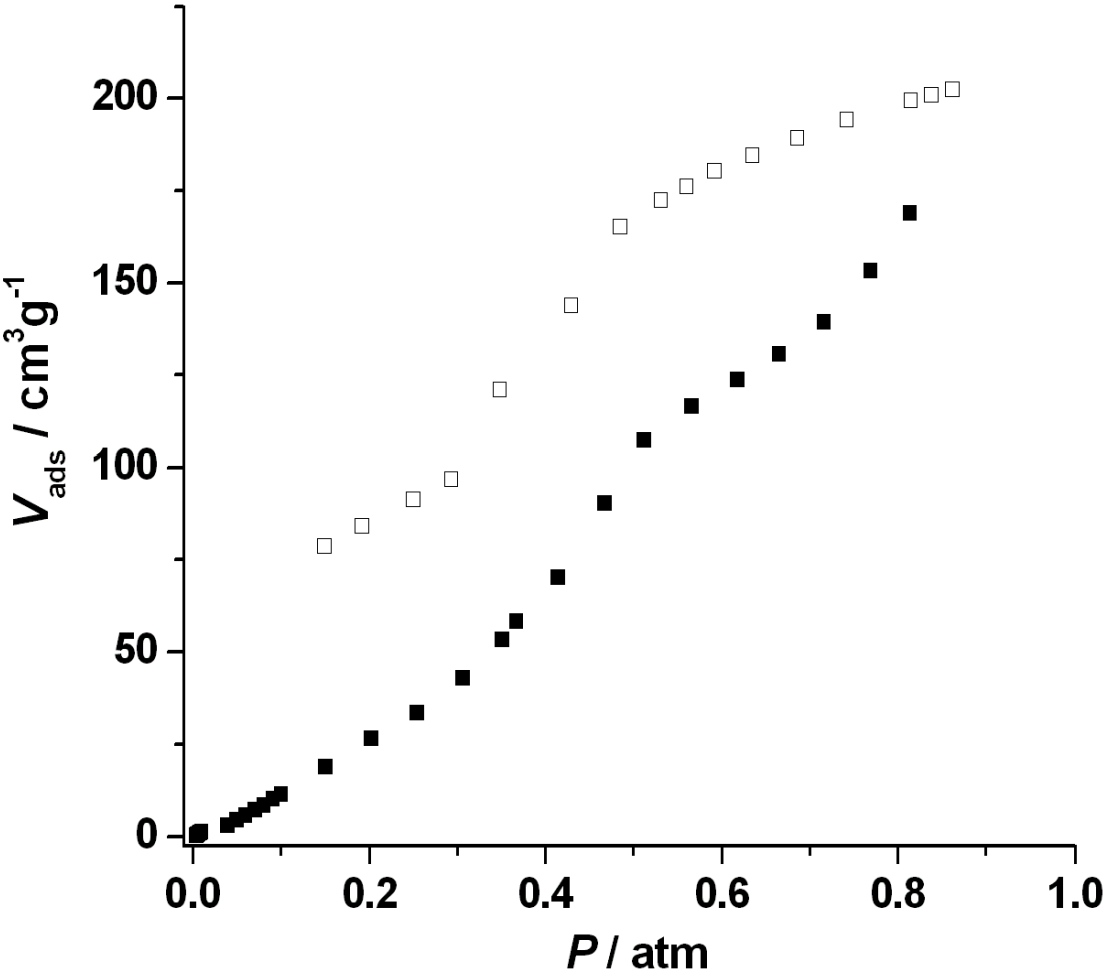

Figure S15. Water vapor sorption isotherm of **SNU-100'** measured at 293 K up to 1 atm.

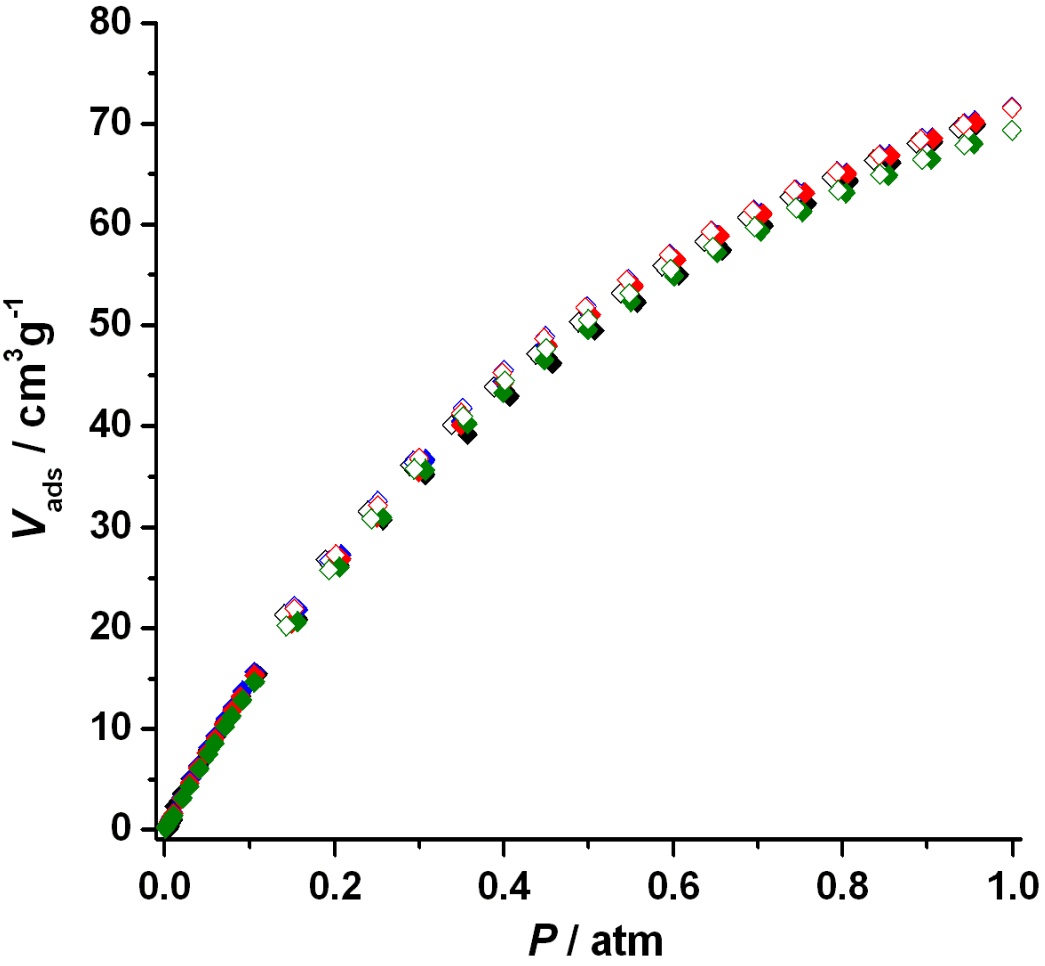

Figure S16. CO_2 adsorption isotherms measured at 298 K up to 1 atm for **SNU-100'** (black), **SNU-100'** after exposure to water vapor for 7 days (blue), **SNU-100'** after immersion in water for 7 days (red), and **SNU-100'** after measurement of water vapor sorption isotherm.

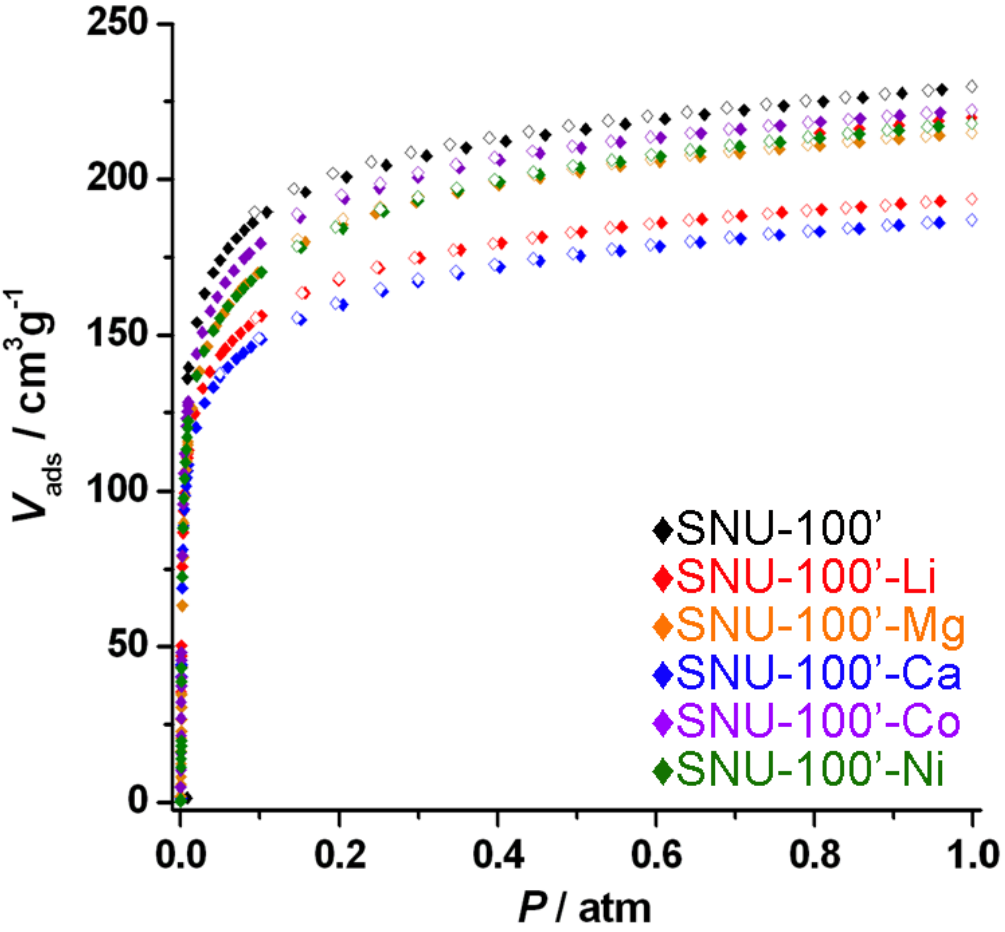

Figure S17. CO_2 sorption isotherms at 195 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

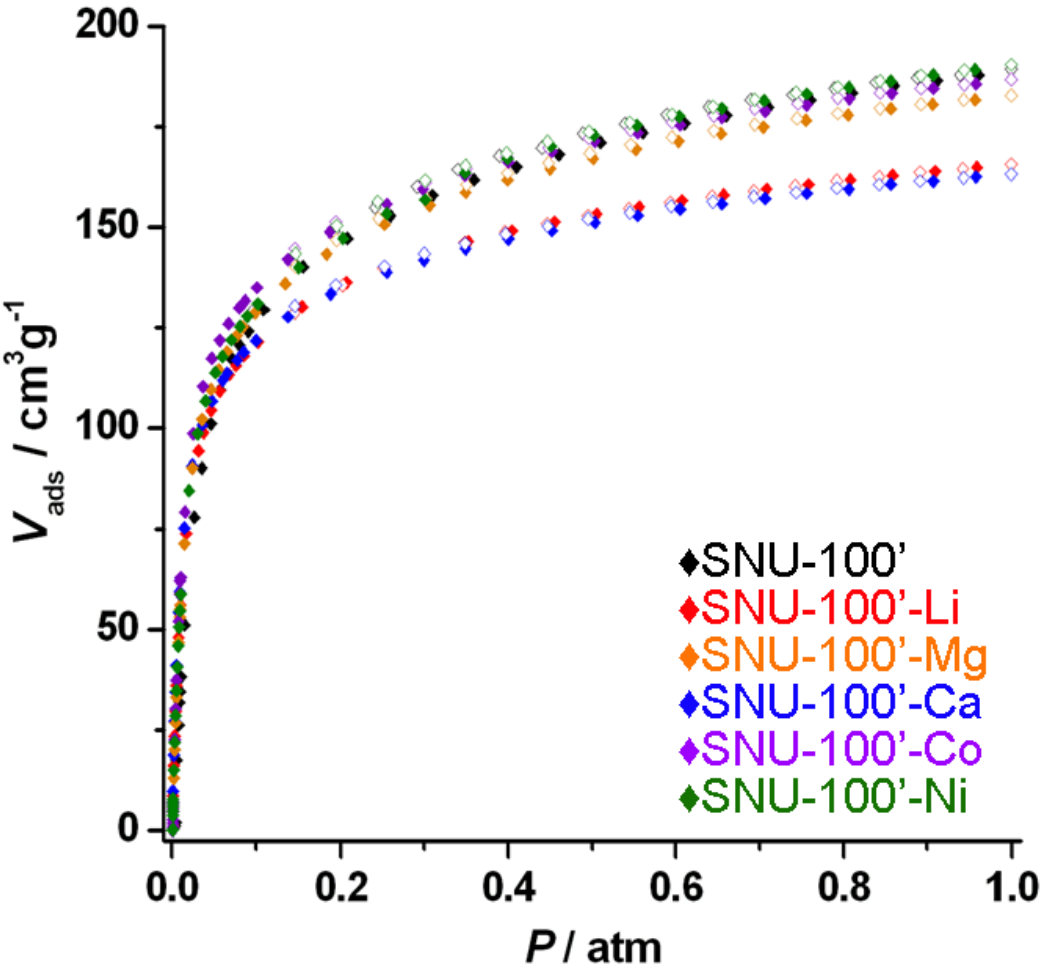

Figure S18. CO_2 sorption isotherms at 231 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

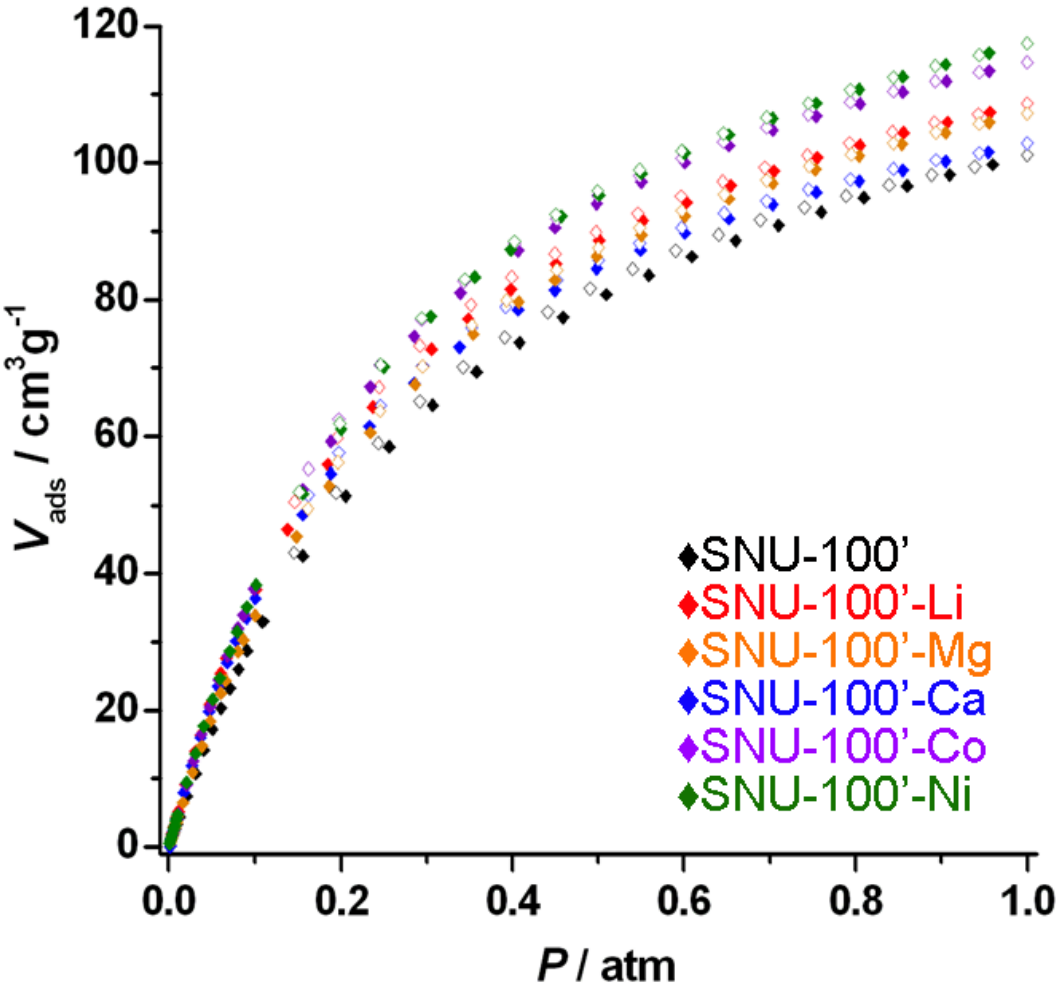

Figure S19. CO_2 sorption isotherms at 273 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

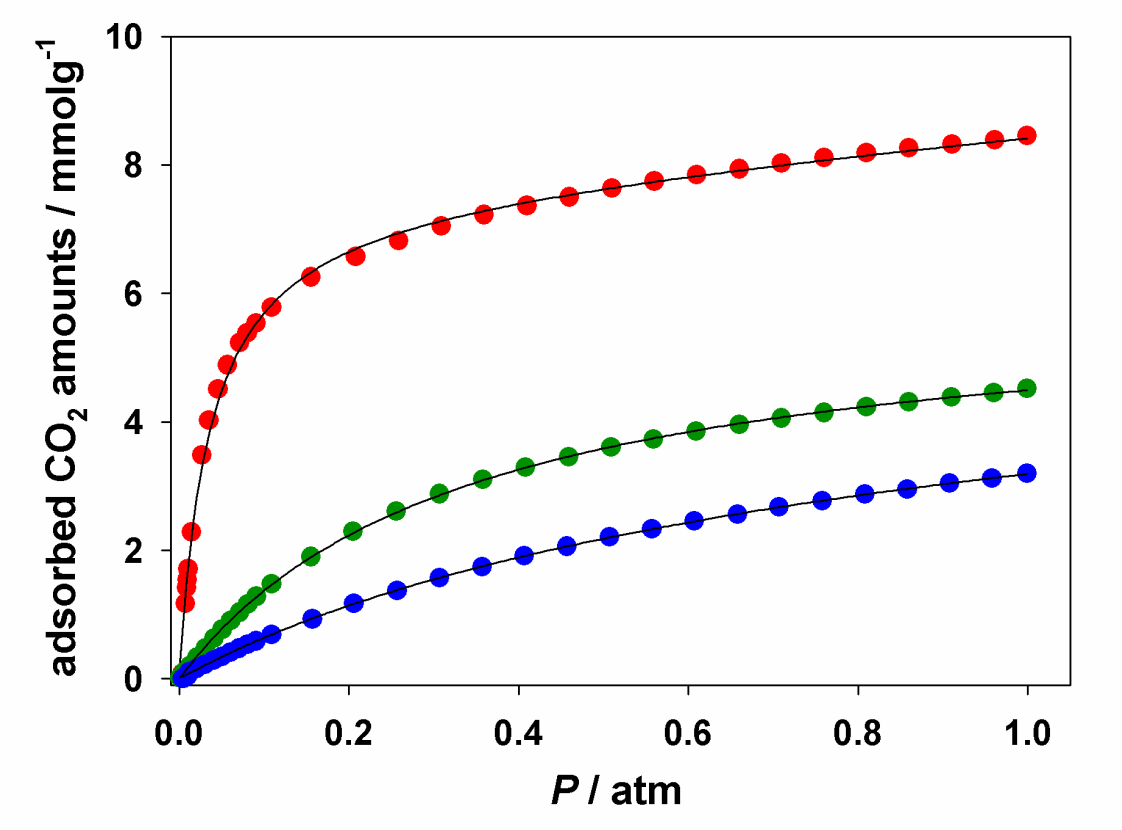

Figure S20. CO_2 gas adsorption isotherms of **SNU-100'** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

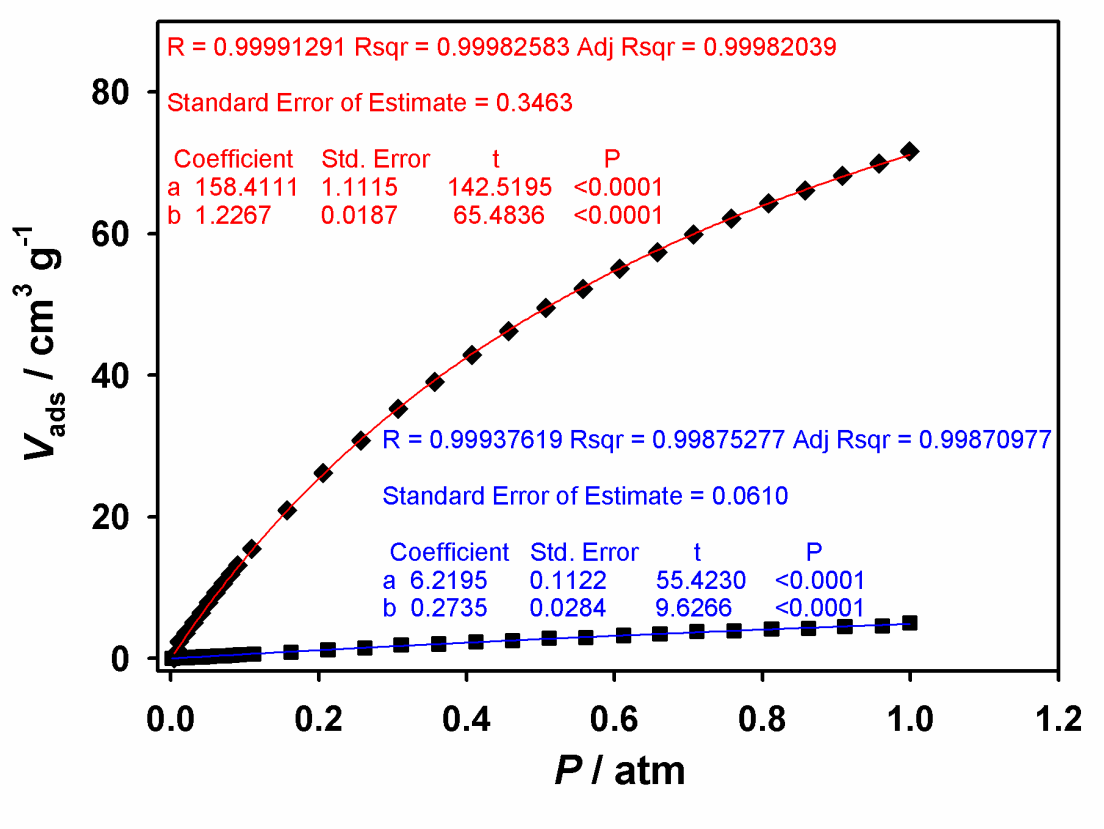

Figure S21. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

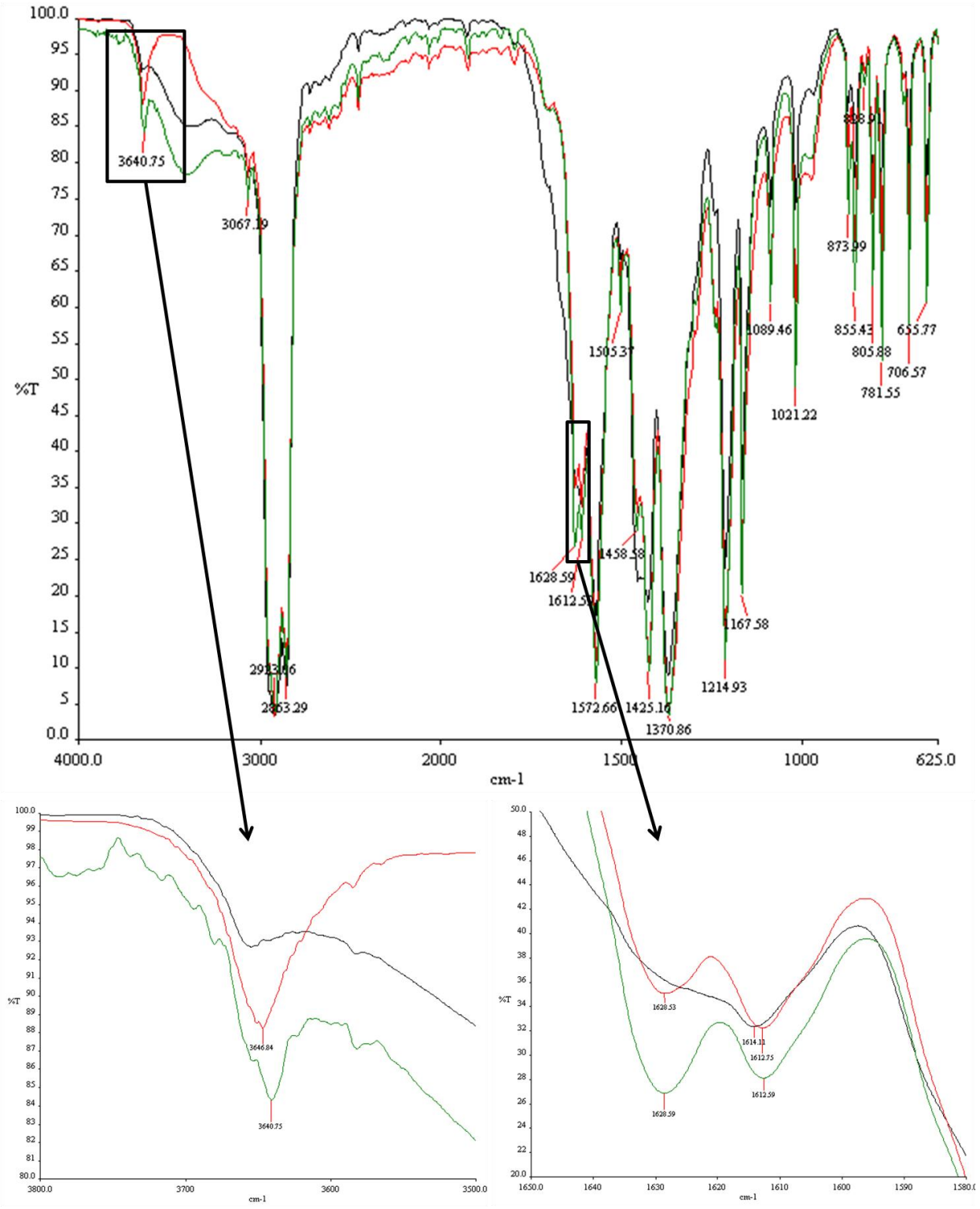

Figure S22. IR spectra of **SNU-100'** (black), **SNU-100'-Mg** (orange), and **SNU-100'-Ni** (green).

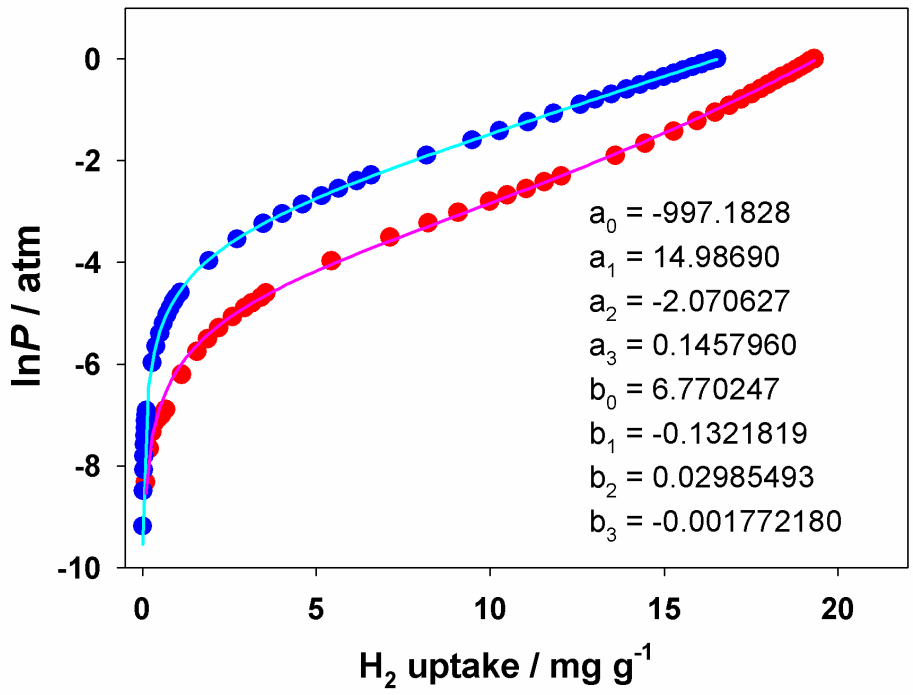

Figure S23. The virial fit for the H_2 adsorption isotherms of **SNU-100'-Li** measured at 77 K (red) and 87 K (blue). R = 0.9974.

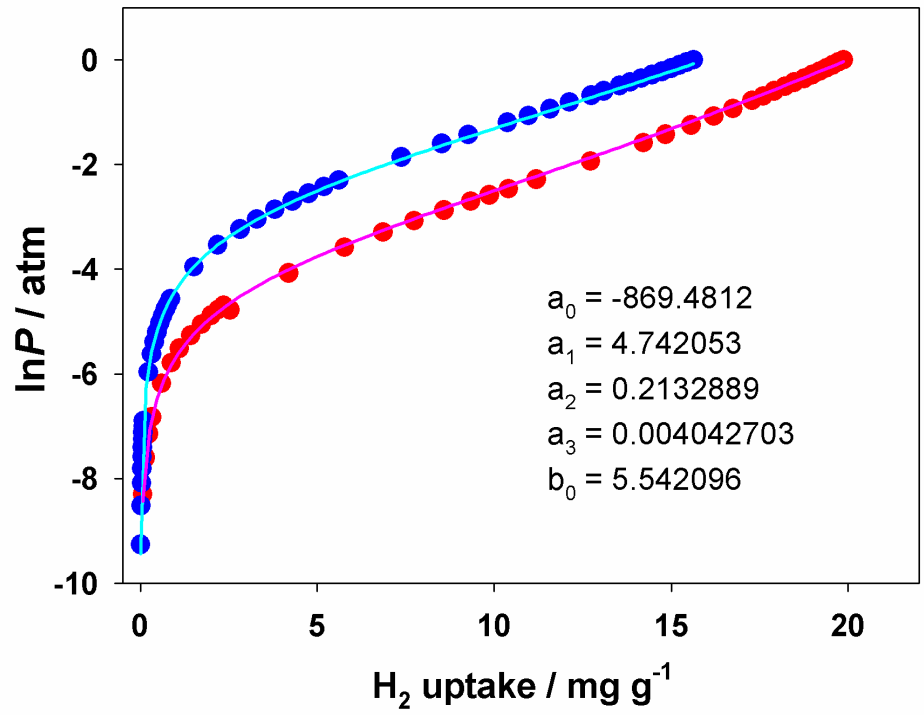

Figure S24. The virial fit for the H_2 adsorption isotherms of **SNU-100'-Mg** measured at 77 K (red) and 87 K (blue). R = 0.9978.

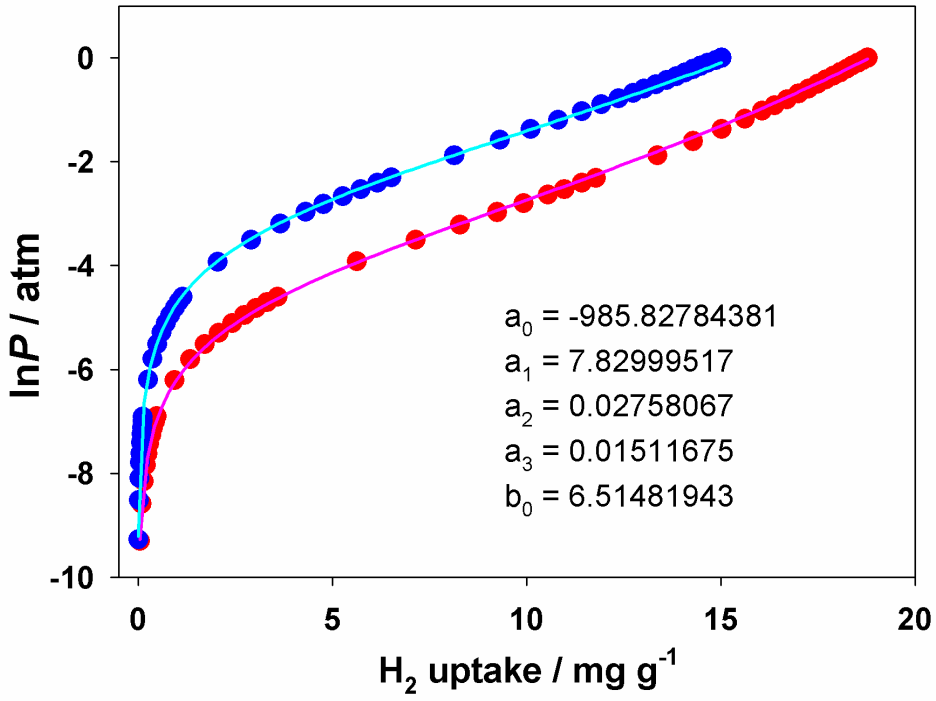

Figure S25. The virial fit for the H_2 adsorption isotherms of **SNU-100'-Ca** measured at 77 K (red) and 87 K (blue). R = 0.9992.

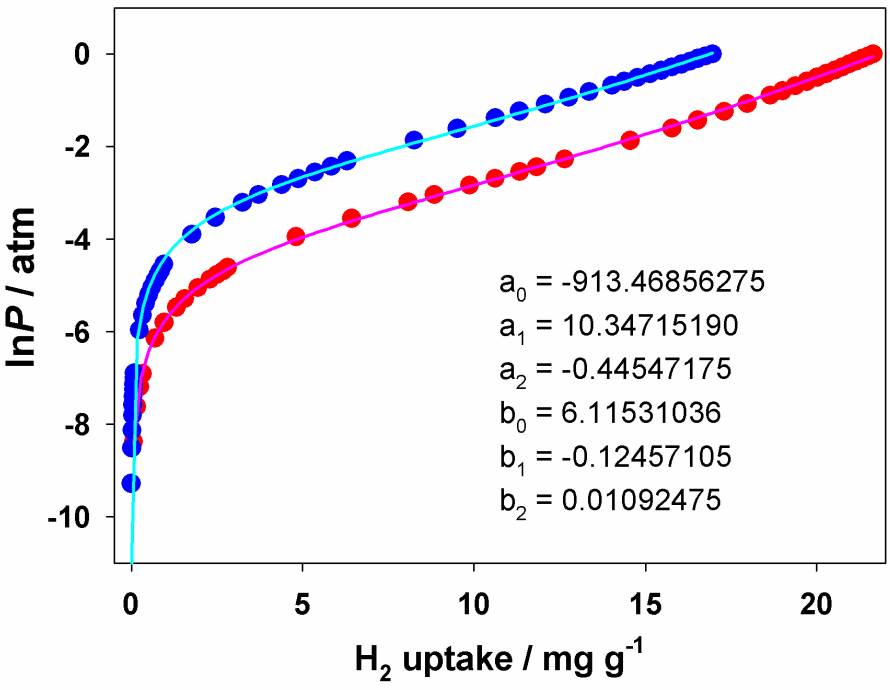

Figure S26. The virial fit for the H_2 adsorption isotherms of **SNU-100'-Co** measured at 77 K (red) and 87 K (blue). R = 0.9969.

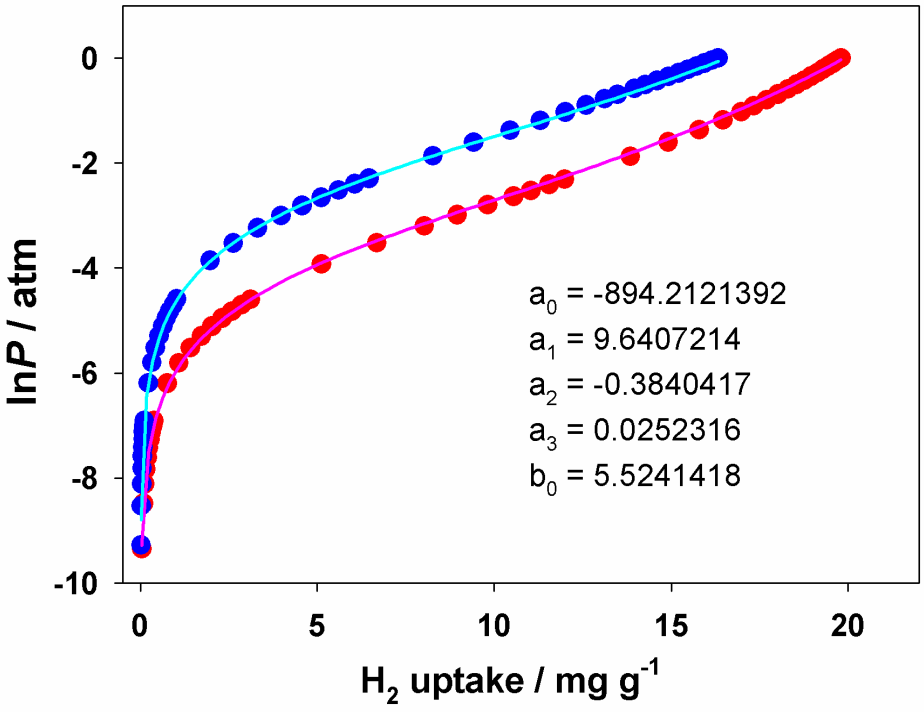

Figure S27. The virial fit for the H_2 adsorption isotherms of **SNU-100'-Ni** measured at 77 K (red) and 87 K (blue). R = 0.9983.

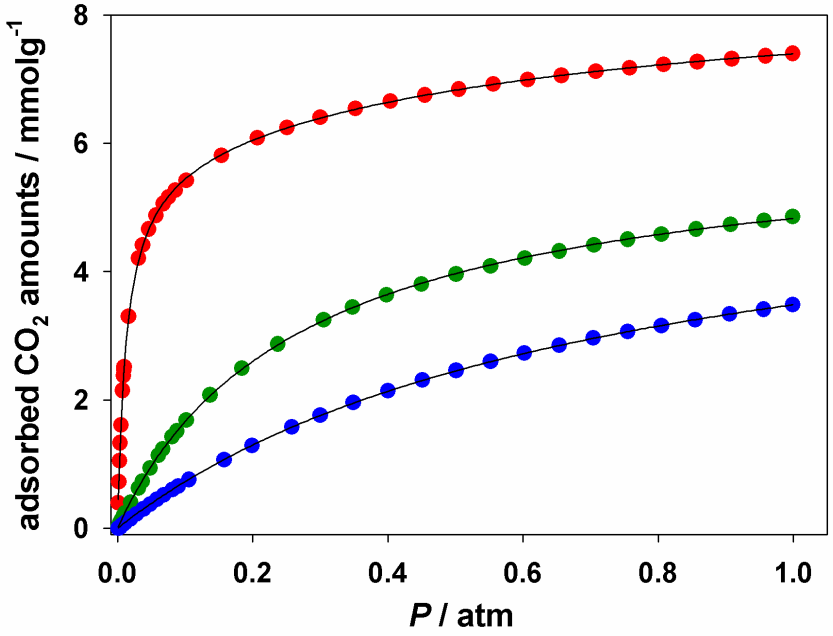

Figure S28. CO_2 gas adsorption isotherms for **SNU-100'-Li** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

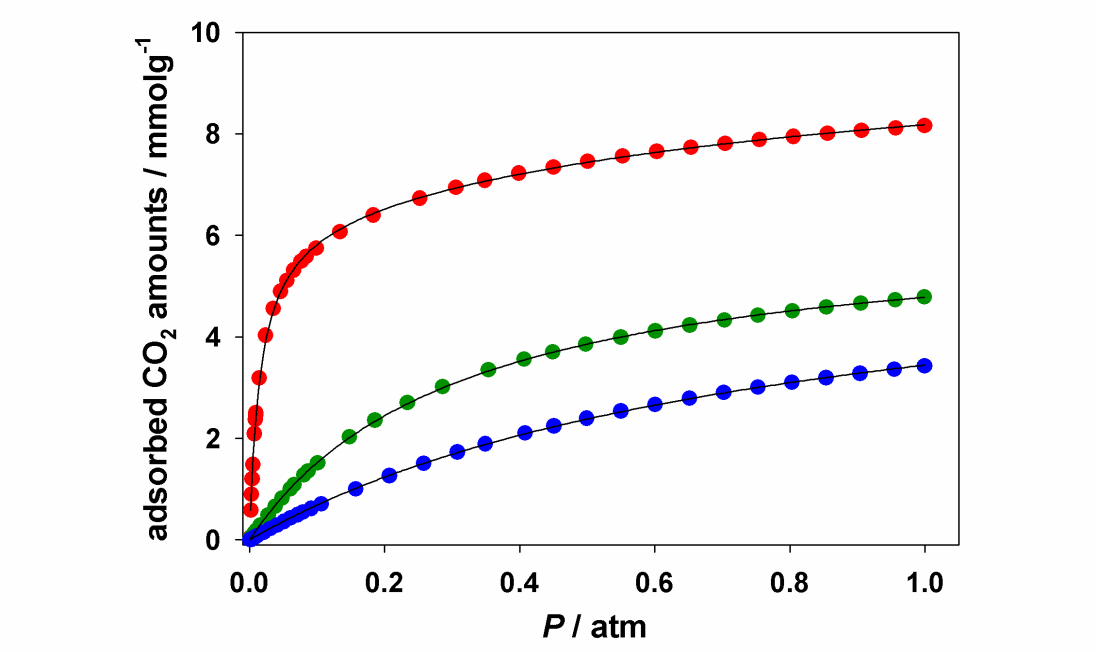

Figure S29. CO_2 gas adsorption isotherms for **SNU-100'-Mg** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

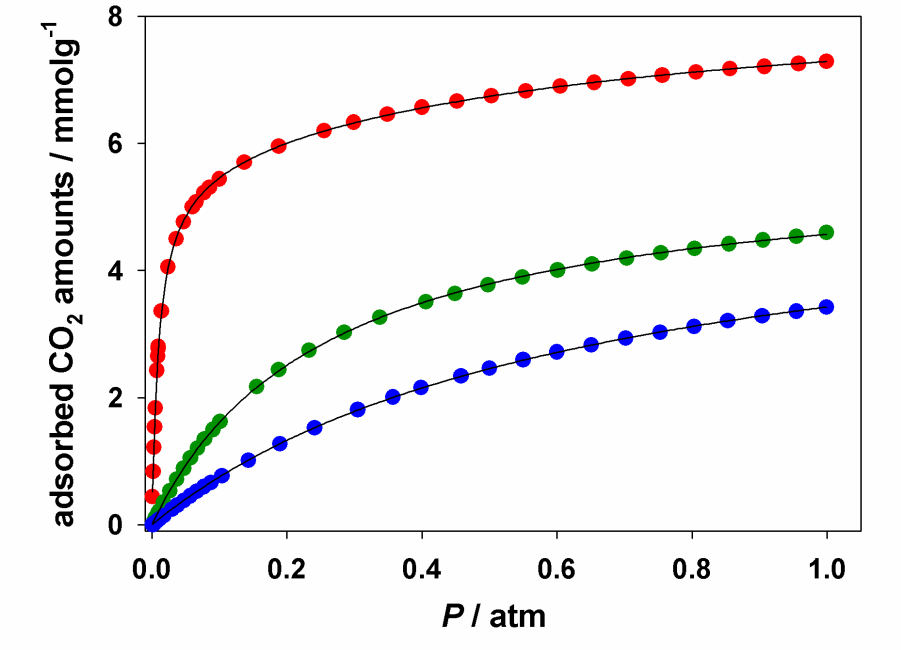

Figure S30. CO_2 gas adsorption isotherms for **SNU-100'-Ca** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

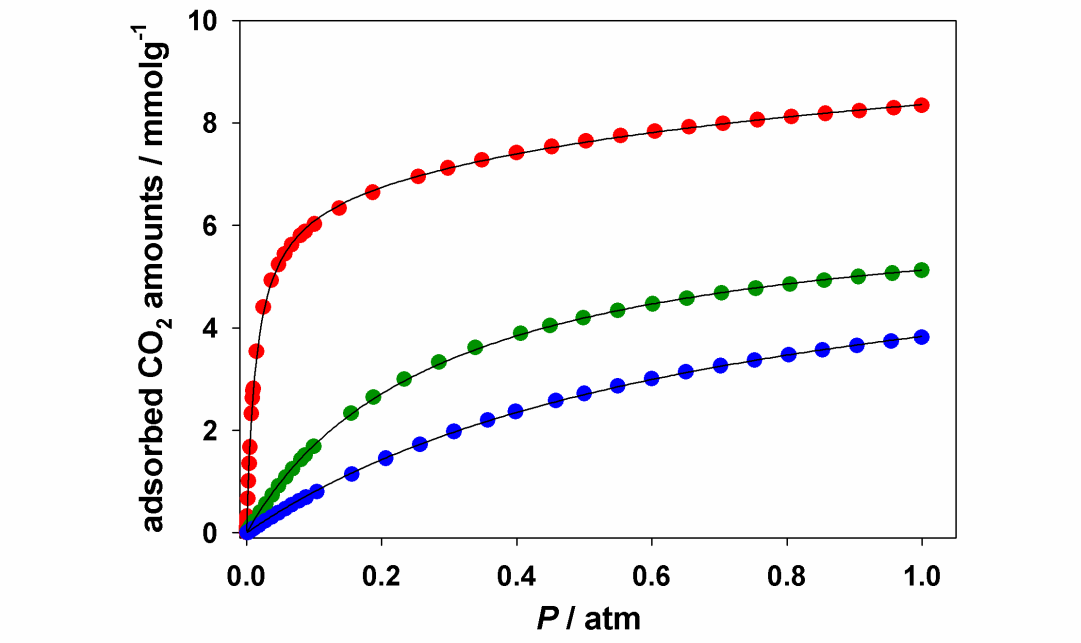

Figure S31. CO_2 gas adsorption isotherms for **SNU-100'-Co** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

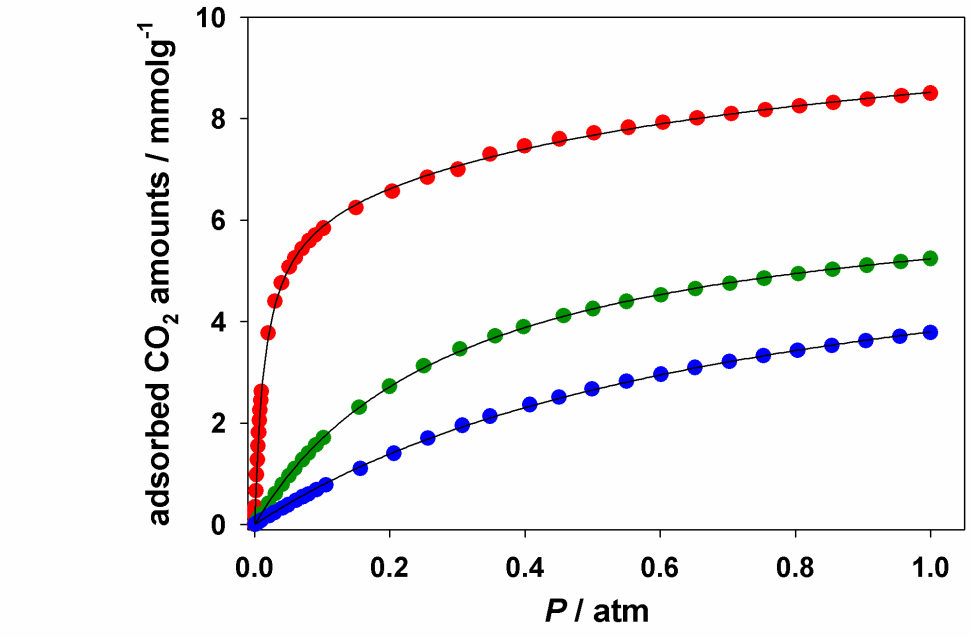

Figure S32. CO_2 gas adsorption isotherms for **SNU-100'-Ni** at 231 (red), 273 (green), and 298 K (blue). The solid lines correspond to dual-site Langmuir equation fit.

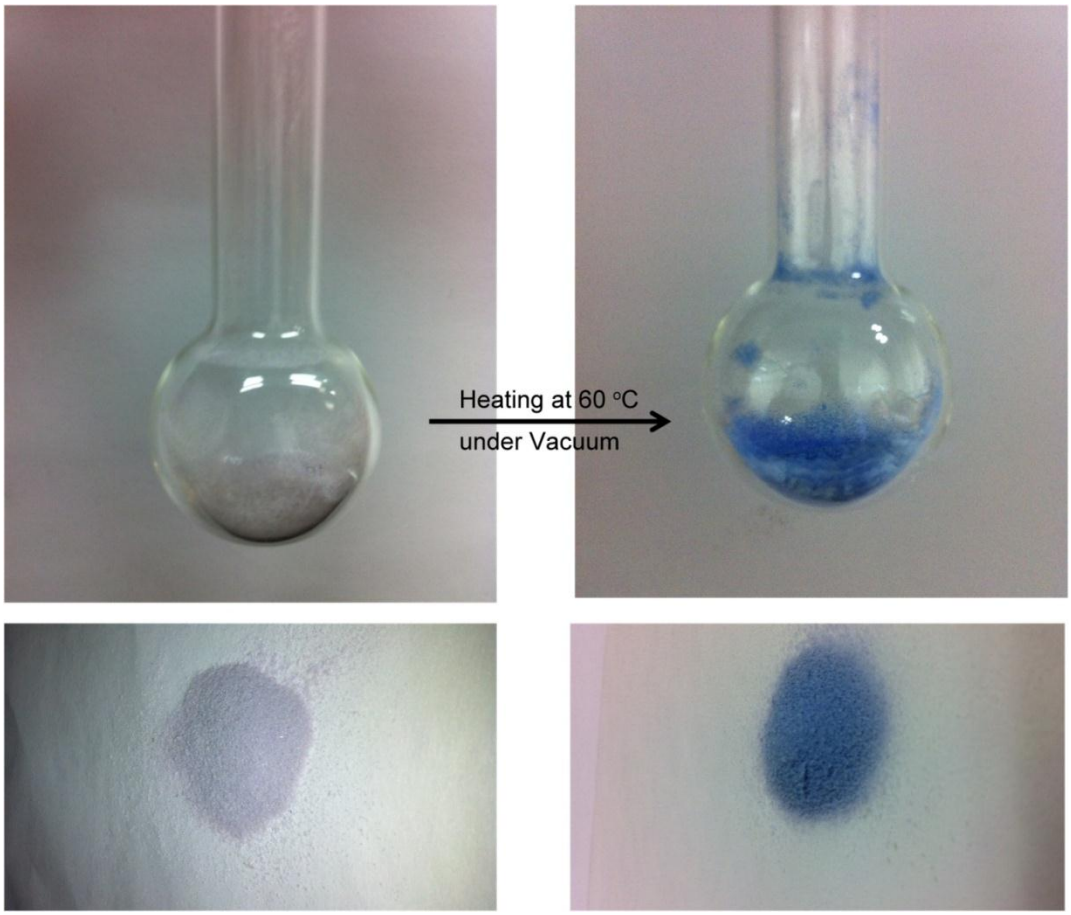

Figure S33. The photos of **SNU-100-Co** (left) as synthesized and **SNU-100'-Co** after activation at 60 ^{o}C under vacuum for 12 h (right).

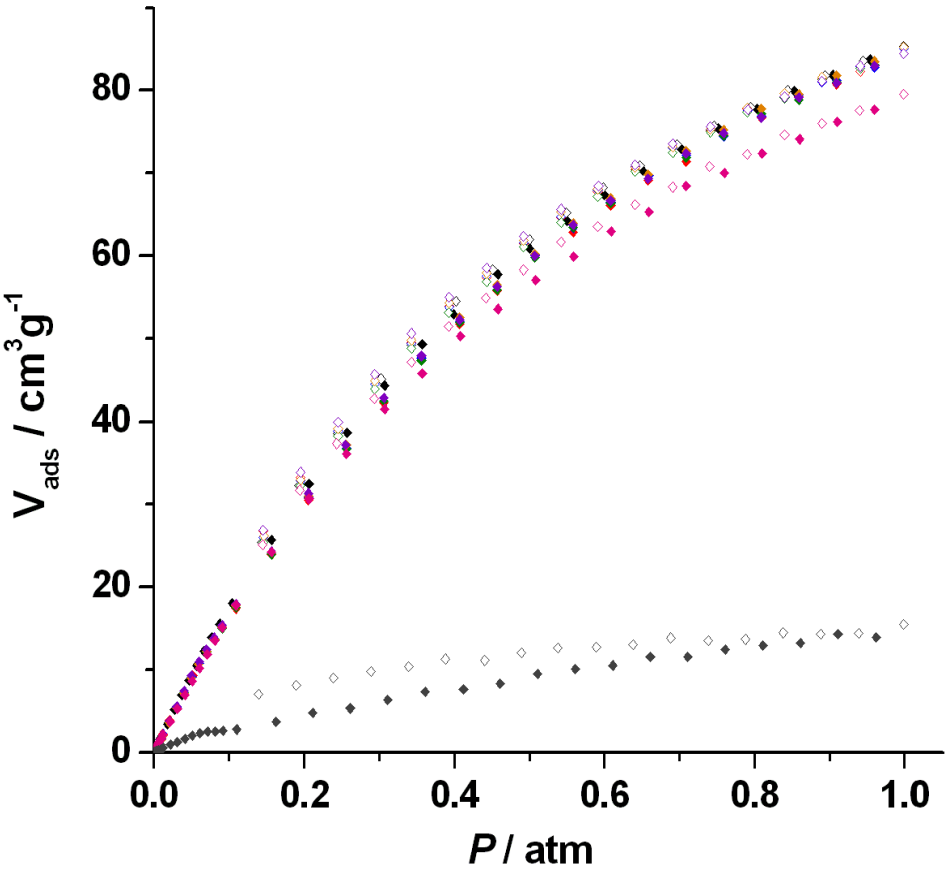

Figure S34. CO_2 sorption isotherms of **SNU-100'-Co** measured at 298 K, depending on the activation temperature. Activated at 60 ^oC, black; at 100 ^oC, red; at 150 ^oC, blue; at 200 ^oC, green; at 250 ^oC, orange; at 300 ^oC, purple; at 350 ^oC, pink; at 400 ^oC, gray. Filled shapes: adsorption. Open shapes: desorption.

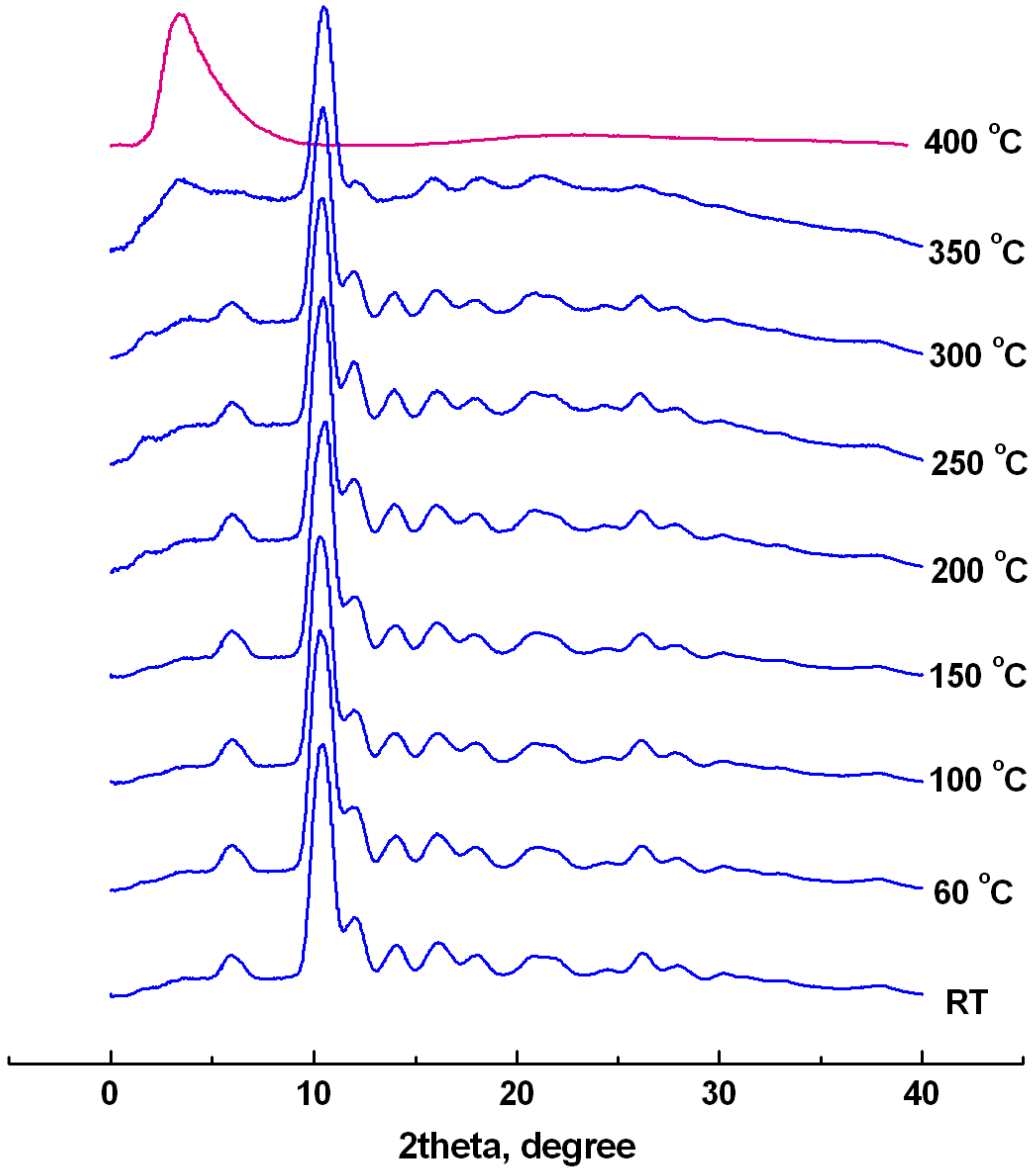

Figure S35. The temperature dependent powder X-ray diffraction (PXRD) patterns of **SNU-100'-Co** (from room temperature to 400 °C), showing thermal stability of the sample up to 350 °C.

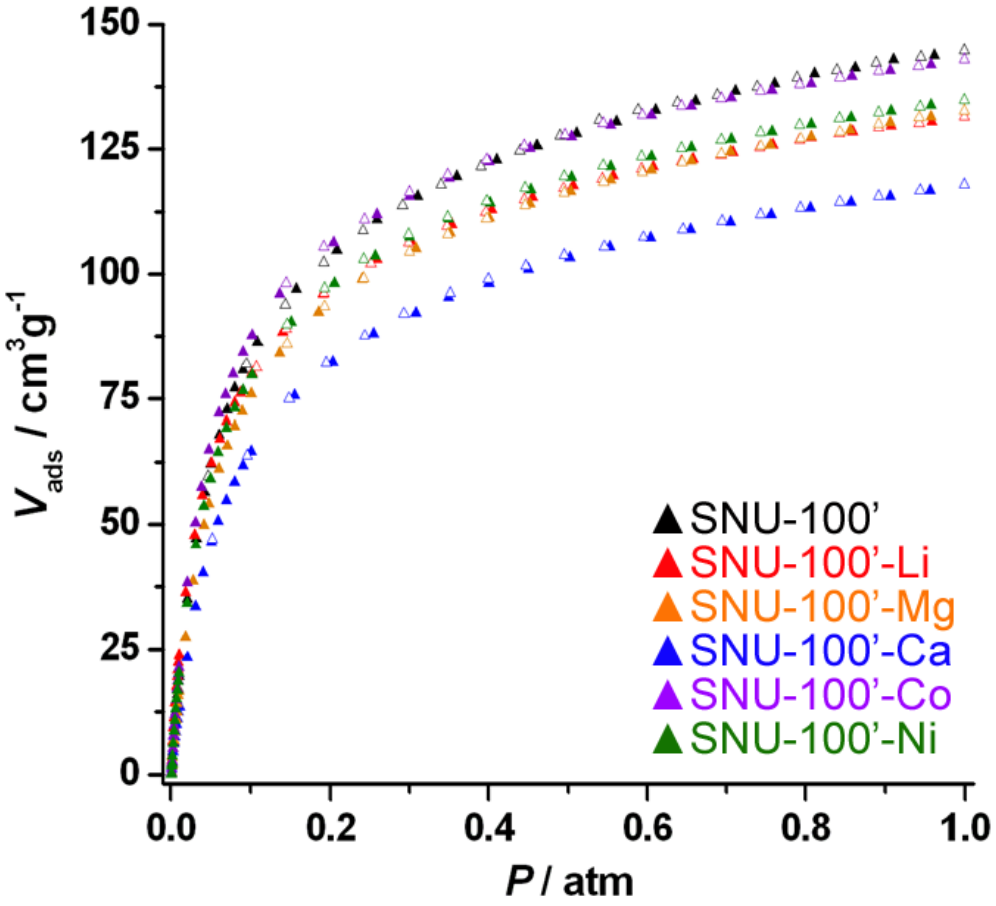

Figure S36. CH_4 sorption isotherms at 195 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

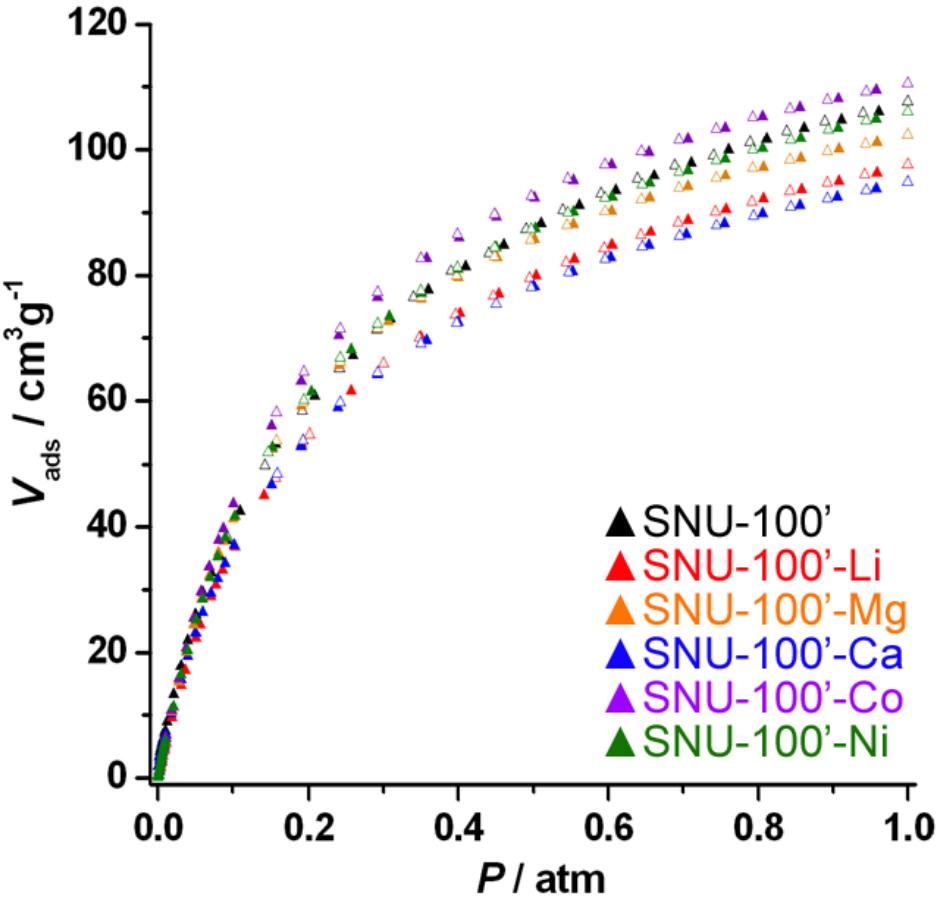

Figure S37. CH_4 sorption isotherms at 231 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

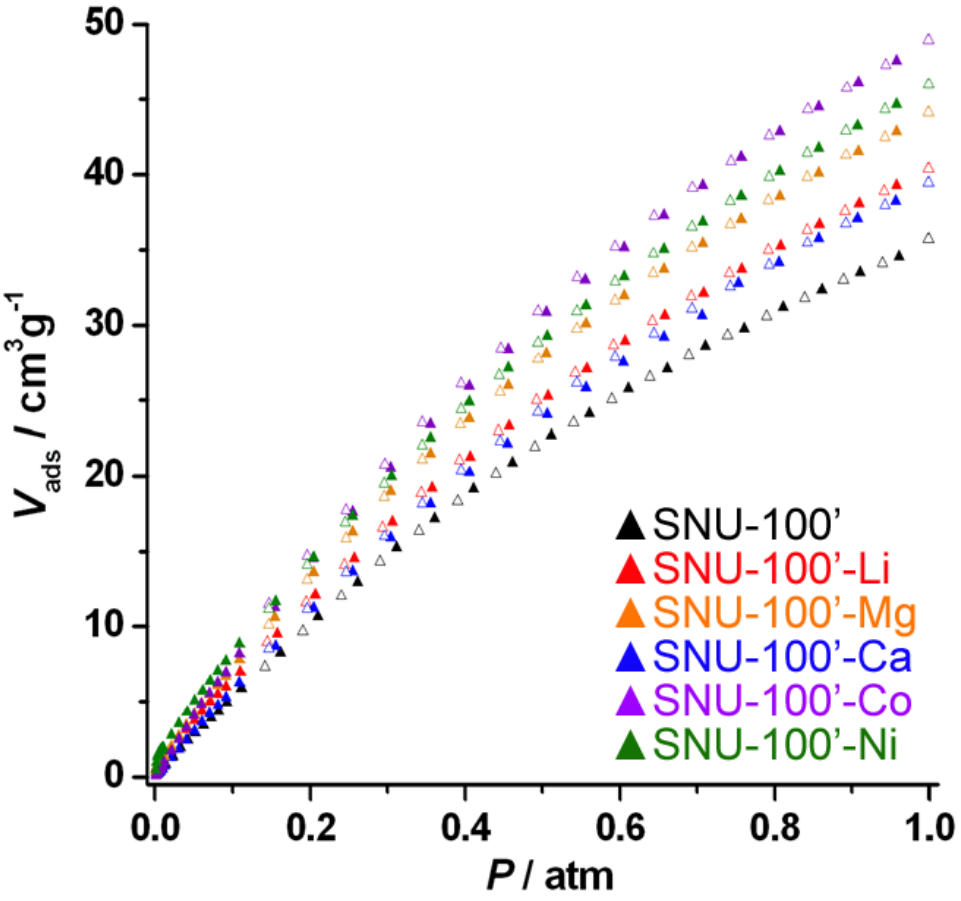

Figure S38. CH_4 sorption isotherms at 273 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

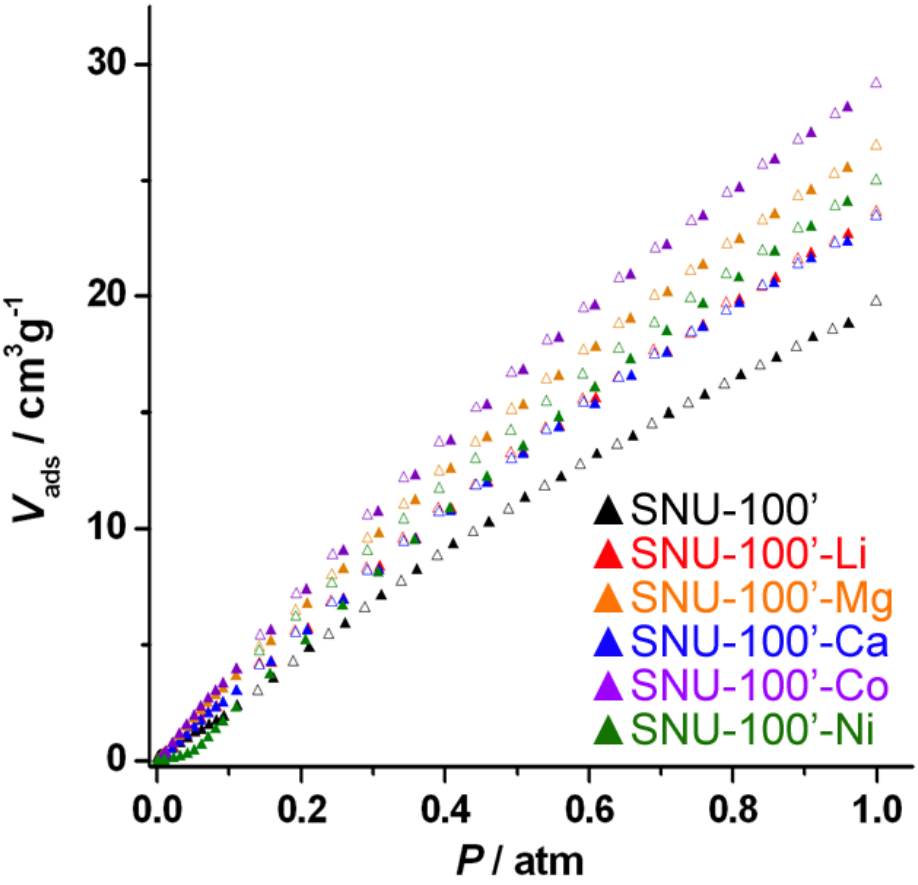

Figure S39. CH_4 sorption isotherms at 298 K for the series of **SNU-100'-M**. Filled shapes: adsorption. Open shapes: desorption.

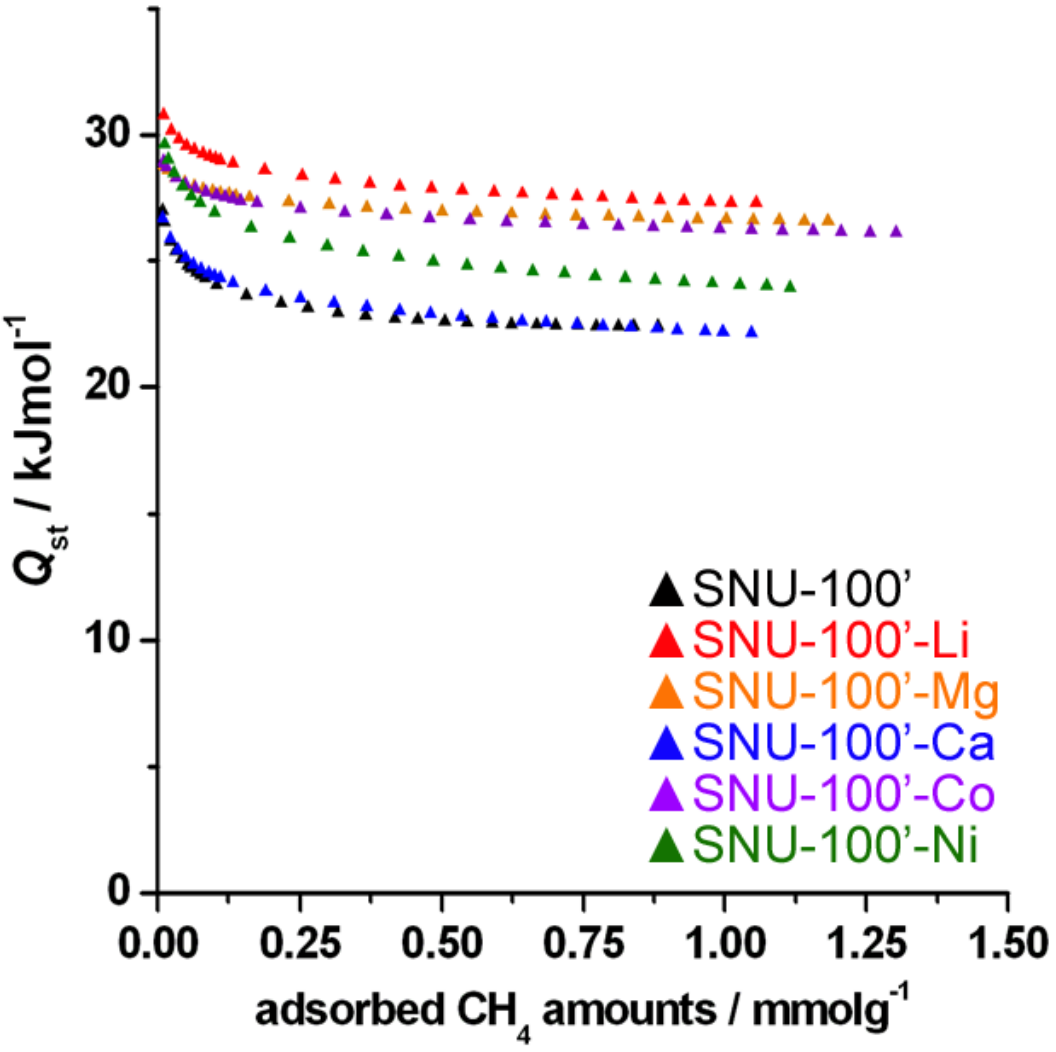

Figure S40. Isosteric heats of the CH_4 adsorption for the series of **SNU-100'-M**.

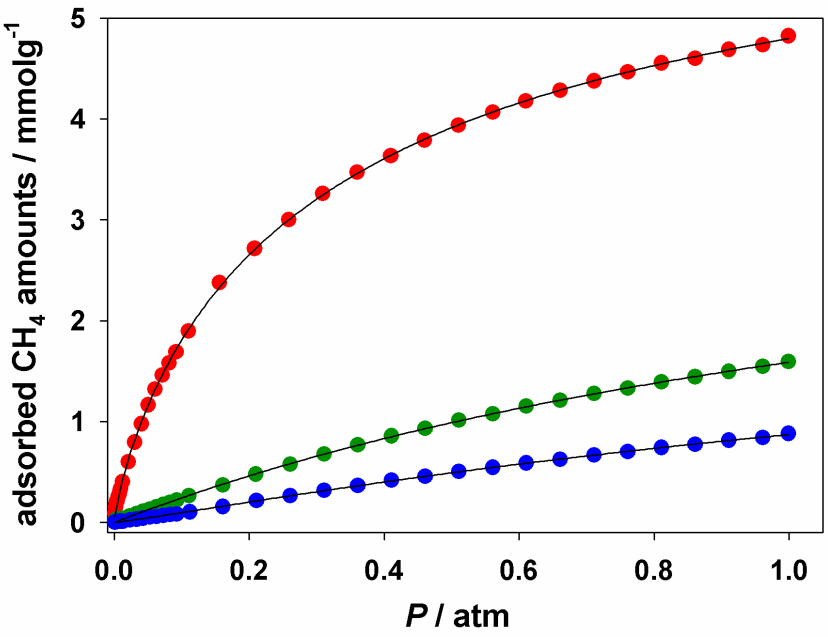

Figure S41. CH_4 gas adsorption isotherms for **SNU-100'** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

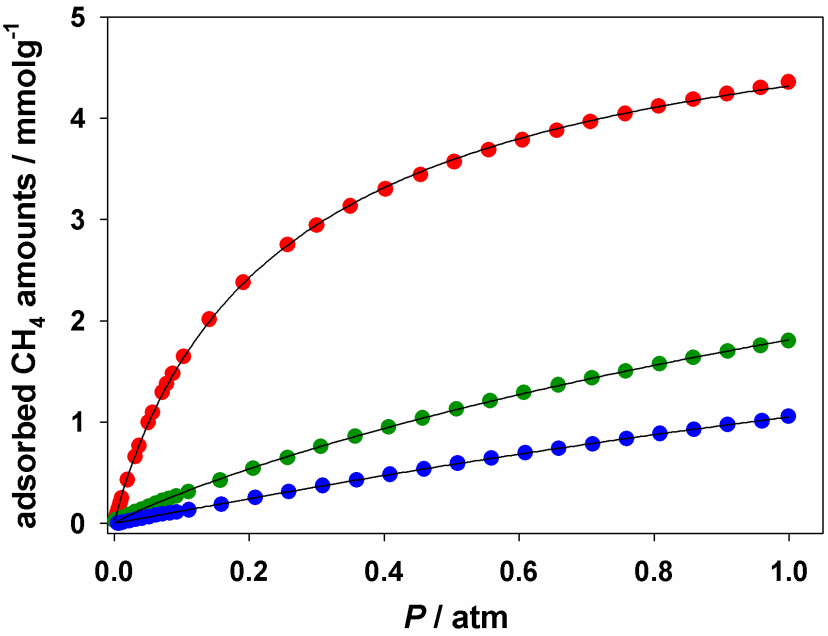

Figure S42. CH_4 gas adsorption isotherms for **SNU-100'-Li** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

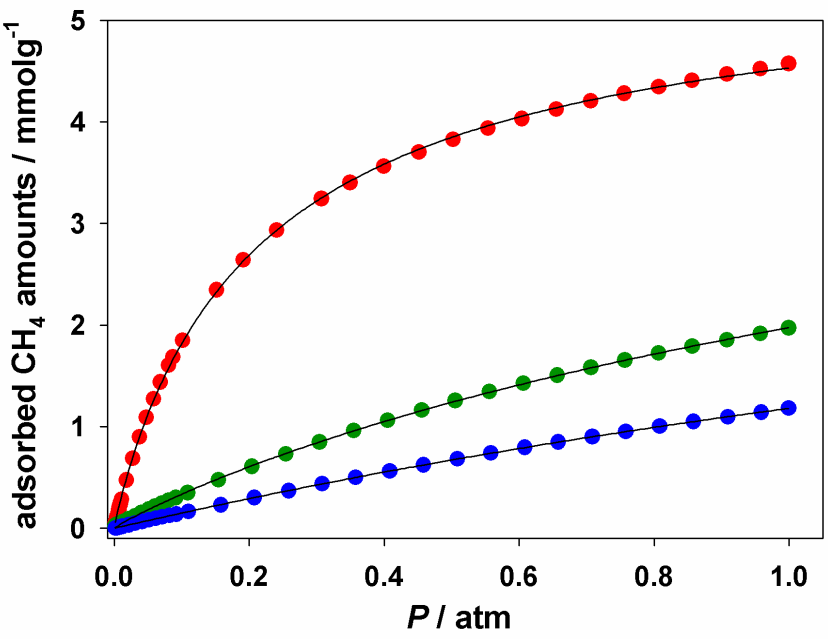

Figure S43. CH_4 gas adsorption isotherms for **SNU-100'-Mg** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

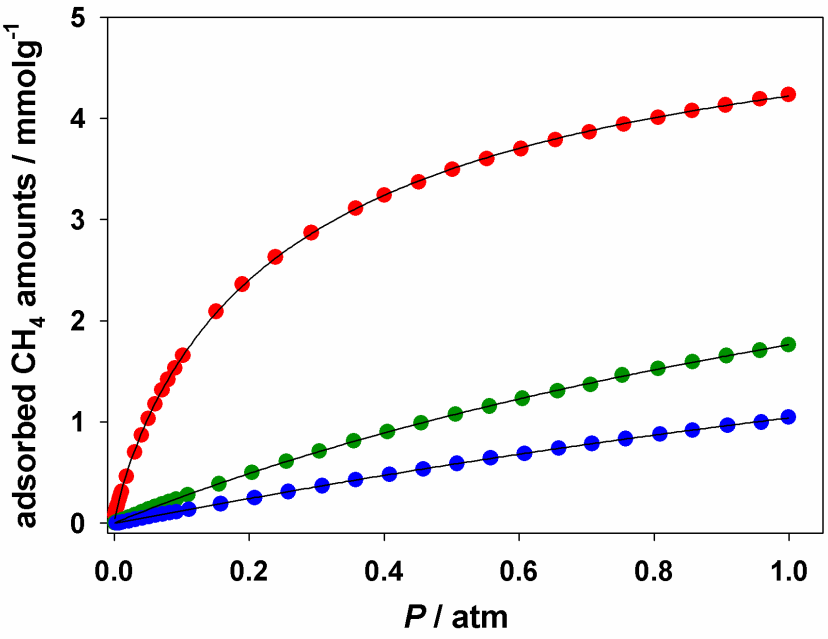

Figure S44. CH_4 gas adsorption isotherms for **SNU-100'-Ca** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

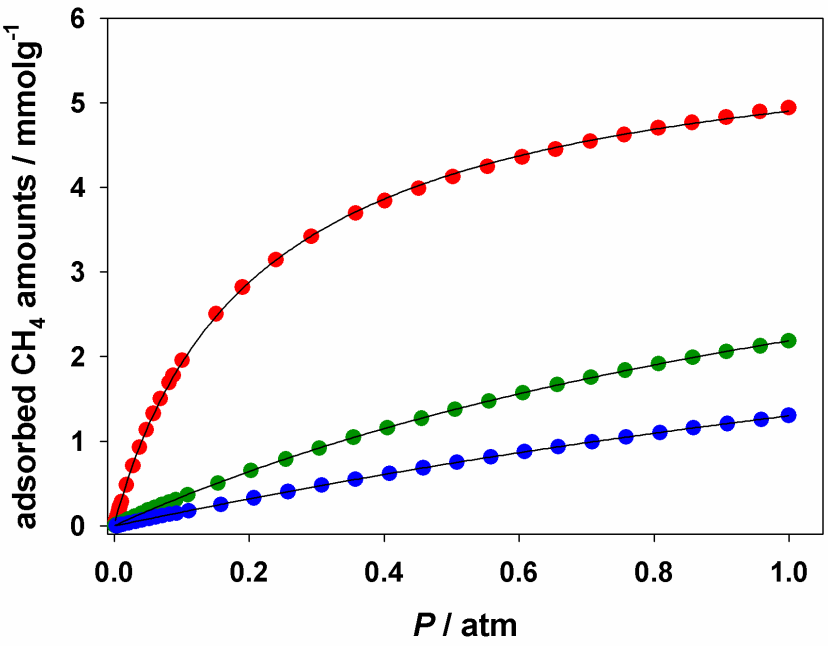

Figure S45. CH_4 gas adsorption isotherms for **SNU-100'-Co** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

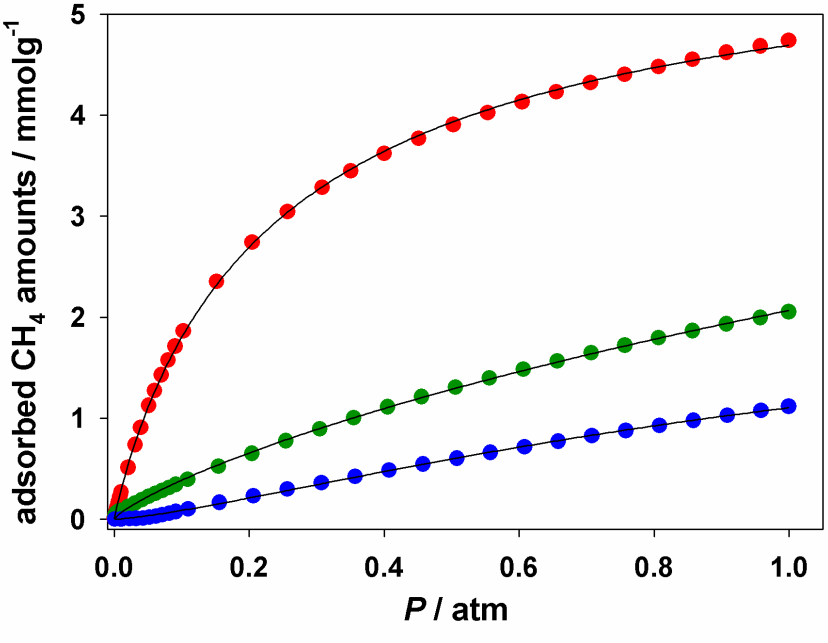

Figure S46. CH_4 gas adsorption isotherms for **SNU-100'-Ni** at 231 (red), 273 (green), and 298 K (blue). The solid line corresponds to the Langmuir-Freundlich equation fit.

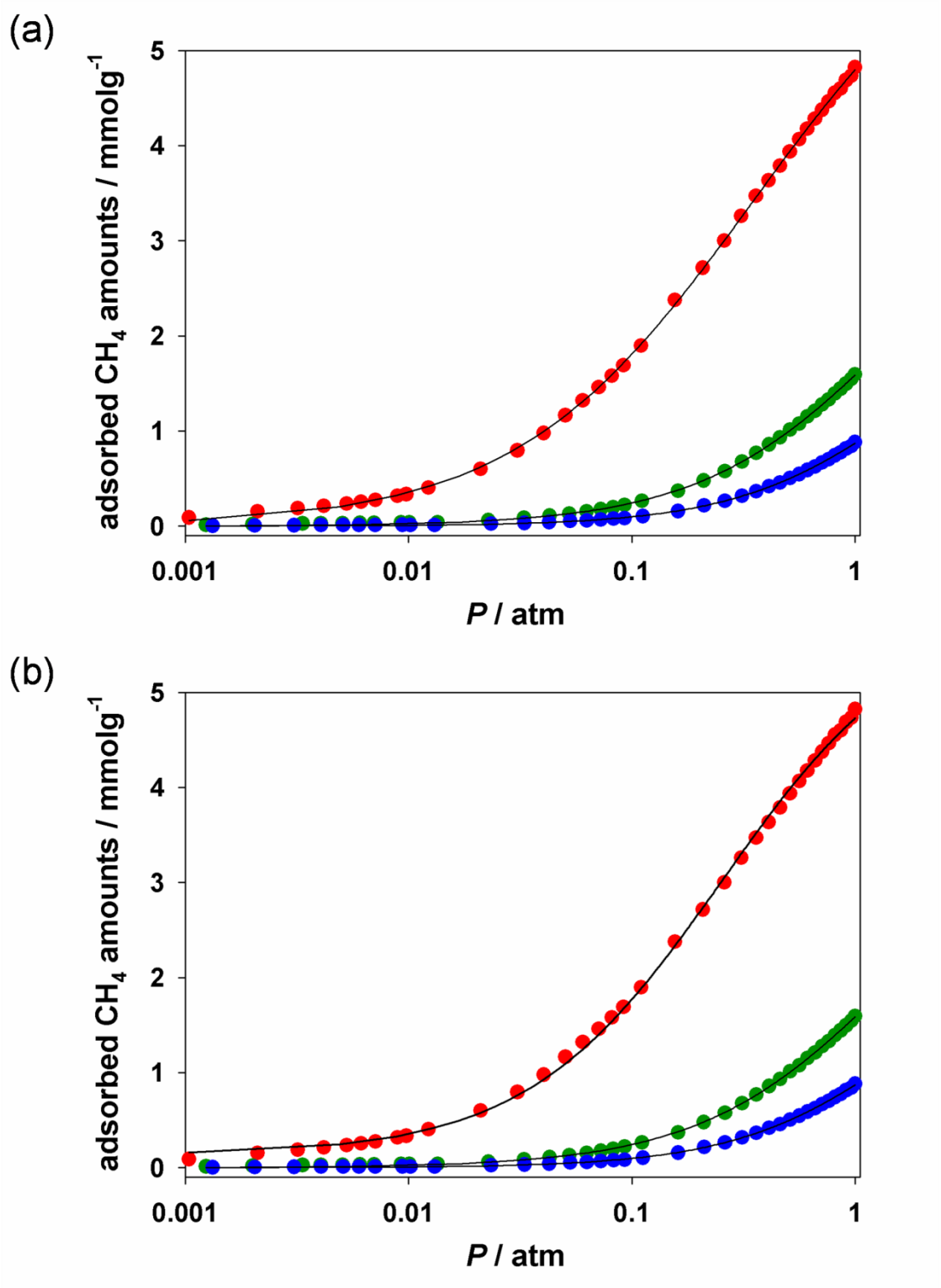

Figure S47. CH_4 gas adsorption isotherms for **SNU-100'** at 231 (red), 273 (green), and 298 K (blue) on a logarithmic scale. (a) The solid line corresponds to the Langmuir-Freundlich equation fit. (b) The solid line corresponds to the dual-site Langmuir equation fit.

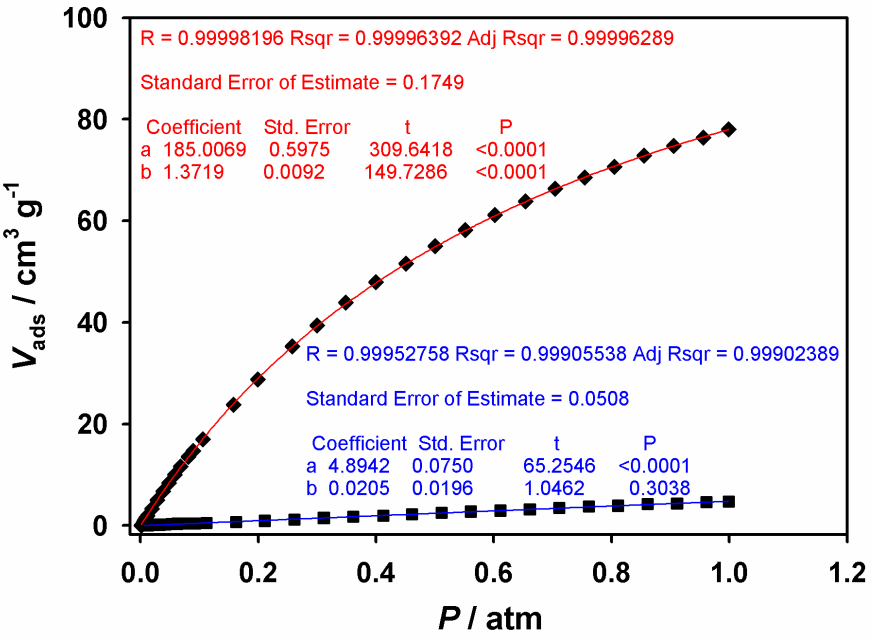

Figure S48. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'-Li** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

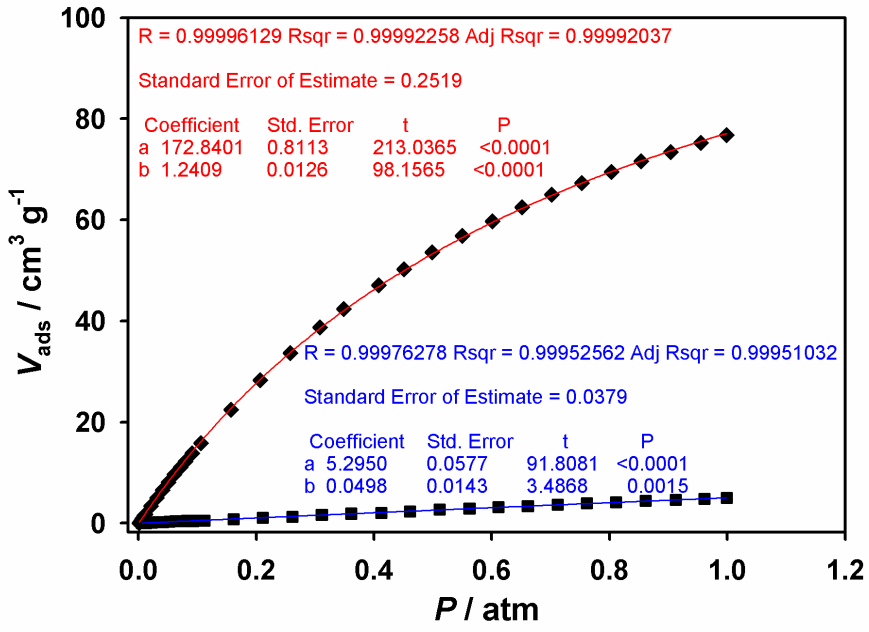

Figure S49. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'-Mg** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

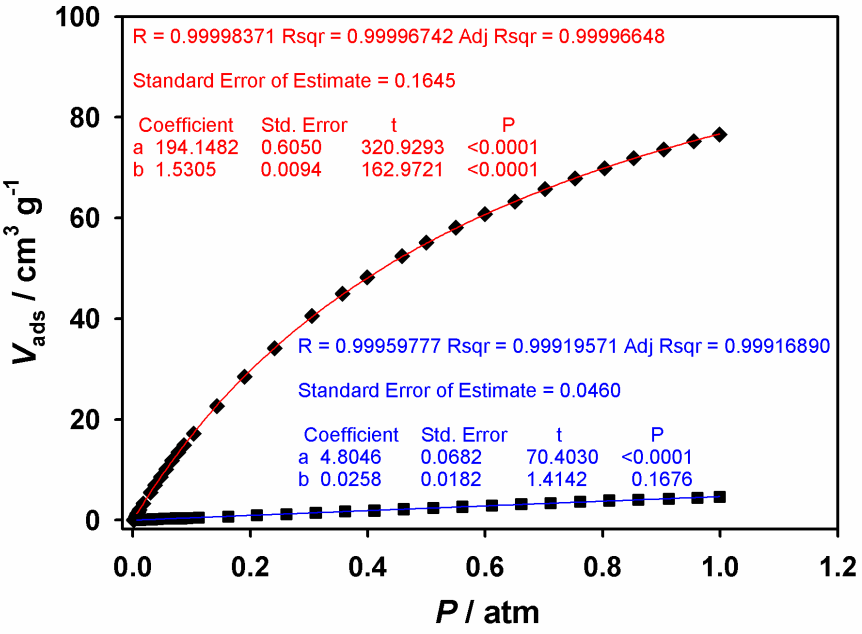

Figure S50. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'-Ca** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

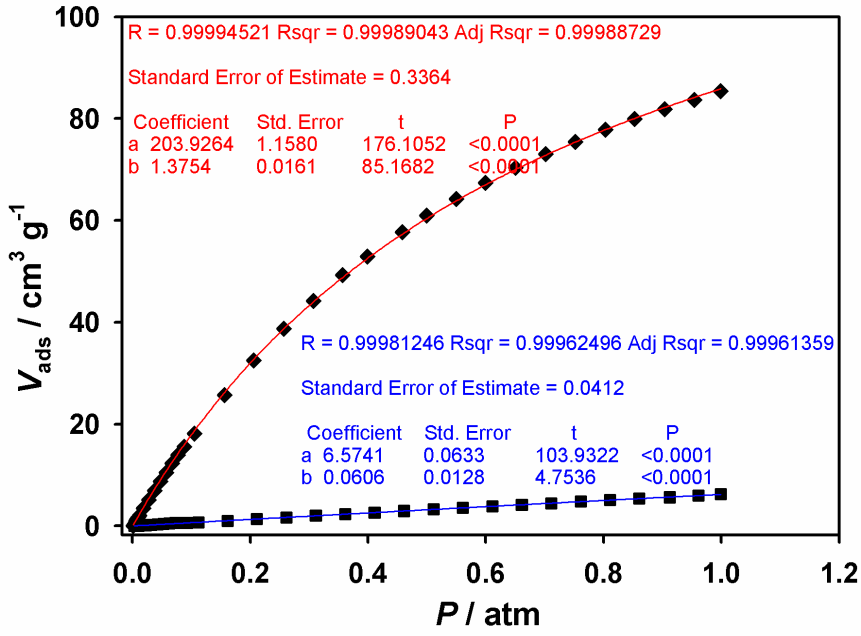

Figure S51. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'-Co** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

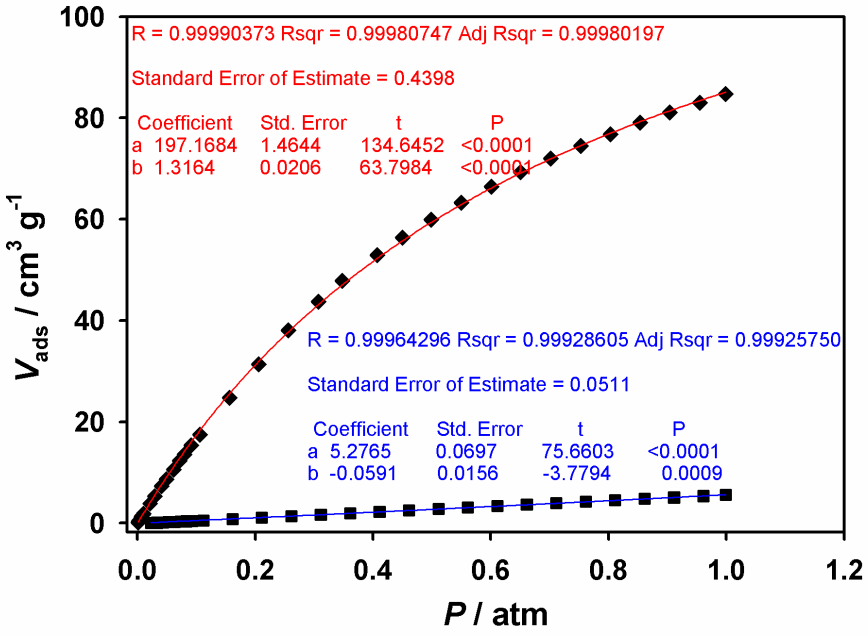

Figure S52. CO_2 (diamond) and N_2 (square) gas adsorption isotherms for **SNU-100'-Ni** at 298 K. The solid line corresponds to the Langmuir equation fit. CO_2 (red) and N_2 (blue).

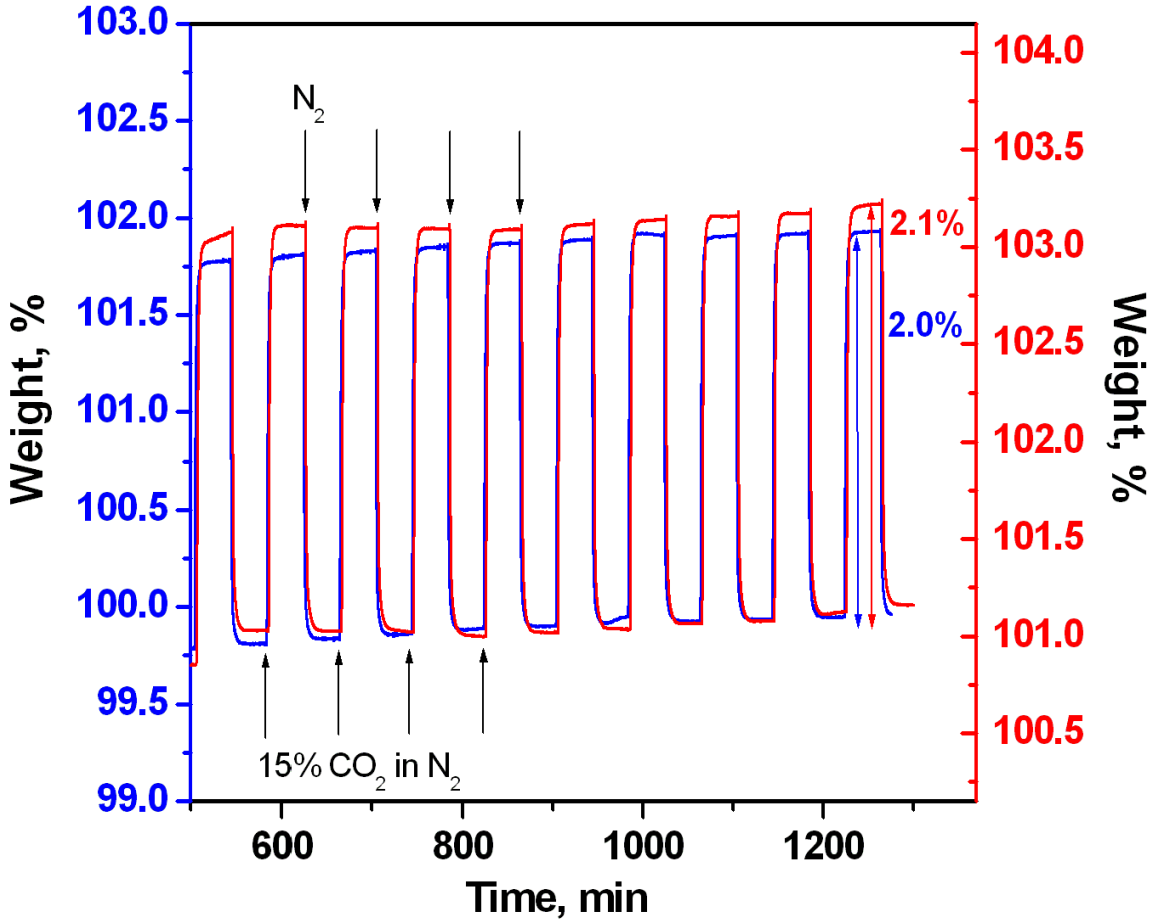

Figure S53. Gas cycling data measured on a thermogravimetric instrument for **SNU-100'** (blue) and **SNU-100'-Co** (red) at 298 K, using a stream of 15% (v/v) CO_2 in N_2 followed by pure N_2.

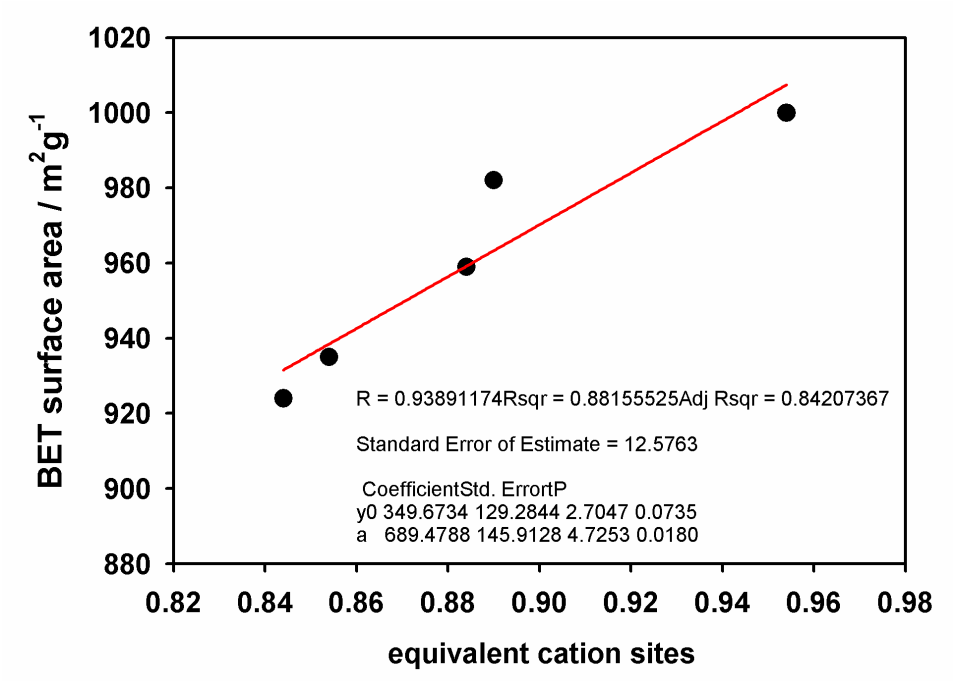

Figure S54. The plot of the BET surface areas versus equivalent cation sites, independent of type of the metal ions.

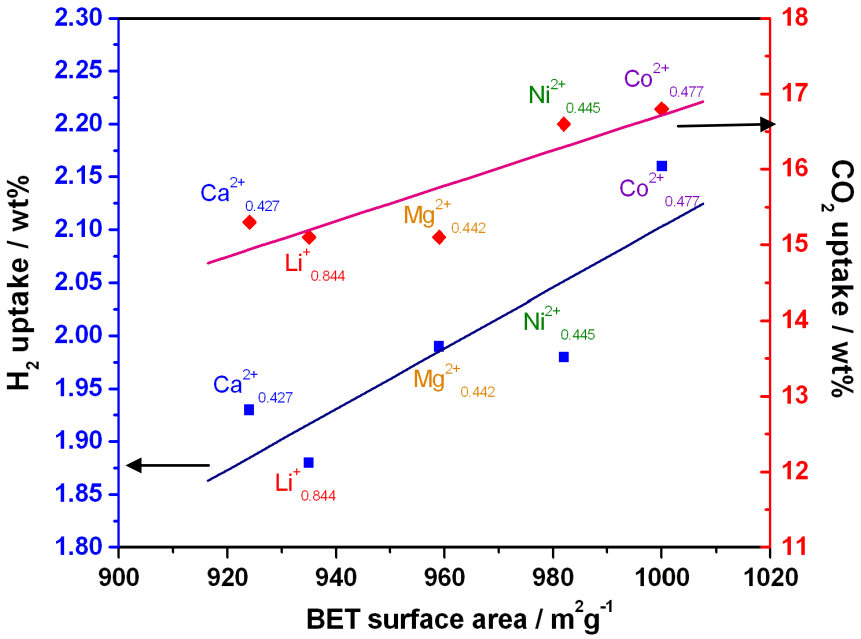

Figure S55. The plot of the BET surface areas versus H_2 uptake at 77 K and 1 atm (blue), and CO_2 uptake at 298 K and 1 atm (red).

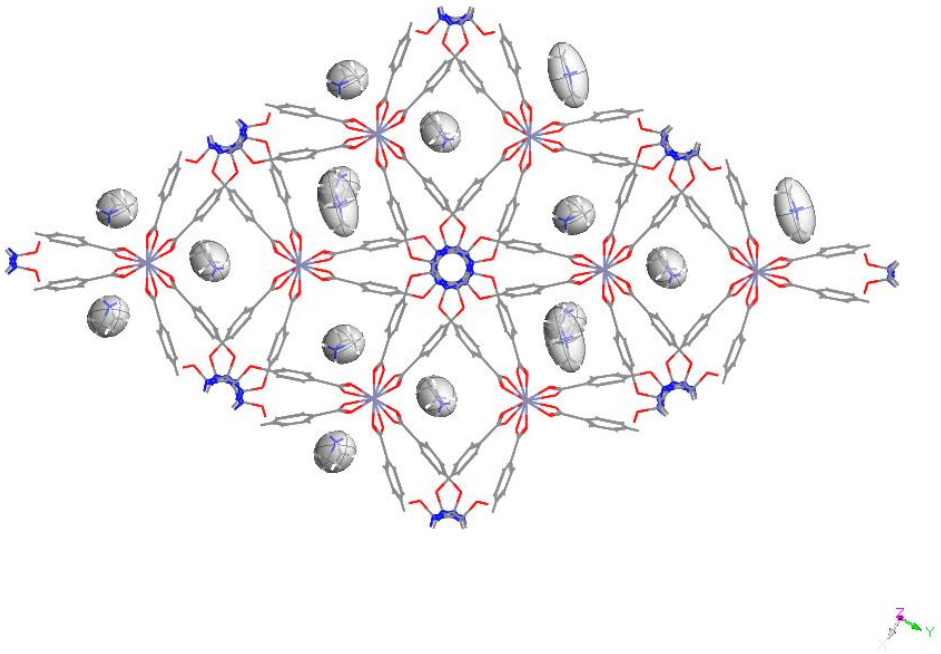

Figure S56. Theoretical binding sites of dimethylammonium cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

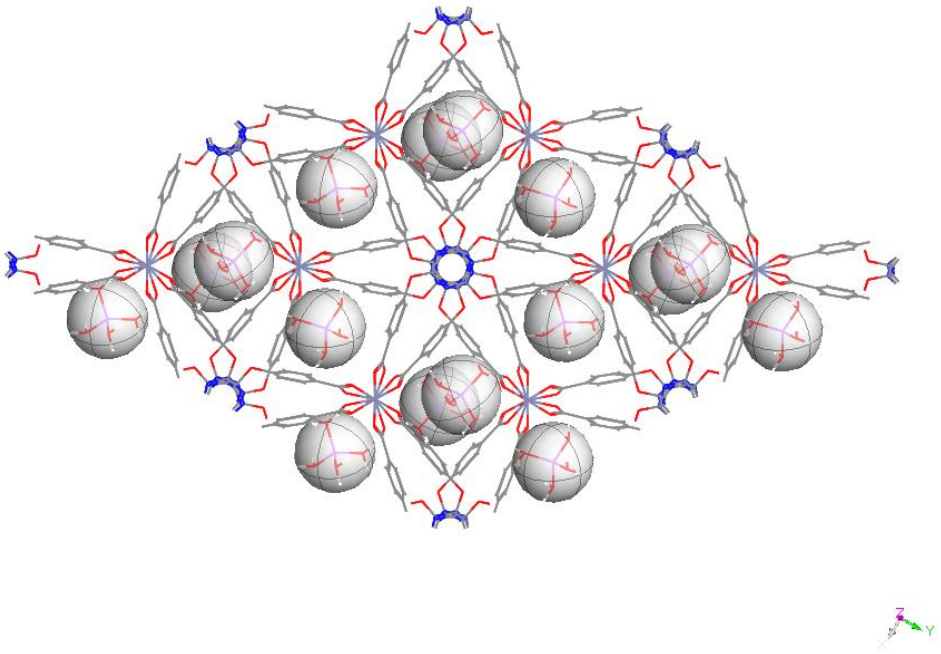

Figure S57. Theoretical binding sites of $[Li(H_2O)_4]^+$ cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

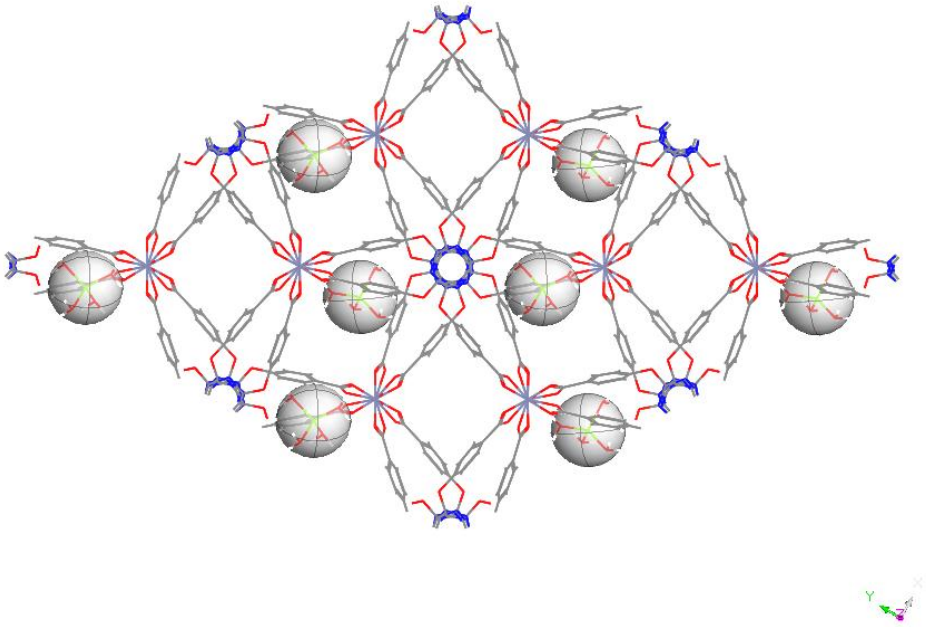

Figure S58. Theoretical binding sites of $[Mg(H_2O)_4]^{2+}$ cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

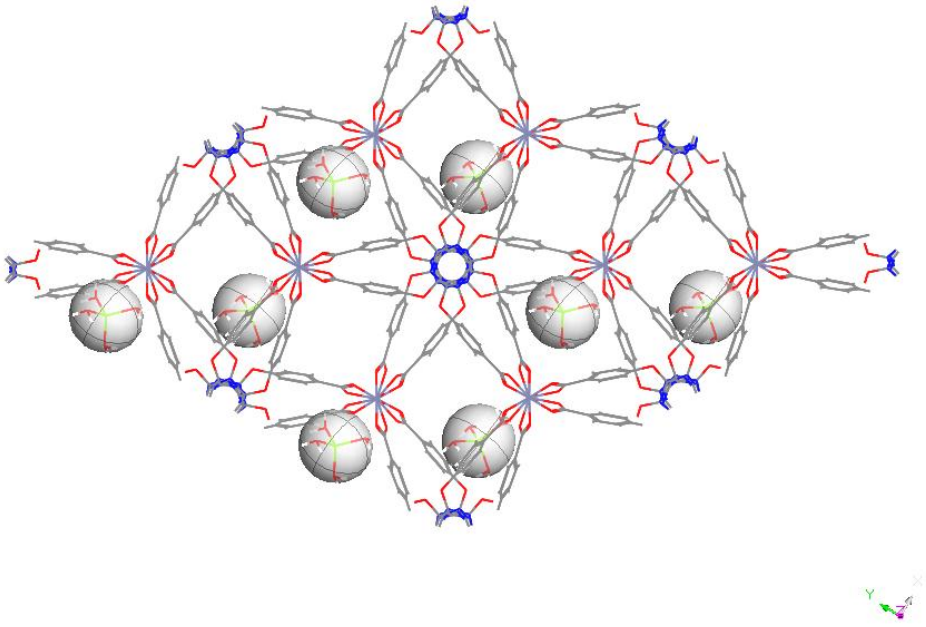

Figure S59. Theoretical binding sites of $[Ca(H_2O)_4]^{2+}$ cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

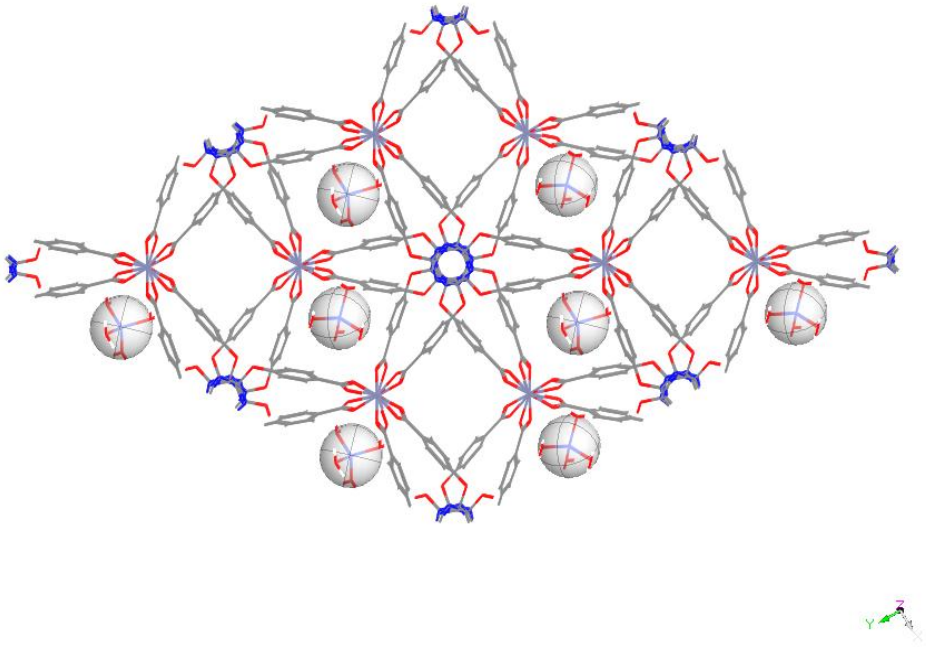

Figure S60. Theoretical binding sites of $[Co(H_2O)_4]^{2+}$ cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

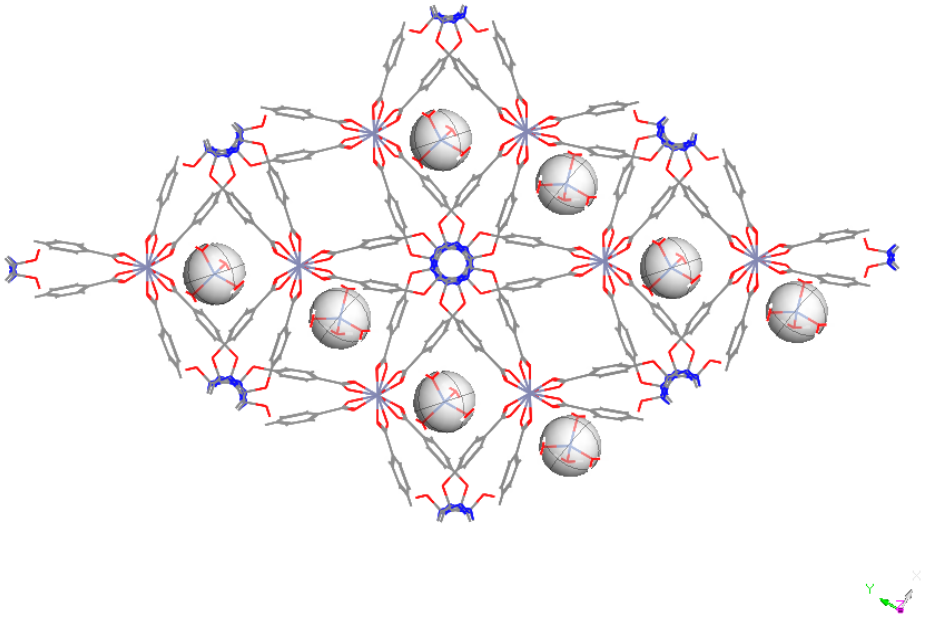

Figure S62. Theoretical binding sites of $[Co(H_2O)_4]^{2+}$ cation in **SNU-100'** calculated by "locate simulations" using a Sorption module of Materials Studio.

Table S1. Crystallographic Data for **SNU-100**.

formula	$Zn_3C_{51}H_{33}N_7O_{20}$
crystal system	trigonal
space group	*P*-31c
fw	1259.95
a, Å	16.490(1)
c, Å	14.050(1)
γ, deg	120
V, Å^3	3308.6(4)
Z	2
ρ_{calcd}, g/cm^3	1.265
temp, K	100
λ, Å	0.80000
μ, mm^{-1}	1.547
GOF (F^2)	1.580
F(000)	1276
reflections collected	2320
independent reflections	2320
completeness to θ_{max}, %	98.3
data/parameters/restraints	2320 / 149 / 0
θ range for data collection, deg	1.61 – 30.42
diffraction limits (*h*, *k*, *l*)	$-10 \le h \le 10, 0 \le k \le 20, 0 \le l \le 17$
Refinement method	Full-matrix least-squares on F^2
R_1, wR_2 [$I > 2\sigma(I)$]	0.1131,[a] 0.3384[b]
R_1, wR_2 (all data)	0.1193,[a] 0.3453[b]
largest peak, hole, eÅ^{-3}	0.924, -1.737

[a] $R = \Sigma||F_O| - |F_C||/\Sigma|F_O|$. [b] $wR(F^2) = [\Sigma w(F_O^2 - F_C^2)^2/\Sigma w(F_O^2)^2]^{1/2}$ where $w = 1/[\sigma^2(F_O^2) + (0.2000P)^2 + (0.00)P]$, $P = (F_O^2 + 2F_C^2)/3$

Table S2. Gas Sorption Data of **SNU-100'**.

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas / g of host	wt% gas
N_2	77	1.0	814	0.315	9.37	26.2
	298	1.0			0.223	0.624
H_2	77	1.0			8.97	1.81
	87	1.0			6.44	1.30
	298	1.0			0.0201	0.00405
CO_2	195	1.0			10.3	45.2
	231	1.0			8.45	37.2
	273	1.0			4.52	19.9
	298	1.0			3.20	14.1
CH_4	195	1.0			6.46	10.4
	231	1.0			4.72	7.57
	273	1.0			1.59	2.56
	298	1.0			0.882	1.41
H_2O	293	0.86			9.04	16.3

Table S3. Gas Sorption Data of **SNU-100'-Li**

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas/ g host	wt% gas
N_2	77	0.91	924	0.361	11.1	31.1
	298	1.0			0.211	0.590
H_2	77	1.0			9.66	1.93
	87	1.0			8.26	1.65
	298	1.0			0.0322	0.00644
CO_2	195	1.0			8.65	38.0
	231	1.0			7.40	32.5
	273	1.0			4.85	21.4
	298	1.0			3.48	15.3
CH_4	195	1.0			5.87	9.40
	231	1.0			4.36	6.97
	273	1.0			1.80	2.88
	298	1.0			1.05	1.69

Table S4. Gas Sorption Data of **SNU-100'-Mg**

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas / g of host	wt% gas
N_2	77	0.91	959	0.376	11.4	31.8
	298	1.0			0.223	0.625
H_2	77	1.0			9.94	19.9
	87	1.0			7.82	15.6
	298	1.0			0.0284	0.00567
CO_2	195	1.0			9.60	42.2
	231	1.0			8.16	35.9
	273	1.0			4.79	21.1
	298	1.0			3.43	15.1
CH_4	195	1.0			5.92	9.48
	231	1.0			4.57	7.31
	273	1.0			1.97	3.15
	298	1.0			1.18	1.89

Table S5. Gas Sorption Data of **SNU-100'-Ca**

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas / g of host	wt% gas
N_2	77	0.91	935	0.365	11.3	31.5
	298	1.0			0.206	0.578
H_2	77	1.0			9.39	1.88
	87	1.0			7.51	1.50
	298	1.0			0.0327	0.00654
CO_2	195	1.0			8.35	36.7
	231	1.0			7.29	32.1
	273	1.0			4.59	20.2
	298	1.0			3.42	15.1
CH_4	195	1.0			5.26	8.42
	231	1.0			4.24	6.78
	273	1.0			1.76	2.82
	298	1.0			1.05	1.68

Table S6. Gas Sorption Data of **SNU-100'-Co**

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas / g of host	wt% gas
N_2	77	0.91	1000	0.392	11.4	32.0
	298	1.0			0.278	0.779
H_2	77	1.0			10.7	2.15
	87	1.0			8.41	1.68
	298	1.0			0.0282	0.00563
CO_2	195	1.0			9.92	43.7
	231	1.0			8.34	36.7
	273	1.0			5.12	22.5
	298	1.0			3.81	16.8
CH_4	195	1.0			6.38	10.2
	231	1.0			4.94	7.90
	273	1.0			2.18	3.50
	298	1.0			1.30	2.08

Table S7. Gas Sorption Data of **SNU-100'-Ni**

gas	*T* (K)	*P* (bar)	SA_{BET} (m^2g^{-1})	V_{pore} (cm^3g^{-1})	mmol gas / g of host	wt% gas
N_2	77	0.89	982	0.383	12.1	33.9
	298	1.0			0.250	0.700
H_2	77	1.0			9.82	1.96
	87	1.0			8.10	1.62
	298	1.0			0.0253	0.00507
CO_2	195	1.0			9.74	42.8
	231	1.0			8.50	37.4
	273	1.0			5.24	23.1
	298	1.0			3.78	16.6
CH_4	195	1.0			6.02	9.63
	231	1.0			4.74	7.58
	273	1.0			2.05	3.28
	298	1.0			1.12	1.78

Table S8. Dual-site Langmuir parameters for the CO_2 adsorption isotherms of **SNU-100'-M** measured at 231, 273, and 298 K.

T (K)	parameters	**SNU-100'**	**SNU-100'-Li**	**SNU-100'-Mg**	**SNU-100'-Ca**	**SNU-100'-Co**	**SNU-100'-Ni**
231	$N_{m,A}$ (mmol/g)	3.83	2.89	3.85	2.88	3.97	4.47
	b_A (bar^{-1})	0.50	1.58	1.04	1.59	0.90	1.18
	$N_{m,B}$ (mmol/g)	4.90	5.69	6.31	5.57	6.57	6.19
	b_B (bar^{-1})	29.3	78.0	63.3	98.3	70.7	67.7
273	$N_{m,A}$ (mmol/g)	2.34	1.89	2.41	2.25	2.50	2.61
	b_A (bar^{-1})	2.92	5.46	3.19	3.30	3.49	3.30
	$N_{m,B}$ (mmol/g)	3.67	4.31	3.87	3.50	4.09	4.21
	b_B (bar^{-1})	2.98	3.00	3.19	4.26	3.50	3.32
298	$N_{m,A}$ (mmol/g)	4.48	2.61	2.73	2.42	2.90	2.94
	b_A (bar^{-1})	0.70	1.37	1.24	1.54	1.38	1.32
	$N_{m,B}$ (mmol/g)	1.97	3.41	3.49	3.24	3.72	3.75
	b_B (bar^{-1})	2.13	1.37	1.24	1.52	1.37	1.31

Table S9. Langmuir-Freundlich parameters for the CH_4 adsorption isotherms of **SNU-100'-M** at 231, 273, and 298 K.

T (K)	parameters	**SNU-100'**	**SNU-100'-Li**	**SNU-100'-Mg**	**SNU-100'-Ca**	**SNU-100'-Co**	**SNU-100'-Ni**
231	N_m (mmol/g)	6.82	5.58	5.62	5.66	6.05	5.96
	b (bar^{-c})	2.39	3.42	4.18	2.97	4.25	3.66
	c	1.22	1.08	1.06	1.16	1.04	1.08
273	N_m (mmol/g)	3.93	6.68	5.78	5.29	5.52	11.7
	b (bar^{-c})	0.676	0.367	0.519	0.501	0.656	0.214
	c	0.989	1.11	1.08	1.01	1.00	1.25
298	N_m (mmol/g)	2.57	4.57	4.67	3.98	4.77	2.48
	b (bar^{-c})	0.513	0.300	0.338	0.354	0.375	0.798
	c	0.898	0.963	0.990	0.948	0.970	0.747

Table S10. Parameters used for calculation of selectivities for **SNU-100'-M**

Compound	Henry Constant		Selectivity	Gas Uptake at 298 K (cm^3g^{-1})		Selectivity
	CO_2	N_2		CO_2 at 0.15 atm	N_2 at 0.85 atm	
SNU-100'	158	6.22	25.5	20.1	4.29	26.5
SNU-100'-Li	185	4.89	37.8	23.0	4.09	31.9
SNU-100'-Mg	173	5.30	32.6	21.9	4.32	28.7
SNU-100'-Ca	194	4.80	40.4	23.7	4.00	33.6
SNU-100'-Co	204	6.57	31.0	25.4	5.31	27.0
SNU-100'-Ni	197	5.28	37.4	24.7	4.72	29.6

Table S11. N_2 adsorption and desorption data at 77 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.09E-04	0.335	1.09E-04	196	1.04E-04	200	9.02E-05	0.526	1.05E-04	222	8.68E-05	205
1.96E-04	0.737	2.30E-04	202	2.28E-04	208	1.86E-04	199	1.97E-04	227	1.87E-04	211
4.63E-04	4.88	3.40E-04	205	3.09E-04	211	2.88E-04	203	3.05E-04	230	2.88E-04	215
4.05E-04	176	4.04E-04	206	4.24E-04	213	3.89E-04	205	4.45E-04	232	3.89E-04	217
7.36E-04	180	4.93E-04	208	5.63E-04	216	4.91E-04	207	5.19E-04	233	4.91E-04	219
7.09E-04	180	6.05E-04	209	6.30E-04	217	5.92E-04	209	6.13E-04	234	5.93E-04	220
7.16E-04	180	7.39E-04	210	7.17E-04	218	6.94E-04	210	7.34E-04	235	6.96E-04	221
1.27E-03	183	8.96E-04	211	8.19E-04	218	7.96E-04	211	8.81E-04	236	7.95E-04	222
1.18E-03	183	8.95E-04	211	9.37E-04	219	8.94E-04	212	1.00E-03	237	8.96E-04	223
1.16E-03	183	1.11E-03	212	1.06E-03	220	9.95E-04	213	9.99E-04	237	9.96E-04	223
2.02E-03	186	2.04E-03	216	2.01E-03	224	2.01E-03	217	2.02E-03	240	2.01E-03	228
3.07E-03	188	3.23E-03	218	3.14E-03	227	3.04E-03	219	3.25E-03	241	3.04E-03	230
4.02E-03	190	4.62E-03	219	4.28E-03	228	4.07E-03	221	4.19E-03	242	4.06E-03	231
5.12E-03	191	5.09E-03	220	5.53E-03	229	5.03E-03	222	5.05E-03	243	5.10E-03	232
6.12E-03	192	6.10E-03	221	7.14E-03	231	6.09E-03	222	7.19E-03	244	6.04E-03	233
7.16E-03	192	7.20E-03	221	7.08E-03	231	7.06E-03	223	7.12E-03	244	7.04E-03	234
8.68E-03	193	8.93E-03	222	8.60E-03	231	8.16E-03	224	9.09E-03	244	8.14E-03	234
9.56E-03	194	9.46E-03	222	9.47E-03	232	9.15E-03	224	9.69E-03	244	9.04E-03	235
0.0126	194	0.0125	223	0.0134	232	0.0101	224	0.0115	245	0.0101	235
0.0214	197	0.0221	225	0.0227	234	0.0204	227	0.0219	246	0.0203	238
0.0317	198	0.0303	226	0.0306	235	0.0304	229	0.0301	247	0.0317	240
0.0424	200	0.0406	227	0.0410	237	0.04100	230	0.0404	248	0.0403	241
0.0520	201	0.0513	228	0.0519	238	0.0494	231	0.0508	248	0.0504	242

0.0625	202	0.0620	229	0.0624	238	0.0595	231	0.0610	249	0.0606	243
0.0726	202	0.0724	230	0.0730	239	0.0698	232	0.0709	249	0.0710	244
0.0827	203	0.0827	230	0.0832	239	0.0798	233	0.0819	249	0.0813	245
0.0925	204	0.0926	231	0.0933	240	0.0904	233	0.0924	249	0.0914	245
0.112	204	0.111	232	0.111	241	0.108	234	0.111	250	0.109	246
0.161	206	0.159	233	0.159	242	0.154	236	0.160	250	0.156	248
0.211	207	0.209	235	0.210	244	0.205	237	0.210	251	0.207	250
0.261	207	0.259	236	0.260	245	0.256	238	0.260	252	0.258	252
0.311	208	0.310	237	0.311	246	0.307	240	0.310	252	0.308	253
0.362	208	0.360	238	0.361	247	0.357	241	0.360	253	0.358	255
0.411	209	0.410	239	0.411	247	0.407	242	0.411	253	0.408	256
0.462	208	0.461	240	0.460	248	0.457	243	0.461	253	0.458	258
0.512	208	0.510	241	0.511	249	0.508	244	0.511	254	0.509	259
0.561	208	0.561	242	0.562	250	0.558	245	0.561	254	0.559	260
0.611	208	0.610	243	0.612	250	0.605	246	0.610	254	0.609	262
0.662	208	0.661	243	0.662	251	0.658	247	0.661	255	0.659	263
0.711	208	0.711	244	0.711	252	0.708	248	0.710	255	0.709	264
0.761	208	0.760	245	0.761	252	0.758	249	0.760	255	0.759	266
0.811	208	0.810	247	0.812	253	0.808	250	0.810	256	0.809	267
0.861	207	0.860	247	0.860	254	0.858	251	0.860	256	0.858	269
0.911	207	0.910	248	0.911	255	0.907	252	0.910	256	0.904	271
0.839	208	0.852	247	0.854	254	0.853	251	0.850	256	0.842	270
0.789	209	0.794	246	0.797	253	0.800	250	0.791	256	0.791	268
0.739	208	0.742	245	0.742	253	0.746	249	0.740	256	0.741	267
0.688	209	0.691	245	0.693	252	0.692	248	0.689	255	0.691	266
0.639	209	0.641	244	0.642	251	0.641	247	0.634	257	0.641	264
0.589	209	0.591	243	0.592	251	0.591	246	0.589	257	0.591	263

0.539	209	0.541	243	0.542	250	0.541	246	0.540	257	0.541	262
0.490	208	0.492	242	0.493	249	0.491	245	0.490	256	0.494	260
0.439	208	0.442	240	0.444	248	0.443	244	0.443	255	0.443	258
0.389	208	0.392	239	0.393	248	0.393	242	0.390	255	0.392	256
0.339	208	0.342	238	0.343	247	0.343	241	0.340	254	0.342	255
0.288	208	0.292	237	0.293	246	0.293	240	0.290	253	0.292	253
0.239	207	0.242	236	0.244	244	0.243	239	0.241	253	0.242	252
0.189	206	0.192	235	0.194	243	0.194	237	0.191	252	0.192	250
0.139	205	0.143	233	0.145	242	0.145	236	0.141	251	0.143	248
0.089	203	0.094	231	0.096	240	0.097	234	0.091	250		

Table S12. H_2 adsorption and desorption data at 77 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
9.88E-05	3.65E-01	2.44E-04	1.06E+00	2.48E-04	7.64E-01	9.11E-05	5.61E-01	2.31E-04	7.62E-01	8.72E-05	4.53E-01
2.05E-04	6.82E-01	2.44E-04	1.05E+00	2.48E-04	7.57E-01	1.87E-04	1.10E+00	2.31E-04	7.62E-01	2.06E-04	9.75E-01
3.12E-04	9.95E-01	4.73E-04	2.15E+00	5.02E-04	1.63E+00	2.89E-04	1.65E+00	5.03E-04	1.72E+00	2.99E-04	1.37E+00
4.14E-04	1.30E+00	4.66E-04	2.14E+00	4.96E-04	1.61E+00	3.90E-04	2.20E+00	4.88E-04	1.70E+00	3.96E-04	1.79E+00
5.15E-04	1.61E+00	6.61E-04	3.12E+00	5.00E-04	1.62E+00	4.91E-04	2.75E+00	4.94E-04	1.75E+00	4.96E-04	2.21E+00
6.17E-04	1.90E+00	6.56E-04	3.12E+00	7.86E-04	2.59E+00	5.94E-04	3.30E+00	7.56E-04	2.73E+00	5.98E-04	2.63E+00
7.22E-04	2.22E+00	7.95E-04	4.16E+00	7.81E-04	2.57E+00	6.98E-04	3.84E+00	7.54E-04	2.72E+00	6.98E-04	3.05E+00
7.98E-04	2.45E+00	8.53E-04	5.10E+00	7.95E-04	2.62E+00	7.98E-04	4.36E+00	1.00E-03	3.62E+00	7.97E-04	3.46E+00
9.14E-04	2.79E+00	9.13E-04	6.22E+00	1.08E-03	3.58E+00	9.10E-04	4.93E+00	9.96E-04	3.60E+00	9.03E-04	3.89E+00
1.01E-03	3.09E+00	1.02E-03	7.42E+00	1.08E-03	3.56E+00	1.00E-03	5.44E+00	1.00E-03	3.62E+00	9.99E-04	4.30E+00
2.01E-03	6.03E+00	2.02E-03	1.27E+01	2.06E-03	6.74E+00	2.02E-03	1.05E+01	2.15E-03	7.71E+00	2.04E-03	8.43E+00
3.05E-03	9.02E+00	3.19E-03	1.76E+01	3.06E-03	9.84E+00	3.03E-03	1.51E+01	3.02E-03	1.07E+01	3.01E-03	1.21E+01
4.03E-03	1.17E+01	4.07E-03	2.10E+01	4.03E-03	1.23E+01	4.02E-03	1.93E+01	4.21E-03	1.46E+01	4.02E-03	1.57E+01
5.07E-03	1.45E+01	5.05E-03	2.47E+01	5.18E-03	1.60E+01	5.04E-03	2.34E+01	5.05E-03	1.73E+01	5.02E-03	1.92E+01
6.03E-03	1.70E+01	6.30E-03	2.91E+01	6.40E-03	1.93E+01	6.06E-03	2.72E+01	6.44E-03	2.16E+01	6.02E-03	2.25E+01
7.09E-03	1.97E+01	7.49E-03	3.30E+01	7.57E-03	2.24E+01	7.04E-03	3.07E+01	7.70E-03	2.55E+01	7.05E-03	2.58E+01
8.16E-03	2.23E+01	8.23E-03	3.53E+01	8.45E-03	2.47E+01	8.05E-03	3.40E+01	8.48E-03	2.78E+01	8.05E-03	2.88E+01
9.08E-03	2.44E+01	9.23E-03	3.82E+01	9.13E-03	2.63E+01	9.06E-03	3.72E+01	9.21E-03	2.99E+01	9.09E-03	3.18E+01
1.01E-02	2.67E+01	1.00E-02	3.98E+01	8.42E-03	2.84E+01	1.00E-02	4.02E+01	9.98E-03	3.12E+01	1.01E-02	3.46E+01
2.01E-02	4.59E+01	1.89E-02	6.09E+01	1.70E-02	4.70E+01	1.98E-02	6.31E+01	1.93E-02	5.35E+01	1.97E-02	5.68E+01
3.08E-02	6.19E+01	3.01E-02	7.98E+01	2.78E-02	6.46E+01	3.00E-02	8.01E+01	2.86E-02	7.15E+01	2.96E-02	7.42E+01
3.98E-02	7.27E+01	3.95E-02	9.20E+01	3.71E-02	7.68E+01	4.01E-02	9.28E+01	4.09E-02	8.98E+01	4.08E-02	8.92E+01
5.01E-02	8.30E+01	4.88E-02	1.02E+02	4.61E-02	8.66E+01	5.12E-02	1.04E+02	4.78E-02	9.82E+01	5.04E-02	9.95E+01

6.07E-02	9.16E+01	6.07E-02	1.12E+02	5.63E-02	9.61E+01	6.08E-02	1.11E+02	5.88E-02	1.10E+02	6.11E-02	1.09E+02
7.11E-02	9.90E+01	6.85E-02	1.17E+02	6.70E-02	1.05E+02	7.14E-02	1.18E+02	6.79E-02	1.18E+02	7.18E-02	1.17E+02
8.15E-02	1.05E+02	7.80E-02	1.24E+02	7.55E-02	1.10E+02	7.97E-02	1.23E+02	7.86E-02	1.26E+02	8.01E-02	1.23E+02
9.18E-02	1.11E+02	8.86E-02	1.29E+02	8.53E-02	1.17E+02	8.97E-02	1.28E+02	8.72E-02	1.31E+02	9.00E-02	1.28E+02
1.06E-01	1.17E+02	9.99E-02	1.35E+02	1.02E-01	1.25E+02	9.89E-02	1.32E+02	1.03E-01	1.40E+02	9.95E-02	1.33E+02
1.59E-01	1.35E+02	1.50E-01	1.52E+02	1.44E-01	1.42E+02	1.53E-01	1.50E+02	1.54E-01	1.62E+02	1.54E-01	1.54E+02
2.02E-01	1.46E+02	1.90E-01	1.62E+02	2.05E-01	1.59E+02	2.00E-01	1.60E+02	2.00E-01	1.75E+02	2.01E-01	1.66E+02
2.53E-01	1.55E+02	2.40E-01	1.71E+02	2.40E-01	1.66E+02	2.53E-01	1.68E+02	2.39E-01	1.84E+02	2.54E-01	1.75E+02
3.05E-01	1.62E+02	2.95E-01	1.79E+02	2.87E-01	1.74E+02	3.07E-01	1.75E+02	2.88E-01	1.92E+02	3.07E-01	1.83E+02
3.57E-01	1.67E+02	3.49E-01	1.84E+02	3.40E-01	1.81E+02	3.58E-01	1.80E+02	3.41E-01	2.00E+02	3.59E-01	1.89E+02
4.08E-01	1.72E+02	4.01E-01	1.89E+02	3.93E-01	1.88E+02	4.00E-01	1.83E+02	4.08E-01	2.07E+02	4.01E-01	1.93E+02
4.58E-01	1.76E+02	4.53E-01	1.93E+02	4.58E-01	1.94E+02	4.50E-01	1.87E+02	4.51E-01	2.11E+02	4.51E-01	1.97E+02
5.09E-01	1.79E+02	5.04E-01	1.96E+02	5.00E-01	1.97E+02	5.01E-01	1.90E+02	5.00E-01	2.15E+02	5.02E-01	2.00E+02
5.59E-01	1.82E+02	5.55E-01	1.99E+02	5.50E-01	2.01E+02	5.52E-01	1.93E+02	5.51E-01	2.19E+02	5.53E-01	2.03E+02
6.10E-01	1.84E+02	6.06E-01	2.02E+02	6.00E-01	2.04E+02	6.03E-01	1.96E+02	6.03E-01	2.22E+02	6.04E-01	2.06E+02
6.60E-01	1.87E+02	6.57E-01	2.04E+02	6.52E-01	2.07E+02	6.54E-01	1.98E+02	6.54E-01	2.25E+02	6.55E-01	2.08E+02
7.05E-01	1.92E+02	7.07E-01	2.06E+02	7.00E-01	2.10E+02	7.05E-01	2.00E+02	7.04E-01	2.28E+02	7.06E-01	2.11E+02
7.60E-01	1.94E+02	7.54E-01	2.08E+02	7.53E-01	2.13E+02	7.55E-01	2.02E+02	7.55E-01	2.31E+02	7.56E-01	2.13E+02
8.12E-01	1.95E+02	8.07E-01	2.10E+02	8.03E-01	2.15E+02	8.06E-01	2.04E+02	8.05E-01	2.33E+02	8.07E-01	2.14E+02
8.60E-01	1.96E+02	8.58E-01	2.12E+02	8.54E-01	2.17E+02	8.57E-01	2.06E+02	8.56E-01	2.35E+02	8.57E-01	2.16E+02
9.10E-01	1.98E+02	9.08E-01	2.14E+02	9.04E-01	2.19E+02	9.07E-01	2.08E+02	9.06E-01	2.37E+02	9.08E-01	2.18E+02
9.61E-01	1.99E+02	9.59E-01	2.15E+02	9.55E-01	2.21E+02	9.57E-01	2.09E+02	9.57E-01	2.39E+02	9.58E-01	2.19E+02
9.99E-01	2.01E+02	9.99E-01	2.16E+02	9.99E-01	2.23E+02	9.99E-01	2.10E+02	9.99E-01	2.41E+02	9.99E-01	2.20E+02
9.47E-01	1.99E+02	9.46E-01	2.15E+02	9.43E-01	2.21E+02	9.51E-01	2.09E+02	9.47E-01	2.39E+02	9.51E-01	2.19E+02
8.85E-01	1.99E+02	8.92E-01	2.13E+02	8.92E-01	2.19E+02	8.99E-01	2.07E+02	8.93E-01	2.37E+02	8.98E-01	2.17E+02
8.39E-01	1.98E+02	8.42E-01	2.11E+02	8.42E-01	2.17E+02	8.47E-01	2.06E+02	8.32E-01	2.37E+02	8.45E-01	2.16E+02
7.90E-01	1.96E+02	7.92E-01	2.10E+02	7.90E-01	2.15E+02	7.96E-01	2.04E+02	7.93E-01	2.35E+02	7.93E-01	2.14E+02

7.40E-01	1.94E+02	7.43E-01	2.08E+02	7.43E-01	2.12E+02	7.45E-01	2.02E+02	7.44E-01	2.32E+02	7.43E-01	2.12E+02
6.90E-01	1.92E+02	6.93E-01	2.06E+02	6.93E-01	2.10E+02	6.95E-01	2.00E+02	6.95E-01	2.30E+02	6.94E-01	2.10E+02
6.40E-01	1.89E+02	6.41E-01	2.04E+02	6.45E-01	2.07E+02	6.45E-01	1.98E+02	6.45E-01	2.27E+02	6.44E-01	2.08E+02
5.90E-01	1.86E+02	5.93E-01	2.02E+02	5.95E-01	2.04E+02	5.96E-01	1.96E+02	5.96E-01	2.24E+02	5.95E-01	2.06E+02
5.41E-01	1.83E+02	5.44E-01	1.99E+02	5.46E-01	2.01E+02	5.47E-01	1.93E+02	5.47E-01	2.20E+02	5.46E-01	2.03E+02
4.91E-01	1.80E+02	4.95E-01	1.96E+02	4.97E-01	1.97E+02	4.99E-01	1.90E+02	4.98E-01	2.16E+02	4.97E-01	2.00E+02
4.38E-01	1.78E+02	4.46E-01	1.93E+02	4.48E-01	1.93E+02	4.41E-01	1.86E+02	4.50E-01	2.12E+02	4.49E-01	1.97E+02
3.92E-01	1.74E+02	3.97E-01	1.89E+02	3.99E-01	1.88E+02	3.99E-01	1.83E+02	3.91E-01	2.06E+02	3.91E-01	1.92E+02
3.43E-01	1.69E+02	3.49E-01	1.85E+02	3.40E-01	1.82E+02	3.42E-01	1.78E+02	3.51E-01	2.02E+02	3.49E-01	1.88E+02
2.94E-01	1.63E+02	3.00E-01	1.79E+02	2.91E-01	1.75E+02	2.92E-01	1.73E+02	3.07E-01	1.96E+02	2.93E-01	1.81E+02
2.45E-01	1.56E+02	2.42E-01	1.72E+02	2.42E-01	1.67E+02	2.44E-01	1.67E+02	2.48E-01	1.85E+02	2.43E-01	1.74E+02
1.97E-01	1.47E+02	1.93E-01	1.63E+02	2.07E-01	1.60E+02	1.96E-01	1.59E+02	2.10E-01	1.77E+02	1.95E-01	1.64E+02
1.49E-01	1.35E+02	1.57E-01	1.55E+02	1.44E-01	1.42E+02	1.50E-01	1.49E+02	1.46E-01	1.59E+02	1.49E-01	1.53E+02
9.31E-02	1.13E+02					9.90E-02	1.32E+02				
4.69E-02	8.14E+01					4.98E-02	1.02E+02				

Table S13. H_2 adsorption and desorption data at 87 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.30E-04	8.31E-02	1.03E-04	8.75E-02	9.50E-05	7.65E-02	9.41E-05	1.38E-01	9.31E-05	1.49E-02	9.35E-05	1.95E-01
2.24E-04	1.64E-01	2.06E-04	2.40E-01	2.01E-04	2.15E-01	2.01E-04	2.94E-01	2.01E-04	1.61E-01	1.97E-04	3.20E-01
3.24E-04	2.47E-01	3.11E-04	3.83E-01	3.08E-04	3.41E-01	3.07E-04	4.42E-01	2.94E-04	2.59E-01	2.99E-04	4.42E-01
4.23E-04	3.32E-01	4.07E-04	5.08E-01	4.07E-04	4.44E-01	4.13E-04	5.92E-01	4.07E-04	3.78E-01	4.06E-04	5.69E-01
5.25E-04	4.13E-01	5.11E-04	6.39E-01	5.09E-04	5.48E-01	4.93E-04	7.01E-01	5.10E-04	4.86E-01	5.09E-04	6.88E-01
6.22E-04	4.98E-01	6.09E-04	7.65E-01	6.10E-04	6.50E-01	6.06E-04	8.60E-01	6.13E-04	5.91E-01	6.03E-04	8.00E-01
7.22E-04	5.82E-01	7.08E-04	8.88E-01	7.11E-04	7.50E-01	7.16E-04	1.01E+00	7.12E-04	6.94E-01	7.04E-04	9.18E-01
8.28E-04	6.61E-01	8.13E-04	1.02E+00	8.12E-04	8.51E-01	8.11E-04	1.14E+00	8.00E-04	7.85E-01	8.12E-04	1.05E+00
9.22E-04	7.44E-01	9.13E-04	1.15E+00	9.11E-04	9.51E-01	9.20E-04	1.29E+00	9.12E-04	9.02E-01	9.06E-04	1.15E+00
1.03E-03	8.24E-01	9.95E-04	1.25E+00	1.01E-03	1.05E+00	1.00E-03	1.42E+00	1.01E-03	1.00E+00	1.00E-03	1.27E+00
2.00E-03	1.68E+00	2.56E-03	3.20E+00	2.57E-03	2.55E+00	2.05E-03	2.86E+00	2.57E-03	2.63E+00	2.05E-03	2.50E+00
3.14E-03	2.66E+00	3.52E-03	4.38E+00	3.62E-03	3.53E+00	3.04E-03	4.20E+00	3.54E-03	3.62E+00	3.03E-03	3.64E+00
4.00E-03	3.39E+00	4.54E-03	5.60E+00	4.56E-03	4.41E+00	4.03E-03	5.51E+00	4.57E-03	4.67E+00	4.01E-03	4.75E+00
5.21E-03	4.40E+00	5.55E-03	6.75E+00	5.52E-03	5.29E+00	5.07E-03	6.85E+00	5.50E-03	5.67E+00	5.03E-03	5.91E+00
6.17E-03	5.20E+00	6.57E-03	7.95E+00	6.56E-03	6.23E+00	6.04E-03	8.08E+00	6.48E-03	6.71E+00	6.07E-03	7.07E+00
7.04E-03	5.90E+00	7.47E-03	8.90E+00	7.52E-03	7.10E+00	7.07E-03	9.36E+00	7.51E-03	7.76E+00	7.11E-03	8.23E+00
8.44E-03	7.06E+00	8.49E-03	1.01E+01	8.59E-03	8.04E+00	8.13E-03	1.06E+01	8.45E-03	8.68E+00	8.06E-03	9.25E+00
9.12E-03	7.60E+00	9.16E-03	1.08E+01	9.26E-03	8.63E+00	9.10E-03	1.18E+01	9.26E-03	9.48E+00	9.09E-03	1.04E+01
1.17E-02	9.19E+00	1.01E-02	1.22E+01	1.04E-02	9.59E+00	1.00E-02	1.29E+01	1.06E-02	1.06E+01	1.01E-02	1.15E+01
2.17E-02	1.65E+01	1.90E-02	2.14E+01	1.92E-02	1.69E+01	1.96E-02	2.30E+01	2.03E-02	1.96E+01	2.11E-02	2.19E+01
2.94E-02	2.17E+01	2.89E-02	3.05E+01	2.92E-02	2.45E+01	3.01E-02	3.26E+01	2.92E-02	2.73E+01	2.94E-02	2.92E+01
4.18E-02	2.92E+01	3.93E-02	3.89E+01	3.93E-02	3.15E+01	4.08E-02	4.10E+01	4.05E-02	3.60E+01	3.93E-02	3.69E+01
4.97E-02	3.36E+01	4.77E-02	4.50E+01	4.76E-02	3.69E+01	5.15E-02	4.84E+01	4.77E-02	4.12E+01	4.96E-02	4.41E+01

6.19E-02	3.99E+01	5.75E-02	5.15E+01	5.74E-02	4.26E+01	5.97E-02	5.35E+01	5.92E-02	4.88E+01	5.99E-02	5.08E+01
7.02E-02	4.38E+01	6.76E-02	5.77E+01	6.74E-02	4.82E+01	6.95E-02	5.90E+01	6.77E-02	5.41E+01	7.03E-02	5.68E+01
7.96E-02	4.80E+01	7.82E-02	6.31E+01	7.78E-02	5.32E+01	7.98E-02	6.43E+01	7.76E-02	5.95E+01	8.06E-02	6.23E+01
8.98E-02	5.20E+01	9.10E-02	6.90E+01	8.86E-02	5.81E+01	9.01E-02	6.91E+01	8.82E-02	6.48E+01	9.09E-02	6.73E+01
1.07E-01	5.84E+01	1.02E-01	7.37E+01	1.00E-01	6.28E+01	9.95E-02	7.31E+01	9.93E-02	6.99E+01	1.01E-01	7.18E+01
1.50E-01	7.18E+01	1.50E-01	9.14E+01	1.55E-01	8.26E+01	1.52E-01	9.12E+01	1.54E-01	9.17E+01	1.55E-01	9.19E+01
2.01E-01	8.41E+01	2.02E-01	1.06E+02	2.01E-01	9.54E+01	2.06E-01	1.04E+02	2.00E-01	1.06E+02	2.01E-01	1.05E+02
2.53E-01	9.37E+01	2.42E-01	1.15E+02	2.39E-01	1.04E+02	2.52E-01	1.13E+02	2.52E-01	1.18E+02	2.52E-01	1.16E+02
3.04E-01	1.02E+02	2.91E-01	1.24E+02	3.02E-01	1.16E+02	3.03E-01	1.21E+02	2.90E-01	1.26E+02	3.04E-01	1.26E+02
3.56E-01	1.08E+02	3.42E-01	1.32E+02	3.43E-01	1.23E+02	3.56E-01	1.28E+02	3.38E-01	1.34E+02	3.57E-01	1.33E+02
4.07E-01	1.13E+02	4.08E-01	1.41E+02	3.92E-01	1.30E+02	4.07E-01	1.34E+02	3.90E-01	1.42E+02	4.08E-01	1.40E+02
4.58E-01	1.18E+02	4.51E-01	1.46E+02	4.44E-01	1.36E+02	4.58E-01	1.39E+02	4.43E-01	1.48E+02	4.58E-01	1.46E+02
5.09E-01	1.22E+02	4.99E-01	1.51E+02	5.08E-01	1.43E+02	5.09E-01	1.43E+02	5.08E-01	1.56E+02	5.00E-01	1.50E+02
5.59E-01	1.25E+02	5.50E-01	1.56E+02	5.50E-01	1.47E+02	5.51E-01	1.46E+02	5.50E-01	1.60E+02	5.59E-01	1.55E+02
6.09E-01	1.28E+02	6.02E-01	1.60E+02	6.09E-01	1.52E+02	6.00E-01	1.49E+02	5.99E-01	1.64E+02	6.02E-01	1.59E+02
6.59E-01	1.31E+02	6.52E-01	1.64E+02	6.52E-01	1.55E+02	6.51E-01	1.52E+02	6.50E-01	1.68E+02	6.51E-01	1.62E+02
7.09E-01	1.33E+02	7.03E-01	1.68E+02	7.01E-01	1.59E+02	7.02E-01	1.55E+02	7.01E-01	1.72E+02	7.01E-01	1.66E+02
7.59E-01	1.36E+02	7.54E-01	1.71E+02	7.51E-01	1.62E+02	7.53E-01	1.58E+02	7.52E-01	1.75E+02	7.53E-01	1.69E+02
8.10E-01	1.38E+02	8.05E-01	1.74E+02	8.02E-01	1.65E+02	8.04E-01	1.60E+02	8.03E-01	1.78E+02	8.03E-01	1.72E+02
8.60E-01	1.39E+02	8.55E-01	1.77E+02	8.53E-01	1.68E+02	8.55E-01	1.62E+02	8.53E-01	1.81E+02	8.54E-01	1.75E+02
9.10E-01	1.41E+02	9.03E-01	1.80E+02	9.04E-01	1.71E+02	9.05E-01	1.64E+02	9.04E-01	1.84E+02	9.05E-01	1.77E+02
9.61E-01	1.43E+02	9.56E-01	1.83E+02	9.54E-01	1.73E+02	9.54E-01	1.66E+02	9.55E-01	1.86E+02	9.55E-01	1.79E+02
9.99E-01	1.44E+02	9.99E-01	1.85E+02	9.99E-01	1.75E+02	9.99E-01	1.68E+02	9.99E-01	1.88E+02	9.99E-01	1.81E+02
9.42E-01	1.42E+02	9.45E-01	1.82E+02	9.46E-01	1.73E+02	9.49E-01	1.66E+02	9.46E-01	1.86E+02	9.49E-01	1.79E+02
8.90E-01	1.41E+02	8.94E-01	1.80E+02	8.95E-01	1.70E+02	8.97E-01	1.64E+02	8.95E-01	1.84E+02	8.97E-01	1.77E+02
8.40E-01	1.39E+02	8.44E-01	1.77E+02	8.46E-01	1.68E+02	8.46E-01	1.62E+02	8.46E-01	1.81E+02	8.45E-01	1.74E+02
7.89E-01	1.37E+02	7.95E-01	1.74E+02	7.96E-01	1.65E+02	7.96E-01	1.60E+02	7.97E-01	1.78E+02	7.96E-01	1.72E+02

7.40E-01	1.35E+02	7.45E-01	1.71E+02	7.47E-01	1.62E+02	7.47E-01	1.58E+02	7.47E-01	1.75E+02	7.45E-01	1.69E+02
6.91E-01	1.33E+02	6.94E-01	1.68E+02	6.98E-01	1.59E+02	6.97E-01	1.55E+02	6.98E-01	1.72E+02	6.97E-01	1.66E+02
6.37E-01	1.30E+02	6.46E-01	1.64E+02	6.49E-01	1.55E+02	6.49E-01	1.53E+02	6.49E-01	1.68E+02	6.48E-01	1.63E+02
5.90E-01	1.28E+02	5.97E-01	1.61E+02	5.99E-01	1.51E+02	6.00E-01	1.50E+02	6.00E-01	1.65E+02	5.99E-01	1.59E+02
5.41E-01	1.24E+02	5.48E-01	1.56E+02	5.41E-01	1.46E+02	5.41E-01	1.46E+02	5.41E-01	1.59E+02	5.41E-01	1.54E+02
4.91E-01	1.21E+02	4.99E-01	1.52E+02	5.00E-01	1.42E+02	4.99E-01	1.43E+02	5.00E-01	1.55E+02	4.99E-01	1.50E+02
4.42E-01	1.17E+02	4.50E-01	1.46E+02	4.43E-01	1.36E+02	4.42E-01	1.38E+02	4.43E-01	1.49E+02	4.42E-01	1.45E+02
3.92E-01	1.12E+02	4.01E-01	1.41E+02	3.92E-01	1.30E+02	3.92E-01	1.33E+02	3.92E-01	1.43E+02	3.92E-01	1.39E+02
3.43E-01	1.06E+02	3.41E-01	1.33E+02	3.43E-01	1.23E+02	3.43E-01	1.27E+02	3.43E-01	1.36E+02	3.43E-01	1.32E+02
2.94E-01	1.00E+02	2.92E-01	1.25E+02	3.05E-01	1.17E+02	2.94E-01	1.20E+02	3.06E-01	1.29E+02	2.94E-01	1.24E+02
2.45E-01	9.22E+01	2.43E-01	1.16E+02	2.48E-01	1.07E+02	2.46E-01	1.13E+02	2.49E-01	1.18E+02	2.45E-01	1.15E+02
1.96E-01	8.30E+01	2.06E-01	1.08E+02	2.11E-01	9.83E+01	1.99E-01	1.03E+02	2.12E-01	1.09E+02	1.98E-01	1.05E+02
1.48E-01	7.12E+01	1.50E-01	9.22E+01	1.46E-01	8.01E+01	1.45E-01	8.96E+01	1.56E-01	9.26E+01	1.51E-01	9.11E+01
						9.75E-02	7.27E+01				
						5.15E-02	4.88E+01				

Table S14. CO_2 adsorption and desorption data at 195 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
8.13E-03	1.33E+00	6.00E-04	3.55E+01	1.10E-04	1.91E+00	6.31E-04	1.12E+00	1.02E-04	4.77E+00	9.41E-05	2.52E-01
9.01E-03	1.36E+02	7.11E-04	4.03E+01	2.16E-04	5.61E+00	6.97E-04	1.31E+00	1.99E-04	1.03E+01	1.99E-04	5.01E-01
1.02E-02	1.39E+02	8.17E-04	4.35E+01	2.97E-04	8.03E+00	7.98E-04	4.43E+01	3.08E-04	1.58E+01	3.09E-04	7.40E-01
2.06E-02	1.54E+02	9.12E-04	4.69E+01	4.14E-04	1.22E+01	8.98E-04	4.02E+01	3.99E-04	2.14E+01	3.95E-04	1.13E+01
3.05E-02	1.63E+02	1.02E-03	5.03E+01	5.06E-04	1.64E+01	9.98E-04	4.39E+01	5.07E-04	2.70E+01	5.05E-04	1.38E+01
4.14E-02	1.70E+02	2.12E-03	7.57E+01	6.23E-04	2.05E+01	2.00E-03	6.88E+01	6.14E-04	3.22E+01	6.10E-04	1.63E+01
5.00E-02	1.74E+02	3.07E-03	8.66E+01	6.97E-04	2.27E+01	3.00E-03	8.11E+01	7.23E-04	3.73E+01	7.02E-04	1.81E+01
6.02E-02	1.78E+02	4.03E-03	9.36E+01	8.26E-04	2.66E+01	4.02E-03	8.88E+01	7.95E-04	4.02E+01	8.02E-04	1.96E+01
7.06E-02	1.81E+02	5.10E-03	9.93E+01	9.27E-04	3.05E+01	5.00E-03	9.41E+01	9.33E-04	4.55E+01	8.98E-04	3.89E+01
8.10E-02	1.84E+02	6.99E-03	1.06E+02	1.03E-03	3.45E+01	6.15E-03	9.87E+01	1.02E-03	4.80E+01	9.98E-04	4.32E+01
9.13E-02	1.86E+02	7.06E-03	1.06E+02	2.07E-03	6.33E+01	7.11E-03	1.02E+02	2.04E-03	7.92E+01	2.00E-03	7.25E+01
1.09E-01	1.90E+02	8.68E-03	1.11E+02	3.01E-03	7.88E+01	8.08E-03	1.04E+02	3.04E-03	9.58E+01	3.01E-03	8.82E+01
1.57E-01	1.96E+02	9.30E-03	1.12E+02	4.02E-03	8.98E+01	9.10E-03	1.07E+02	4.05E-03	1.06E+02	4.01E-03	9.77E+01
2.09E-01	2.01E+02	1.01E-02	1.13E+02	5.01E-03	9.79E+01	1.01E-02	1.09E+02	5.00E-03	1.12E+02	5.01E-03	1.04E+02
2.59E-01	2.05E+02	1.80E-02	1.25E+02	6.79E-03	1.07E+02	1.95E-02	1.20E+02	6.96E-03	1.20E+02	6.03E-03	1.09E+02
3.10E-01	2.08E+02	2.78E-02	1.33E+02	7.48E-03	1.10E+02	3.06E-02	1.28E+02	7.71E-03	1.23E+02	7.03E-03	1.13E+02
3.60E-01	2.10E+02	3.71E-02	1.38E+02	8.34E-03	1.13E+02	4.10E-02	1.33E+02	8.52E-03	1.25E+02	8.08E-03	1.17E+02
4.10E-01	2.12E+02	5.05E-02	1.44E+02	9.06E-03	1.15E+02	4.96E-02	1.36E+02	9.27E-03	1.27E+02	9.09E-03	1.20E+02
4.60E-01	2.14E+02	5.68E-02	1.46E+02	9.21E-03	1.16E+02	6.00E-02	1.40E+02	1.00E-02	1.28E+02	1.01E-02	1.22E+02
5.11E-01	2.16E+02	6.58E-02	1.48E+02	1.43E-02	1.27E+02	7.05E-02	1.42E+02	2.01E-02	1.44E+02	2.01E-02	1.37E+02
5.61E-01	2.18E+02	7.57E-02	1.51E+02	2.36E-02	1.38E+02	7.96E-02	1.44E+02	2.75E-02	1.51E+02	2.97E-02	1.45E+02
6.11E-01	2.19E+02	8.62E-02	1.53E+02	3.35E-02	1.46E+02	8.95E-02	1.46E+02	3.77E-02	1.58E+02	4.10E-02	1.51E+02
6.61E-01	2.21E+02	1.02E-01	1.56E+02	4.51E-02	1.53E+02	1.02E-01	1.48E+02	4.63E-02	1.62E+02	4.97E-02	1.55E+02

7.11E-01	2.22E+02	1.56E-01	1.63E+02	5.40E-02	1.57E+02	1.51E-01	1.55E+02	5.67E-02	1.67E+02	6.00E-02	1.59E+02
7.61E-01	2.24E+02	1.99E-01	1.68E+02	6.11E-02	1.60E+02	2.04E-01	1.60E+02	6.74E-02	1.71E+02	7.06E-02	1.63E+02
8.11E-01	2.25E+02	2.50E-01	1.71E+02	7.43E-02	1.64E+02	2.55E-01	1.64E+02	8.04E-02	1.75E+02	7.95E-02	1.65E+02
8.61E-01	2.26E+02	3.01E-01	1.75E+02	8.24E-02	1.66E+02	2.99E-01	1.67E+02	8.69E-02	1.76E+02	8.95E-02	1.67E+02
9.11E-01	2.28E+02	3.53E-01	1.77E+02	9.74E-02	1.70E+02	3.50E-01	1.70E+02	1.01E-01	1.79E+02	1.02E-01	1.70E+02
9.61E-01	2.29E+02	4.05E-01	1.80E+02	1.56E-01	1.80E+02	4.02E-01	1.72E+02	1.50E-01	1.88E+02	1.51E-01	1.78E+02
9.99E-01	2.30E+02	4.56E-01	1.81E+02	2.04E-01	1.85E+02	4.53E-01	1.74E+02	2.06E-01	1.94E+02	2.04E-01	1.84E+02
9.44E-01	2.29E+02	5.06E-01	1.83E+02	2.46E-01	1.89E+02	5.04E-01	1.75E+02	2.50E-01	1.97E+02	2.56E-01	1.90E+02
8.89E-01	2.27E+02	5.57E-01	1.85E+02	2.97E-01	1.93E+02	5.55E-01	1.77E+02	2.99E-01	2.01E+02	2.99E-01	1.93E+02
8.39E-01	2.26E+02	6.07E-01	1.86E+02	3.49E-01	1.96E+02	6.05E-01	1.78E+02	3.51E-01	2.04E+02	3.50E-01	1.96E+02
7.89E-01	2.25E+02	6.58E-01	1.87E+02	4.01E-01	1.98E+02	6.56E-01	1.80E+02	4.02E-01	2.06E+02	4.02E-01	1.99E+02
7.39E-01	2.24E+02	7.08E-01	1.88E+02	4.53E-01	2.00E+02	7.07E-01	1.81E+02	4.53E-01	2.08E+02	4.53E-01	2.02E+02
6.89E-01	2.23E+02	7.59E-01	1.89E+02	5.03E-01	2.02E+02	7.56E-01	1.82E+02	5.05E-01	2.10E+02	5.04E-01	2.04E+02
6.39E-01	2.22E+02	8.09E-01	1.90E+02	5.55E-01	2.04E+02	8.07E-01	1.83E+02	5.55E-01	2.12E+02	5.55E-01	2.06E+02
5.89E-01	2.20E+02	8.59E-01	1.91E+02	6.05E-01	2.06E+02	8.57E-01	1.84E+02	6.06E-01	2.13E+02	6.06E-01	2.07E+02
5.39E-01	2.19E+02	9.09E-01	1.92E+02	6.56E-01	2.07E+02	9.07E-01	1.85E+02	6.57E-01	2.15E+02	6.56E-01	2.09E+02
4.89E-01	2.17E+02	9.59E-01	1.93E+02	7.06E-01	2.09E+02	9.58E-01	1.86E+02	7.07E-01	2.16E+02	7.06E-01	2.11E+02
4.39E-01	2.15E+02	9.99E-01	1.94E+02	7.56E-01	2.10E+02	9.99E-01	1.87E+02	7.57E-01	2.17E+02	7.57E-01	2.12E+02
3.89E-01	2.13E+02	9.41E-01	1.93E+02	8.07E-01	2.11E+02	9.43E-01	1.86E+02	8.08E-01	2.18E+02	8.07E-01	2.13E+02
3.39E-01	2.11E+02	8.90E-01	1.92E+02	8.57E-01	2.12E+02	8.92E-01	1.85E+02	8.58E-01	2.19E+02	8.57E-01	2.15E+02
2.90E-01	2.09E+02	8.40E-01	1.91E+02	9.07E-01	2.13E+02	8.42E-01	1.84E+02	9.08E-01	2.21E+02	9.07E-01	2.16E+02
2.40E-01	2.06E+02	7.90E-01	1.90E+02	9.58E-01	2.14E+02	7.92E-01	1.83E+02	9.59E-01	2.21E+02	9.57E-01	2.17E+02
1.91E-01	2.02E+02	7.41E-01	1.89E+02	9.99E-01	2.15E+02	7.42E-01	1.82E+02	9.99E-01	2.22E+02	9.99E-01	2.18E+02
1.42E-01	1.97E+02	6.91E-01	1.88E+02	9.41E-01	2.14E+02	6.93E-01	1.81E+02	9.42E-01	2.21E+02	9.43E-01	2.17E+02
9.34E-02	1.90E+02	6.41E-01	1.87E+02	8.91E-01	2.13E+02	6.43E-01	1.80E+02	8.92E-01	2.20E+02	8.92E-01	2.16E+02
		5.91E-01	1.86E+02	8.42E-01	2.12E+02	5.93E-01	1.79E+02	8.43E-01	2.19E+02	8.42E-01	2.15E+02
		5.42E-01	1.84E+02	7.91E-01	2.11E+02	5.44E-01	1.78E+02	7.92E-01	2.18E+02	7.92E-01	2.14E+02

4.92E-01	1.83E+02	7.43E-01	2.10E+02	4.95E-01	1.76E+02	7.42E-01	2.17E+02	7.43E-01	2.12E+02
4.43E-01	1.81E+02	6.92E-01	2.09E+02	4.45E-01	1.74E+02	6.92E-01	2.16E+02	6.93E-01	2.11E+02
3.94E-01	1.79E+02	6.43E-01	2.08E+02	3.96E-01	1.73E+02	6.43E-01	2.15E+02	6.43E-01	2.09E+02
3.44E-01	1.77E+02	5.93E-01	2.06E+02	3.47E-01	1.70E+02	5.93E-01	2.14E+02	5.94E-01	2.08E+02
2.95E-01	1.75E+02	5.44E-01	2.05E+02	2.99E-01	1.68E+02	5.43E-01	2.12E+02	5.44E-01	2.06E+02
2.47E-01	1.72E+02	4.95E-01	2.03E+02	2.51E-01	1.65E+02	4.94E-01	2.11E+02	4.95E-01	2.04E+02
1.99E-01	1.68E+02	4.46E-01	2.02E+02	1.95E-01	1.60E+02	4.44E-01	2.09E+02	4.45E-01	2.02E+02
1.52E-01	1.63E+02	3.96E-01	2.00E+02	1.46E-01	1.55E+02	3.96E-01	2.07E+02	3.96E-01	2.00E+02
9.48E-02	1.55E+02	3.48E-01	1.97E+02	9.89E-02	1.49E+02	3.47E-01	2.05E+02	3.48E-01	1.97E+02
		2.99E-01	1.94E+02	4.96E-02	1.38E+02	2.99E-01	2.02E+02	2.99E-01	1.94E+02
		2.51E-01	1.91E+02			2.51E-01	1.99E+02	2.51E-01	1.90E+02
		2.04E-01	1.87E+02			2.02E-01	1.95E+02	1.95E-01	1.85E+02
		1.47E-01	1.81E+02			1.46E-01	1.89E+02	1.46E-01	1.79E+02

Table S15. CO_2 adsorption and desorption data at 231 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
5.08E-03	1.75E+01	5.06E-03	3.60E+01	5.00E-03	3.32E+01	5.06E-03	4.11E+01	5.06E-03	3.75E+01	5.01E-03	3.48E+01
7.26E-03	2.62E+01	7.47E-03	4.81E+01	7.52E-03	4.69E+01	7.56E-03	5.44E+01	7.44E-03	5.21E+01	6.05E-03	4.07E+01
7.24E-03	2.62E+01	7.40E-03	4.80E+01	7.43E-03	4.68E+01	7.45E-03	5.44E+01	7.40E-03	5.21E+01	7.07E-03	4.60E+01
8.73E-03	3.18E+01	8.75E-03	5.32E+01	8.87E-03	5.30E+01	8.72E-03	5.94E+01	8.76E-03	5.89E+01	8.06E-03	5.06E+01
9.54E-03	3.46E+01	9.37E-03	5.52E+01	9.37E-03	5.52E+01	9.42E-03	6.21E+01	9.47E-03	6.22E+01	9.05E-03	5.48E+01
1.06E-02	3.82E+01	9.85E-03	5.62E+01	9.64E-03	5.61E+01	9.70E-03	6.28E+01	1.02E-02	6.30E+01	1.01E-02	5.88E+01
1.47E-02	5.12E+01	1.63E-02	7.39E+01	1.44E-02	7.14E+01	1.42E-02	7.53E+01	1.49E-02	7.93E+01	2.01E-02	8.46E+01
2.65E-02	7.80E+01	3.13E-02	9.43E+01	2.42E-02	9.02E+01	2.40E-02	9.08E+01	2.51E-02	9.86E+01	3.04E-02	9.86E+01
3.51E-02	9.02E+01	3.72E-02	9.88E+01	3.55E-02	1.02E+02	3.60E-02	1.01E+02	3.68E-02	1.10E+02	3.98E-02	1.07E+02
4.59E-02	1.01E+02	4.63E-02	1.04E+02	4.61E-02	1.10E+02	4.70E-02	1.07E+02	4.74E-02	1.17E+02	5.12E-02	1.14E+02
5.72E-02	1.09E+02	5.68E-02	1.09E+02	5.53E-02	1.14E+02	6.01E-02	1.12E+02	5.66E-02	1.22E+02	5.99E-02	1.18E+02
7.14E-02	1.17E+02	6.78E-02	1.13E+02	6.56E-02	1.19E+02	6.56E-02	1.14E+02	6.71E-02	1.26E+02	7.02E-02	1.22E+02
8.03E-02	1.21E+02	7.59E-02	1.16E+02	7.68E-02	1.23E+02	7.72E-02	1.17E+02	8.02E-02	1.30E+02	8.07E-02	1.25E+02
9.07E-02	1.24E+02	8.57E-02	1.18E+02	8.45E-02	1.25E+02	8.53E-02	1.19E+02	8.69E-02	1.32E+02	8.96E-02	1.28E+02
1.09E-01	1.29E+02	1.02E-01	1.21E+02	9.88E-02	1.29E+02	1.00E-01	1.22E+02	1.01E-01	1.35E+02	1.02E-01	1.31E+02
1.55E-01	1.40E+02	1.54E-01	1.30E+02	1.34E-01	1.36E+02	1.37E-01	1.28E+02	1.37E-01	1.42E+02	1.50E-01	1.40E+02
2.08E-01	1.47E+02	2.07E-01	1.36E+02	1.83E-01	1.43E+02	1.88E-01	1.33E+02	1.87E-01	1.49E+02	2.03E-01	1.47E+02
2.59E-01	1.53E+02	2.51E-01	1.40E+02	2.52E-01	1.51E+02	2.55E-01	1.39E+02	2.55E-01	1.56E+02	2.55E-01	1.53E+02
3.09E-01	1.58E+02	3.00E-01	1.43E+02	3.06E-01	1.55E+02	2.99E-01	1.42E+02	2.98E-01	1.59E+02	3.01E-01	1.57E+02
3.59E-01	1.62E+02	3.52E-01	1.46E+02	3.49E-01	1.59E+02	3.49E-01	1.45E+02	3.48E-01	1.63E+02	3.48E-01	1.64E+02
4.10E-01	1.65E+02	4.04E-01	1.49E+02	3.99E-01	1.62E+02	4.00E-01	1.47E+02	4.00E-01	1.66E+02	3.99E-01	1.67E+02
4.60E-01	1.68E+02	4.55E-01	1.51E+02	4.50E-01	1.64E+02	4.52E-01	1.49E+02	4.52E-01	1.69E+02	4.51E-01	1.70E+02
5.10E-01	1.71E+02	5.05E-01	1.53E+02	5.01E-01	1.67E+02	5.03E-01	1.51E+02	5.03E-01	1.71E+02	5.02E-01	1.73E+02

5.60E-01	1.73E+02	5.56E-01	1.55E+02	5.52E-01	1.69E+02	5.54E-01	1.53E+02	5.54E-01	1.74E+02	5.53E-01	1.75E+02
6.10E-01	1.76E+02	6.07E-01	1.57E+02	6.03E-01	1.71E+02	6.05E-01	1.54E+02	6.05E-01	1.75E+02	6.04E-01	1.78E+02
6.60E-01	1.78E+02	6.57E-01	1.58E+02	6.54E-01	1.73E+02	6.55E-01	1.56E+02	6.55E-01	1.77E+02	6.55E-01	1.80E+02
7.10E-01	1.80E+02	7.08E-01	1.59E+02	7.04E-01	1.75E+02	7.06E-01	1.57E+02	7.06E-01	1.79E+02	7.05E-01	1.81E+02
7.60E-01	1.82E+02	7.58E-01	1.61E+02	7.55E-01	1.77E+02	7.56E-01	1.58E+02	7.56E-01	1.80E+02	7.56E-01	1.83E+02
8.10E-01	1.83E+02	8.08E-01	1.62E+02	8.05E-01	1.78E+02	8.06E-01	1.59E+02	8.07E-01	1.82E+02	8.06E-01	1.85E+02
8.60E-01	1.85E+02	8.58E-01	1.63E+02	8.56E-01	1.79E+02	8.56E-01	1.61E+02	8.57E-01	1.83E+02	8.56E-01	1.86E+02
9.11E-01	1.86E+02	9.09E-01	1.64E+02	9.06E-01	1.81E+02	9.07E-01	1.61E+02	9.07E-01	1.85E+02	9.07E-01	1.88E+02
9.61E-01	1.88E+02	9.59E-01	1.65E+02	9.57E-01	1.82E+02	9.58E-01	1.62E+02	9.58E-01	1.86E+02	9.57E-01	1.89E+02
9.99E-01	1.89E+02	9.99E-01	1.66E+02	9.99E-01	1.83E+02	9.99E-01	1.63E+02	9.99E-01	1.87E+02	9.99E-01	1.90E+02
9.39E-01	1.88E+02	9.42E-01	1.65E+02	9.43E-01	1.82E+02	9.43E-01	1.62E+02	9.44E-01	1.86E+02	9.44E-01	1.89E+02
8.88E-01	1.87E+02	8.91E-01	1.64E+02	8.92E-01	1.81E+02	8.91E-01	1.61E+02	8.92E-01	1.84E+02	8.92E-01	1.88E+02
8.38E-01	1.86E+02	8.42E-01	1.63E+02	8.43E-01	1.80E+02	8.42E-01	1.61E+02	8.43E-01	1.83E+02	8.43E-01	1.86E+02
7.89E-01	1.85E+02	7.92E-01	1.62E+02	7.93E-01	1.78E+02	7.92E-01	1.60E+02	7.93E-01	1.82E+02	7.93E-01	1.85E+02
7.39E-01	1.83E+02	7.42E-01	1.60E+02	7.44E-01	1.77E+02	7.43E-01	1.59E+02	7.45E-01	1.81E+02	7.43E-01	1.83E+02
6.89E-01	1.82E+02	6.93E-01	1.59E+02	6.94E-01	1.76E+02	6.93E-01	1.58E+02	6.94E-01	1.79E+02	6.94E-01	1.82E+02
6.39E-01	1.80E+02	6.43E-01	1.58E+02	6.45E-01	1.74E+02	6.44E-01	1.56E+02	6.45E-01	1.78E+02	6.44E-01	1.80E+02
5.89E-01	1.78E+02	5.93E-01	1.56E+02	5.95E-01	1.72E+02	5.94E-01	1.55E+02	5.95E-01	1.76E+02	5.95E-01	1.78E+02
5.39E-01	1.76E+02	5.44E-01	1.55E+02	5.46E-01	1.70E+02	5.45E-01	1.54E+02	5.46E-01	1.74E+02	5.45E-01	1.76E+02
4.89E-01	1.73E+02	4.95E-01	1.53E+02	4.97E-01	1.68E+02	4.95E-01	1.52E+02	4.96E-01	1.72E+02	4.96E-01	1.74E+02
4.40E-01	1.70E+02	4.46E-01	1.51E+02	4.48E-01	1.66E+02	4.47E-01	1.50E+02	4.48E-01	1.70E+02	4.47E-01	1.71E+02
3.89E-01	1.68E+02	3.96E-01	1.49E+02	3.99E-01	1.63E+02	3.97E-01	1.48E+02	3.98E-01	1.67E+02	3.98E-01	1.68E+02
3.40E-01	1.64E+02	3.48E-01	1.46E+02	3.50E-01	1.61E+02	3.48E-01	1.46E+02	3.50E-01	1.64E+02	3.49E-01	1.65E+02
2.91E-01	1.60E+02	2.99E-01	1.43E+02	3.02E-01	1.57E+02	3.00E-01	1.43E+02	3.01E-01	1.61E+02	3.01E-01	1.62E+02
2.41E-01	1.55E+02	2.51E-01	1.40E+02	2.45E-01	1.52E+02	2.52E-01	1.40E+02	2.44E-01	1.56E+02	2.44E-01	1.56E+02
1.92E-01	1.49E+02	2.02E-01	1.36E+02	1.95E-01	1.47E+02	1.94E-01	1.36E+02	1.94E-01	1.51E+02	1.95E-01	1.50E+02
1.42E-01	1.42E+02	1.45E-01	1.29E+02	1.46E-01	1.40E+02	1.45E-01	1.30E+02	1.45E-01	1.45E+02	1.46E-01	1.43E+02

Table S16. CO_2 adsorption and desorption data at 273 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.20E-03	4.26E-01	1.09E-03	5.37E-01	1.11E-03	4.21E-01	1.22E-03	5.74E-02	1.06E-03	4.60E-01	1.02E-03	4.70E-01
2.24E-03	8.01E-01	2.11E-03	1.05E+00	2.10E-03	8.20E-01	2.21E-03	1.15E-01	2.08E-03	9.18E-01	2.06E-03	9.38E-01
3.25E-03	1.16E+00	3.13E-03	1.54E+00	3.10E-03	1.22E+00	3.01E-03	1.12E+00	3.10E-03	1.37E+00	3.03E-03	1.38E+00
4.27E-03	1.54E+00	4.05E-03	1.98E+00	4.01E-03	1.59E+00	4.40E-03	1.84E+00	4.01E-03	1.78E+00	4.09E-03	1.85E+00
5.29E-03	1.91E+00	5.18E-03	2.51E+00	5.13E-03	2.04E+00	5.66E-03	2.46E+00	5.01E-03	2.23E+00	5.16E-03	2.34E+00
6.25E-03	2.26E+00	6.10E-03	2.95E+00	7.01E-03	2.80E+00	7.20E-03	3.21E+00	6.24E-03	2.78E+00	6.05E-03	2.74E+00
7.29E-03	2.64E+00	7.15E-03	3.44E+00	7.03E-03	2.81E+00	7.12E-03	3.18E+00	7.17E-03	3.19E+00	7.07E-03	3.20E+00
9.03E-03	3.28E+00	9.09E-03	4.34E+00	8.89E-03	3.55E+00	9.18E-03	4.13E+00	8.99E-03	3.99E+00	8.09E-03	3.84E+00
9.91E-03	3.61E+00	9.54E-03	4.55E+00	9.48E-03	3.78E+00	9.61E-03	4.32E+00	9.51E-03	4.22E+00	9.06E-03	4.28E+00
1.28E-02	4.42E+00	1.10E-02	5.21E+00	1.09E-02	4.35E+00	1.07E-02	4.83E+00	1.08E-02	4.86E+00	1.01E-02	4.74E+00
2.11E-02	7.43E+00	1.95E-02	9.07E+00	1.63E-02	6.49E+00	1.77E-02	7.95E+00	2.04E-02	9.11E+00	2.06E-02	9.41E+00
3.09E-02	1.07E+01	3.08E-02	1.40E+01	2.77E-02	1.09E+01	2.67E-02	1.19E+01	2.86E-02	1.26E+01	3.08E-02	1.37E+01
4.09E-02	1.41E+01	3.67E-02	1.64E+01	3.82E-02	1.48E+01	3.69E-02	1.60E+01	3.81E-02	1.65E+01	4.08E-02	1.77E+01
5.08E-02	1.72E+01	4.82E-02	2.09E+01	4.85E-02	1.84E+01	4.72E-02	1.99E+01	4.79E-02	2.05E+01	5.09E-02	2.16E+01
6.09E-02	2.03E+01	6.05E-02	2.54E+01	6.04E-02	2.25E+01	5.74E-02	2.35E+01	5.81E-02	2.44E+01	5.95E-02	2.47E+01
7.10E-02	2.32E+01	6.67E-02	2.76E+01	6.63E-02	2.44E+01	6.77E-02	2.70E+01	6.83E-02	2.80E+01	7.09E-02	2.86E+01
8.11E-02	2.60E+01	8.08E-02	3.19E+01	8.05E-02	2.86E+01	7.83E-02	3.01E+01	8.06E-02	3.20E+01	7.96E-02	3.15E+01
9.11E-02	2.87E+01	8.76E-02	3.38E+01	8.68E-02	3.03E+01	9.06E-02	3.35E+01	8.69E-02	3.39E+01	9.10E-02	3.51E+01
1.09E-01	3.30E+01	1.02E-01	3.77E+01	1.01E-01	3.39E+01	1.01E-01	3.64E+01	9.98E-02	3.78E+01	1.02E-01	3.84E+01
1.55E-01	4.26E+01	1.37E-01	4.65E+01	1.48E-01	4.54E+01	1.55E-01	4.86E+01	1.55E-01	5.23E+01	1.55E-01	5.17E+01
2.05E-01	5.14E+01	1.84E-01	5.59E+01	1.86E-01	5.28E+01	1.88E-01	5.46E+01	1.88E-01	5.92E+01	2.00E-01	6.10E+01
2.56E-01	5.84E+01	2.37E-01	6.43E+01	2.34E-01	6.05E+01	2.33E-01	6.14E+01	2.34E-01	6.72E+01	2.50E-01	7.01E+01
3.07E-01	6.45E+01	3.05E-01	7.27E+01	2.86E-01	6.76E+01	2.85E-01	6.78E+01	2.85E-01	7.46E+01	3.04E-01	7.75E+01

3.58E-01	6.94E+01	3.48E-01	7.72E+01	3.54E-01	7.50E+01	3.38E-01	7.30E+01	3.39E-01	8.09E+01	3.56E-01	8.33E+01
4.08E-01	7.37E+01	3.98E-01	8.15E+01	4.07E-01	7.96E+01	4.06E-01	7.85E+01	4.06E-01	8.71E+01	3.98E-01	8.73E+01
4.59E-01	7.74E+01	4.50E-01	8.52E+01	4.49E-01	8.29E+01	4.49E-01	8.14E+01	4.49E-01	9.05E+01	4.57E-01	9.22E+01
5.09E-01	8.07E+01	5.01E-01	8.87E+01	4.98E-01	8.63E+01	4.98E-01	8.45E+01	4.98E-01	9.40E+01	5.01E-01	9.53E+01
5.59E-01	8.35E+01	5.52E-01	9.15E+01	5.50E-01	8.94E+01	5.49E-01	8.72E+01	5.50E-01	9.72E+01	5.50E-01	9.85E+01
6.09E-01	8.63E+01	6.03E-01	9.42E+01	6.01E-01	9.22E+01	6.01E-01	8.97E+01	6.01E-01	1.00E+02	6.01E-01	1.01E+02
6.60E-01	8.86E+01	6.54E-01	9.67E+01	6.52E-01	9.47E+01	6.52E-01	9.19E+01	6.52E-01	1.03E+02	6.52E-01	1.04E+02
7.10E-01	9.09E+01	7.05E-01	9.88E+01	7.03E-01	9.70E+01	7.03E-01	9.39E+01	7.03E-01	1.05E+02	7.03E-01	1.07E+02
7.60E-01	9.28E+01	7.55E-01	1.01E+02	7.53E-01	9.91E+01	7.54E-01	9.57E+01	7.54E-01	1.07E+02	7.54E-01	1.09E+02
8.10E-01	9.49E+01	8.05E-01	1.03E+02	8.04E-01	1.01E+02	8.04E-01	9.73E+01	8.05E-01	1.09E+02	8.04E-01	1.11E+02
8.60E-01	9.66E+01	8.56E-01	1.04E+02	8.54E-01	1.03E+02	8.55E-01	9.89E+01	8.55E-01	1.10E+02	8.55E-01	1.13E+02
9.10E-01	9.83E+01	9.07E-01	1.06E+02	9.05E-01	1.04E+02	9.05E-01	1.00E+02	9.06E-01	1.12E+02	9.05E-01	1.14E+02
9.60E-01	9.97E+01	9.57E-01	1.07E+02	9.56E-01	1.06E+02	9.55E-01	1.02E+02	9.56E-01	1.13E+02	9.56E-01	1.16E+02
9.99E-01	1.01E+02	9.99E-01	1.09E+02	9.99E-01	1.07E+02	9.99E-01	1.03E+02	9.99E-01	1.15E+02	9.99E-01	1.17E+02
9.39E-01	9.95E+01	9.43E-01	1.07E+02	9.44E-01	1.06E+02	9.44E-01	1.01E+02	9.44E-01	1.13E+02	9.44E-01	1.16E+02
8.89E-01	9.82E+01	8.92E-01	1.06E+02	8.94E-01	1.04E+02	8.94E-01	1.00E+02	8.93E-01	1.12E+02	8.93E-01	1.14E+02
8.39E-01	9.67E+01	8.43E-01	1.05E+02	8.44E-01	1.03E+02	8.44E-01	9.91E+01	8.44E-01	1.10E+02	8.44E-01	1.13E+02
7.89E-01	9.52E+01	7.93E-01	1.03E+02	7.95E-01	1.01E+02	7.94E-01	9.76E+01	7.94E-01	1.09E+02	7.94E-01	1.11E+02
7.40E-01	9.35E+01	7.44E-01	1.01E+02	7.46E-01	9.95E+01	7.45E-01	9.61E+01	7.45E-01	1.07E+02	7.45E-01	1.09E+02
6.89E-01	9.17E+01	6.94E-01	9.93E+01	6.96E-01	9.75E+01	6.96E-01	9.44E+01	6.96E-01	1.05E+02	6.96E-01	1.07E+02
6.40E-01	8.95E+01	6.45E-01	9.73E+01	6.47E-01	9.54E+01	6.47E-01	9.27E+01	6.46E-01	1.03E+02	6.46E-01	1.04E+02
5.90E-01	8.72E+01	5.96E-01	9.51E+01	5.97E-01	9.30E+01	5.97E-01	9.06E+01	5.97E-01	1.01E+02	5.97E-01	1.02E+02
5.40E-01	8.45E+01	5.46E-01	9.26E+01	5.48E-01	9.04E+01	5.48E-01	8.82E+01	5.48E-01	9.81E+01	5.48E-01	9.90E+01
4.90E-01	8.16E+01	4.97E-01	8.99E+01	5.00E-01	8.76E+01	5.00E-01	8.57E+01	4.99E-01	9.52E+01	4.99E-01	9.59E+01
4.41E-01	7.82E+01	4.49E-01	8.67E+01	4.51E-01	8.43E+01	4.51E-01	8.28E+01	4.51E-01	9.18E+01	4.50E-01	9.24E+01
3.91E-01	7.45E+01	3.99E-01	8.33E+01	3.93E-01	7.99E+01	3.92E-01	7.89E+01	4.02E-01	8.81E+01	4.02E-01	8.85E+01
3.42E-01	7.01E+01	3.51E-01	7.92E+01	3.52E-01	7.62E+01	3.52E-01	7.58E+01	3.43E-01	8.27E+01	3.44E-01	8.30E+01

2.92E-01	6.51E+01	2.92E-01	7.32E+01	2.95E-01	7.02E+01	2.95E-01	7.03E+01	2.94E-01	7.70E+01	2.94E-01	7.73E+01
2.43E-01	5.90E+01	2.44E-01	6.72E+01	2.45E-01	6.37E+01	2.46E-01	6.45E+01	2.45E-01	7.04E+01	2.46E-01	7.04E+01
1.94E-01	5.19E+01	1.95E-01	5.98E+01	1.96E-01	5.62E+01	1.97E-01	5.76E+01	1.97E-01	6.25E+01	1.98E-01	6.19E+01
1.45E-01	4.31E+01	1.46E-01	5.05E+01	1.61E-01	4.95E+01	1.62E-01	5.15E+01	1.62E-01	5.53E+01	1.51E-01	5.20E+01

Table S17. CO_2 adsorption and desorption data at 298 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
4.21E-03	1.60E-02	1.01E-03	1.23E-02	1.31E-03	3.47E-02	1.00E-03	1.50E-02	1.29E-03	4.79E-02	9.97E-04	1.72E-01
5.26E-03	2.08E-01	2.33E-03	4.19E-02	2.16E-03	1.00E-01	2.31E-03	6.17E-02	2.15E-03	1.31E-01	2.02E-03	3.59E-01
6.06E-03	3.58E-01	3.15E-03	8.10E-02	3.14E-03	2.34E-01	3.13E-03	1.46E-01	3.12E-03	2.91E-01	3.09E-03	5.45E-01
7.37E-03	6.29E-01	4.04E-03	4.03E-01	4.00E-03	4.15E-01	4.07E-03	5.19E-01	4.05E-03	5.70E-01	4.16E-03	7.32E-01
9.41E-03	9.30E-01	5.18E-03	7.27E-01	5.15E-03	6.77E-01	5.13E-03	7.89E-01	5.03E-03	7.99E-01	5.24E-03	9.20E-01
1.01E-02	1.05E+00	6.08E-03	9.16E-01	6.16E-03	8.64E-01	6.16E-03	1.01E+00	6.22E-03	1.06E+00	6.08E-03	1.06E+00
1.14E-02	2.35E+00	7.03E-03	1.10E+00	7.07E-03	1.02E+00	7.29E-03	1.23E+00	7.09E-03	1.23E+00	7.13E-03	1.35E+00
2.04E-02	3.56E+00	8.65E-03	1.39E+00	8.63E-03	1.28E+00	8.72E-03	1.50E+00	8.66E-03	1.54E+00	8.26E-03	1.55E+00
3.06E-02	5.03E+00	9.48E-03	1.54E+00	9.49E-03	1.42E+00	9.55E-03	1.65E+00	9.53E-03	1.70E+00	9.09E-03	1.69E+00
4.07E-02	6.44E+00	1.16E-02	1.94E+00	1.16E-02	1.77E+00	1.14E-02	2.01E+00	1.15E-02	2.07E+00	1.01E-02	1.87E+00
5.06E-02	7.85E+00	1.93E-02	3.33E+00	2.13E-02	3.35E+00	1.79E-02	3.24E+00	1.87E-02	3.44E+00	2.15E-02	3.90E+00
6.06E-02	9.22E+00	2.85E-02	4.96E+00	3.13E-02	4.96E+00	3.00E-02	5.46E+00	2.78E-02	5.13E+00	2.92E-02	5.24E+00
7.06E-02	1.06E+01	3.85E-02	6.68E+00	4.13E-02	6.53E+00	3.79E-02	6.88E+00	3.76E-02	6.94E+00	4.14E-02	7.32E+00
8.05E-02	1.19E+01	4.85E-02	8.39E+00	5.13E-02	8.08E+00	4.73E-02	8.52E+00	4.72E-02	8.70E+00	4.93E-02	8.63E+00
9.05E-02	1.32E+01	5.83E-02	1.00E+01	6.10E-02	9.58E+00	5.68E-02	1.01E+01	5.75E-02	1.05E+01	6.13E-02	1.06E+01
1.09E-01	1.55E+01	6.84E-02	1.16E+01	7.13E-02	1.11E+01	6.65E-02	1.18E+01	6.72E-02	1.23E+01	7.16E-02	1.23E+01
1.57E-01	2.09E+01	8.12E-02	1.35E+01	7.93E-02	1.22E+01	7.70E-02	1.34E+01	7.75E-02	1.39E+01	7.94E-02	1.35E+01
2.06E-01	2.62E+01	8.98E-02	1.47E+01	9.15E-02	1.38E+01	8.74E-02	1.49E+01	8.81E-02	1.55E+01	9.15E-02	1.54E+01
2.57E-01	3.08E+01	1.06E-01	1.70E+01	1.06E-01	1.58E+01	1.04E-01	1.72E+01	1.05E-01	1.81E+01	1.06E-01	1.75E+01
3.07E-01	3.53E+01	1.58E-01	2.38E+01	1.57E-01	2.24E+01	1.43E-01	2.26E+01	1.56E-01	2.57E+01	1.56E-01	2.47E+01
3.57E-01	3.91E+01	1.99E-01	2.88E+01	2.07E-01	2.83E+01	1.90E-01	2.85E+01	2.06E-01	3.25E+01	2.06E-01	3.14E+01
4.07E-01	4.29E+01	2.58E-01	3.53E+01	2.58E-01	3.37E+01	2.41E-01	3.41E+01	2.57E-01	3.87E+01	2.56E-01	3.81E+01
4.57E-01	4.62E+01	3.00E-01	3.94E+01	3.08E-01	3.87E+01	3.05E-01	4.05E+01	3.07E-01	4.42E+01	3.07E-01	4.37E+01

5.07E-01	4.95E+01	3.49E-01	4.39E+01	3.49E-01	4.24E+01	3.57E-01	4.50E+01	3.57E-01	4.93E+01	3.48E-01	4.78E+01
5.57E-01	5.22E+01	4.00E-01	4.79E+01	4.08E-01	4.71E+01	3.99E-01	4.82E+01	3.99E-01	5.29E+01	4.07E-01	5.29E+01
6.07E-01	5.50E+01	4.51E-01	5.16E+01	4.51E-01	5.02E+01	4.58E-01	5.24E+01	4.58E-01	5.77E+01	4.50E-01	5.63E+01
6.58E-01	5.74E+01	5.01E-01	5.50E+01	4.99E-01	5.36E+01	5.00E-01	5.51E+01	5.00E-01	6.09E+01	4.99E-01	5.99E+01
7.07E-01	5.99E+01	5.52E-01	5.82E+01	5.50E-01	5.68E+01	5.50E-01	5.81E+01	5.50E-01	6.42E+01	5.50E-01	6.33E+01
7.58E-01	6.21E+01	6.02E-01	6.11E+01	6.01E-01	5.97E+01	6.00E-01	6.08E+01	6.00E-01	6.74E+01	6.01E-01	6.64E+01
8.08E-01	6.43E+01	6.54E-01	6.38E+01	6.52E-01	6.25E+01	6.51E-01	6.33E+01	6.51E-01	7.03E+01	6.51E-01	6.93E+01
8.58E-01	6.61E+01	7.04E-01	6.63E+01	7.02E-01	6.50E+01	7.02E-01	6.57E+01	7.02E-01	7.30E+01	7.02E-01	7.20E+01
9.08E-01	6.82E+01	7.55E-01	6.85E+01	7.53E-01	6.73E+01	7.53E-01	6.78E+01	7.52E-01	7.54E+01	7.53E-01	7.45E+01
9.58E-01	6.99E+01	8.05E-01	7.06E+01	8.03E-01	6.95E+01	8.03E-01	6.99E+01	8.03E-01	7.78E+01	8.03E-01	7.68E+01
9.99E-01	7.16E+01	8.55E-01	7.28E+01	8.54E-01	7.16E+01	8.53E-01	7.19E+01	8.53E-01	7.99E+01	8.54E-01	7.90E+01
9.37E-01	6.96E+01	9.06E-01	7.47E+01	9.04E-01	7.34E+01	9.04E-01	7.36E+01	9.04E-01	8.18E+01	9.04E-01	8.11E+01
8.87E-01	6.81E+01	9.56E-01	7.64E+01	9.55E-01	7.52E+01	9.55E-01	7.52E+01	9.54E-01	8.37E+01	9.55E-01	8.30E+01
8.37E-01	6.64E+01	9.99E-01	7.80E+01	9.99E-01	7.68E+01	9.99E-01	7.66E+01	9.99E-01	8.54E+01	9.99E-01	8.47E+01
7.87E-01	6.46E+01	9.44E-01	7.65E+01	9.45E-01	7.50E+01	9.45E-01	7.49E+01	9.45E-01	8.36E+01	9.44E-01	8.28E+01
7.37E-01	6.28E+01	8.93E-01	7.49E+01	8.94E-01	7.34E+01	8.95E-01	7.35E+01	8.94E-01	8.18E+01	8.94E-01	8.10E+01
6.87E-01	6.07E+01	8.43E-01	7.32E+01	8.45E-01	7.17E+01	8.45E-01	7.20E+01	8.44E-01	8.00E+01	8.45E-01	7.90E+01
6.37E-01	5.83E+01	7.94E-01	7.12E+01	7.95E-01	6.98E+01	7.96E-01	7.01E+01	7.95E-01	7.80E+01	7.95E-01	7.69E+01
5.87E-01	5.59E+01	7.44E-01	6.92E+01	7.46E-01	6.77E+01	7.46E-01	6.82E+01	7.46E-01	7.57E+01	7.46E-01	7.47E+01
5.38E-01	5.32E+01	6.95E-01	6.72E+01	6.96E-01	6.55E+01	6.97E-01	6.61E+01	6.97E-01	7.35E+01	6.96E-01	7.23E+01
4.88E-01	5.03E+01	6.45E-01	6.50E+01	6.47E-01	6.32E+01	6.48E-01	6.39E+01	6.47E-01	7.09E+01	6.47E-01	6.98E+01
4.38E-01	4.71E+01	5.95E-01	6.24E+01	5.98E-01	6.06E+01	5.98E-01	6.15E+01	5.98E-01	6.82E+01	5.97E-01	6.70E+01
3.88E-01	4.39E+01	5.46E-01	5.98E+01	5.49E-01	5.79E+01	5.49E-01	5.89E+01	5.49E-01	6.52E+01	5.48E-01	6.40E+01
3.38E-01	4.01E+01	4.97E-01	5.69E+01	4.99E-01	5.48E+01	5.00E-01	5.62E+01	5.00E-01	6.20E+01	4.99E-01	6.08E+01
2.89E-01	3.62E+01	4.48E-01	5.35E+01	4.50E-01	5.14E+01	4.52E-01	5.30E+01	4.51E-01	5.84E+01	4.50E-01	5.72E+01
2.39E-01	3.16E+01	3.98E-01	5.02E+01	4.01E-01	4.80E+01	3.92E-01	4.89E+01	4.02E-01	5.45E+01	4.01E-01	5.34E+01
1.89E-01	2.68E+01	3.49E-01	4.62E+01	3.42E-01	4.32E+01	3.51E-01	4.58E+01	3.42E-01	4.92E+01	3.52E-01	4.91E+01

1.40E-01	2.13E+01	3.01E-01	4.20E+01	3.01E-01	3.95E+01	2.93E-01	4.07E+01	3.02E-01	4.51E+01	2.93E-01	4.34E+01
		2.42E-01	3.61E+01	2.43E-01	3.37E+01	2.43E-01	3.57E+01	2.44E-01	3.86E+01	2.52E-01	3.89E+01
		2.00E-01	3.16E+01	1.92E-01	2.82E+01	1.93E-01	3.02E+01	1.93E-01	3.23E+01	1.94E-01	3.11E+01
		1.42E-01	2.43E+01	1.42E-01	2.21E+01	1.44E-01	2.40E+01	1.43E-01	2.54E+01	1.44E-01	2.41E+01

Table S18. CH_4 adsorption and desorption data at 195 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.22E-04	7.89E-02	6.17E-04	1.98E+00	9.67E-05	9.72E-02	6.16E-04	1.00E+00	2.31E-04	4.90E-01	1.16E-04	9.49E-02
2.22E-04	8.56E-02	8.67E-04	2.76E+00	3.53E-04	4.34E-01	7.06E-04	1.31E+00	2.31E-04	4.88E-01	2.02E-04	1.13E-01
3.15E-04	1.01E-01	8.69E-04	2.74E+00	3.54E-04	4.27E-01	8.17E-04	1.54E+00	5.47E-04	1.26E+00	3.00E-04	1.33E-01
4.12E-04	1.27E-01	8.99E-04	2.80E+00	4.05E-04	4.94E-01	9.18E-04	1.71E+00	5.29E-04	1.24E+00	4.03E-04	1.53E-01
5.14E-04	1.71E-01	1.23E-03	3.80E+00	7.81E-04	1.20E+00	1.01E-03	1.86E+00	5.33E-04	1.23E+00	5.09E-04	1.74E-01
6.10E-04	2.45E-01	2.20E-03	6.62E+00	7.55E-04	1.17E+00	2.02E-03	3.42E+00	8.55E-04	2.03E+00	6.04E-04	1.92E-01
7.20E-04	6.63E-01	3.23E-03	9.42E+00	7.59E-04	1.16E+00	3.03E-03	4.61E+00	8.38E-04	1.99E+00	7.38E-04	2.20E-01
8.31E-04	1.56E+00	4.00E-03	1.14E+01	7.97E-04	1.20E+00	4.03E-03	6.14E+00	8.39E-04	1.99E+00	7.98E-04	2.65E-01
9.02E-04	2.11E+00	5.26E-03	1.44E+01	1.19E-03	1.94E+00	5.08E-03	7.48E+00	1.16E-03	2.78E+00	9.02E-04	1.72E+00
1.10E-03	2.43E+00	6.75E-03	1.77E+01	1.17E-03	1.90E+00	6.13E-03	8.57E+00	1.15E-03	2.75E+00	1.08E-03	2.02E+00
2.17E-03	4.63E+00	7.75E-03	1.97E+01	2.03E-03	3.47E+00	7.08E-03	1.01E+01	2.21E-03	5.29E+00	2.05E-03	3.69E+00
3.07E-03	6.59E+00	8.42E-03	2.09E+01	3.00E-03	5.19E+00	8.12E-03	1.11E+01	3.23E-03	7.69E+00	3.02E-03	6.28E+00
4.22E-03	8.72E+00	9.29E-03	2.25E+01	4.00E-03	6.89E+00	9.20E-03	1.25E+01	4.22E-03	9.92E+00	4.02E-03	8.70E+00
5.28E-03	1.09E+01	1.05E-02	2.38E+01	5.06E-03	8.56E+00	1.07E-02	1.36E+01	5.17E-03	1.20E+01	5.00E-03	1.09E+01
6.12E-03	1.25E+01	1.87E-02	3.64E+01	6.80E-03	1.11E+01	2.03E-02	2.34E+01	6.58E-03	1.50E+01	6.09E-03	1.31E+01
7.16E-03	1.44E+01	2.96E-02	4.79E+01	7.53E-03	1.25E+01	3.05E-02	3.35E+01	7.58E-03	1.71E+01	7.11E-03	1.51E+01
8.34E-03	1.60E+01	3.96E-02	5.58E+01	8.38E-03	1.42E+01	4.06E-02	4.04E+01	8.43E-03	1.88E+01	8.10E-03	1.69E+01
9.05E-03	1.71E+01	5.08E-02	6.23E+01	9.24E-03	1.58E+01	5.12E-02	4.65E+01	9.18E-03	2.02E+01	9.05E-03	1.86E+01
1.02E-02	1.96E+01	6.12E-02	6.71E+01	1.03E-02	1.67E+01	5.97E-02	5.07E+01	1.00E-02	2.15E+01	1.01E-02	2.03E+01
2.08E-02	3.51E+01	7.03E-02	7.06E+01	1.79E-02	2.75E+01	6.98E-02	5.49E+01	2.07E-02	3.85E+01	2.01E-02	3.43E+01
3.15E-02	4.73E+01	8.04E-02	7.42E+01	2.82E-02	3.88E+01	8.02E-02	5.86E+01	3.07E-02	5.04E+01	3.12E-02	4.59E+01
4.21E-02	5.64E+01	8.76E-02	7.63E+01	4.15E-02	4.98E+01	9.08E-02	6.19E+01	3.82E-02	5.74E+01	4.09E-02	5.37E+01
5.03E-02	6.21E+01	1.02E-01	8.02E+01	4.79E-02	5.41E+01	1.01E-01	6.47E+01	4.82E-02	6.49E+01	4.95E-02	5.91E+01

6.02E-02	6.79E+01	1.40E-01	8.84E+01	6.06E-02	6.12E+01	1.55E-01	7.57E+01	6.07E-02	7.22E+01	5.97E-02	6.45E+01
7.05E-02	7.29E+01	1.91E-01	9.60E+01	7.05E-02	6.57E+01	2.03E-01	8.24E+01	6.86E-02	7.60E+01	7.03E-02	6.93E+01
8.08E-02	7.72E+01	2.59E-01	1.03E+02	8.06E-02	6.96E+01	2.55E-01	8.80E+01	7.84E-02	8.01E+01	8.08E-02	7.33E+01
9.11E-02	8.09E+01	3.02E-01	1.07E+02	8.96E-02	7.26E+01	3.08E-01	9.22E+01	9.08E-02	8.44E+01	9.10E-02	7.67E+01
1.09E-01	8.64E+01	3.53E-01	1.10E+02	1.01E-01	7.61E+01	3.49E-01	9.53E+01	1.02E-01	8.78E+01	1.02E-01	7.99E+01
1.57E-01	9.70E+01	4.04E-01	1.13E+02	1.36E-01	8.41E+01	4.00E-01	9.82E+01	1.36E-01	9.59E+01	1.51E-01	9.04E+01
2.08E-01	1.05E+02	4.55E-01	1.15E+02	1.85E-01	9.24E+01	4.50E-01	1.01E+02	2.04E-01	1.06E+02	2.05E-01	9.81E+01
2.59E-01	1.11E+02	5.06E-01	1.18E+02	2.40E-01	9.90E+01	5.02E-01	1.03E+02	2.59E-01	1.12E+02	2.57E-01	1.04E+02
3.10E-01	1.16E+02	5.57E-01	1.20E+02	3.08E-01	1.05E+02	5.53E-01	1.05E+02	3.00E-01	1.16E+02	3.00E-01	1.07E+02
3.60E-01	1.20E+02	6.07E-01	1.21E+02	3.51E-01	1.08E+02	6.04E-01	1.07E+02	3.50E-01	1.19E+02	3.49E-01	1.11E+02
4.10E-01	1.23E+02	6.58E-01	1.23E+02	4.01E-01	1.11E+02	6.55E-01	1.09E+02	4.01E-01	1.22E+02	4.02E-01	1.14E+02
4.61E-01	1.26E+02	7.08E-01	1.24E+02	4.52E-01	1.14E+02	7.05E-01	1.11E+02	4.52E-01	1.25E+02	4.53E-01	1.17E+02
5.11E-01	1.28E+02	7.58E-01	1.26E+02	5.03E-01	1.17E+02	7.56E-01	1.12E+02	5.04E-01	1.28E+02	5.04E-01	1.19E+02
5.61E-01	1.31E+02	8.07E-01	1.27E+02	5.54E-01	1.19E+02	8.06E-01	1.13E+02	5.54E-01	1.30E+02	5.54E-01	1.22E+02
6.11E-01	1.33E+02	8.59E-01	1.29E+02	6.05E-01	1.21E+02	8.57E-01	1.14E+02	6.05E-01	1.32E+02	6.05E-01	1.24E+02
6.61E-01	1.35E+02	9.08E-01	1.30E+02	6.56E-01	1.23E+02	9.07E-01	1.16E+02	6.56E-01	1.34E+02	6.56E-01	1.25E+02
7.11E-01	1.37E+02	9.59E-01	1.30E+02	7.05E-01	1.24E+02	9.57E-01	1.17E+02	7.06E-01	1.35E+02	7.06E-01	1.27E+02
7.61E-01	1.38E+02	9.99E-01	1.32E+02	7.55E-01	1.26E+02	9.99E-01	1.18E+02	7.57E-01	1.37E+02	7.57E-01	1.29E+02
8.11E-01	1.40E+02	9.43E-01	1.30E+02	8.07E-01	1.27E+02	9.44E-01	1.17E+02	8.07E-01	1.38E+02	8.07E-01	1.30E+02
8.62E-01	1.41E+02	8.92E-01	1.29E+02	8.56E-01	1.29E+02	8.92E-01	1.16E+02	8.58E-01	1.40E+02	8.57E-01	1.31E+02
9.11E-01	1.43E+02	8.42E-01	1.28E+02	9.07E-01	1.30E+02	8.43E-01	1.14E+02	9.07E-01	1.41E+02	9.08E-01	1.33E+02
9.62E-01	1.44E+02	7.92E-01	1.27E+02	9.58E-01	1.31E+02	7.93E-01	1.13E+02	9.58E-01	1.42E+02	9.58E-01	1.34E+02
9.99E-01	1.45E+02	7.42E-01	1.25E+02	9.99E-01	1.33E+02	7.43E-01	1.12E+02	9.99E-01	1.43E+02	9.99E-01	1.35E+02
9.45E-01	1.44E+02	6.93E-01	1.24E+02	9.43E-01	1.31E+02	6.94E-01	1.11E+02	9.42E-01	1.42E+02	9.44E-01	1.34E+02
8.89E-01	1.42E+02	6.43E-01	1.23E+02	8.92E-01	1.30E+02	6.45E-01	1.09E+02	8.92E-01	1.41E+02	8.92E-01	1.32E+02
8.39E-01	1.41E+02	5.93E-01	1.21E+02	8.43E-01	1.28E+02	5.95E-01	1.07E+02	8.43E-01	1.39E+02	8.42E-01	1.31E+02
7.89E-01	1.39E+02	5.43E-01	1.19E+02	7.93E-01	1.27E+02	5.46E-01	1.05E+02	7.92E-01	1.38E+02	7.92E-01	1.30E+02

7.39E-01	1.38E+02	4.94E-01	1.17E+02	7.43E-01	1.26E+02	4.95E-01	1.04E+02	7.43E-01	1.37E+02	7.43E-01	1.28E+02
6.88E-01	1.36E+02	4.45E-01	1.15E+02	6.93E-01	1.24E+02	4.47E-01	1.02E+02	6.93E-01	1.35E+02	6.93E-01	1.27E+02
6.38E-01	1.34E+02	3.96E-01	1.12E+02	6.44E-01	1.22E+02	3.99E-01	9.90E+01	6.43E-01	1.34E+02	6.43E-01	1.25E+02
5.88E-01	1.33E+02	3.47E-01	1.10E+02	5.94E-01	1.20E+02	3.51E-01	9.61E+01	5.94E-01	1.32E+02	5.93E-01	1.24E+02
5.39E-01	1.31E+02	2.99E-01	1.06E+02	5.45E-01	1.18E+02	2.93E-01	9.20E+01	5.44E-01	1.30E+02	5.44E-01	1.22E+02
4.90E-01	1.28E+02	2.51E-01	1.02E+02	4.95E-01	1.16E+02	2.43E-01	8.76E+01	4.96E-01	1.28E+02	4.95E-01	1.20E+02
4.39E-01	1.25E+02	1.92E-01	9.61E+01	4.46E-01	1.14E+02	1.95E-01	8.22E+01	4.45E-01	1.26E+02	4.46E-01	1.17E+02
3.90E-01	1.22E+02	1.44E-01	8.89E+01	3.97E-01	1.11E+02	1.48E-01	7.51E+01	3.97E-01	1.23E+02	3.97E-01	1.15E+02
3.40E-01	1.18E+02	1.08E-01	8.14E+01	3.48E-01	1.08E+02	9.60E-02	6.38E+01	3.48E-01	1.20E+02	3.48E-01	1.11E+02
2.91E-01	1.14E+02			3.00E-01	1.04E+02	5.19E-02	4.71E+01	3.00E-01	1.16E+02	2.99E-01	1.08E+02
2.41E-01	1.09E+02			2.42E-01	9.92E+01			2.43E-01	1.11E+02	2.42E-01	1.03E+02
1.92E-01	1.02E+02			1.93E-01	9.35E+01			1.92E-01	1.05E+02	1.93E-01	9.72E+01
1.43E-01	9.39E+01			1.45E-01	8.60E+01			1.44E-01	9.81E+01	1.45E-01	8.99E+01
9.48E-02	8.20E+01										
4.66E-02	5.96E+01										

Table S19. CH_4 adsorption and desorption data at 231 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.04E-03	2.01E+00	1.13E-03	5.66E-01	1.75E-03	1.06E+00	1.06E-03	1.85E+00	1.79E-03	1.03E+00	1.11E-04	1.37E-01
2.11E-03	3.45E+00	2.07E-03	1.06E+00	2.02E-03	1.22E+00	2.31E-03	2.76E+00	2.01E-03	1.18E+00	2.03E-04	1.94E-01
3.19E-03	4.20E+00	3.08E-03	1.58E+00	3.11E-03	1.88E+00	3.00E-03	3.13E+00	3.11E-03	1.84E+00	3.04E-04	2.55E-01
4.17E-03	4.74E+00	4.01E-03	2.06E+00	4.04E-03	2.44E+00	4.03E-03	3.64E+00	4.03E-03	2.40E+00	4.01E-04	3.11E-01
5.28E-03	5.29E+00	5.18E-03	2.66E+00	5.04E-03	3.04E+00	5.04E-03	4.15E+00	5.04E-03	3.01E+00	5.05E-04	3.72E-01
6.13E-03	5.68E+00	6.17E-03	3.16E+00	6.82E-03	4.10E+00	7.33E-03	5.27E+00	6.87E-03	4.12E+00	6.10E-04	4.33E-01
7.11E-03	6.15E+00	7.11E-03	3.64E+00	7.82E-03	4.68E+00	7.24E-03	5.23E+00	7.84E-03	4.71E+00	7.13E-04	4.93E-01
8.92E-03	7.09E+00	8.88E-03	4.53E+00	9.04E-03	5.39E+00	8.76E-03	5.96E+00	8.52E-03	5.11E+00	8.03E-04	5.46E-01
9.77E-03	7.49E+00	9.37E-03	4.77E+00	9.42E-03	5.61E+00	9.56E-03	6.34E+00	9.36E-03	5.61E+00	9.05E-04	6.05E-01
1.23E-02	9.02E+00	1.09E-02	5.58E+00	1.07E-02	6.36E+00	1.07E-02	6.93E+00	1.07E-02	6.39E+00	1.01E-03	6.63E-01
2.10E-02	1.34E+01	1.95E-02	9.66E+00	1.83E-02	1.06E+01	1.81E-02	1.03E+01	1.83E-02	1.08E+01	2.02E-03	1.26E+00
3.07E-02	1.78E+01	3.11E-02	1.48E+01	2.76E-02	1.54E+01	3.06E-02	1.57E+01	2.78E-02	1.58E+01	3.06E-03	1.89E+00
4.03E-02	2.19E+01	3.70E-02	1.72E+01	3.77E-02	2.01E+01	4.03E-02	1.94E+01	3.76E-02	2.08E+01	4.09E-03	2.51E+00
5.04E-02	2.61E+01	5.06E-02	2.23E+01	4.78E-02	2.44E+01	5.05E-02	2.31E+01	4.78E-02	2.54E+01	5.12E-03	3.13E+00
6.03E-02	2.96E+01	5.70E-02	2.45E+01	5.83E-02	2.85E+01	6.04E-02	2.64E+01	5.79E-02	2.97E+01	6.04E-03	3.67E+00
7.11E-02	3.27E+01	7.10E-02	2.90E+01	6.86E-02	3.22E+01	7.08E-02	2.94E+01	6.85E-02	3.37E+01	7.10E-03	4.29E+00
8.14E-02	3.54E+01	7.78E-02	3.08E+01	8.08E-02	3.59E+01	7.96E-02	3.18E+01	8.12E-02	3.79E+01	8.14E-03	4.90E+00
9.17E-02	3.79E+01	8.68E-02	3.31E+01	8.73E-02	3.78E+01	9.00E-02	3.43E+01	8.75E-02	3.98E+01	9.22E-03	5.52E+00
1.10E-01	4.25E+01	1.03E-01	3.69E+01	1.01E-01	4.14E+01	1.02E-01	3.71E+01	1.01E-01	4.38E+01	1.01E-02	6.00E+00
1.56E-01	5.32E+01	1.41E-01	4.51E+01	1.52E-01	5.25E+01	1.51E-01	4.68E+01	1.51E-01	5.60E+01	2.07E-02	1.14E+01
2.08E-01	6.08E+01	1.91E-01	5.33E+01	1.91E-01	5.91E+01	1.90E-01	5.28E+01	1.90E-01	6.31E+01	3.10E-02	1.65E+01
2.59E-01	6.72E+01	2.57E-01	6.16E+01	2.41E-01	6.57E+01	2.39E-01	5.89E+01	2.40E-01	7.04E+01	3.95E-02	2.04E+01
3.09E-01	7.30E+01	3.00E-01	6.59E+01	3.07E-01	7.26E+01	2.92E-01	6.42E+01	2.92E-01	7.66E+01	5.12E-02	2.52E+01

3.60E-01	7.77E+01	3.50E-01	7.02E+01	3.50E-01	7.62E+01	3.58E-01	6.96E+01	3.58E-01	8.28E+01	6.00E-02	2.85E+01
4.10E-01	8.14E+01	4.02E-01	7.39E+01	4.00E-01	7.97E+01	4.00E-01	7.26E+01	4.01E-01	8.60E+01	6.99E-02	3.20E+01
4.60E-01	8.48E+01	4.54E-01	7.71E+01	4.52E-01	8.29E+01	4.51E-01	7.55E+01	4.51E-01	8.94E+01	8.01E-02	3.53E+01
5.10E-01	8.82E+01	5.04E-01	7.99E+01	5.02E-01	8.57E+01	5.01E-01	7.82E+01	5.02E-01	9.24E+01	9.03E-02	3.84E+01
5.61E-01	9.11E+01	5.55E-01	8.26E+01	5.54E-01	8.82E+01	5.52E-01	8.06E+01	5.53E-01	9.51E+01	1.03E-01	4.17E+01
6.10E-01	9.35E+01	6.05E-01	8.48E+01	6.04E-01	9.03E+01	6.03E-01	8.28E+01	6.04E-01	9.76E+01	1.52E-01	5.27E+01
6.61E-01	9.59E+01	6.56E-01	8.69E+01	6.55E-01	9.24E+01	6.54E-01	8.48E+01	6.54E-01	9.96E+01	2.04E-01	6.14E+01
7.11E-01	9.80E+01	7.06E-01	8.88E+01	7.06E-01	9.42E+01	7.04E-01	8.65E+01	7.06E-01	1.02E+02	2.57E-01	6.82E+01
7.61E-01	1.00E+02	7.57E-01	9.06E+01	7.56E-01	9.58E+01	7.55E-01	8.83E+01	7.56E-01	1.03E+02	3.08E-01	7.35E+01
8.11E-01	1.02E+02	8.07E-01	9.22E+01	8.07E-01	9.73E+01	8.06E-01	8.98E+01	8.06E-01	1.05E+02	3.51E-01	7.72E+01
8.61E-01	1.03E+02	8.58E-01	9.37E+01	8.57E-01	9.87E+01	8.56E-01	9.12E+01	8.56E-01	1.07E+02	4.00E-01	8.10E+01
9.11E-01	1.05E+02	9.08E-01	9.50E+01	9.08E-01	1.00E+02	9.06E-01	9.25E+01	9.07E-01	1.08E+02	4.51E-01	8.44E+01
9.61E-01	1.06E+02	9.58E-01	9.63E+01	9.58E-01	1.01E+02	9.57E-01	9.39E+01	9.57E-01	1.10E+02	5.03E-01	8.74E+01
9.99E-01	1.08E+02	9.99E-01	9.76E+01	9.99E-01	1.02E+02	9.99E-01	9.49E+01	9.99E-01	1.11E+02	5.54E-01	9.01E+01
9.40E-01	1.06E+02	9.42E-01	9.60E+01	9.43E-01	1.01E+02	9.44E-01	9.35E+01	9.44E-01	1.09E+02	6.05E-01	9.25E+01
8.89E-01	1.05E+02	8.92E-01	9.48E+01	8.92E-01	9.98E+01	8.92E-01	9.23E+01	8.92E-01	1.08E+02	6.55E-01	9.47E+01
8.38E-01	1.03E+02	8.42E-01	9.34E+01	8.42E-01	9.85E+01	8.43E-01	9.09E+01	8.42E-01	1.06E+02	7.06E-01	9.67E+01
7.89E-01	1.01E+02	7.92E-01	9.17E+01	7.93E-01	9.71E+01	7.94E-01	8.95E+01	7.93E-01	1.05E+02	7.56E-01	9.86E+01
7.40E-01	9.91E+01	7.43E-01	9.01E+01	7.44E-01	9.55E+01	7.44E-01	8.79E+01	7.44E-01	1.03E+02	8.06E-01	1.00E+02
6.89E-01	9.75E+01	6.93E-01	8.84E+01	6.94E-01	9.39E+01	6.95E-01	8.63E+01	6.94E-01	1.02E+02	8.57E-01	1.02E+02
6.39E-01	9.54E+01	6.43E-01	8.64E+01	6.44E-01	9.21E+01	6.45E-01	8.45E+01	6.44E-01	9.97E+01	9.07E-01	1.03E+02
5.90E-01	9.31E+01	5.94E-01	8.43E+01	5.95E-01	9.02E+01	5.96E-01	8.26E+01	5.95E-01	9.76E+01	9.57E-01	1.05E+02
5.39E-01	9.03E+01	5.44E-01	8.21E+01	5.45E-01	8.80E+01	5.47E-01	8.05E+01	5.46E-01	9.54E+01	9.99E-01	1.06E+02
4.90E-01	8.74E+01	4.95E-01	7.96E+01	4.96E-01	8.56E+01	4.97E-01	7.81E+01	4.97E-01	9.27E+01	9.44E-01	1.05E+02
4.41E-01	8.35E+01	4.46E-01	7.67E+01	4.48E-01	8.29E+01	4.50E-01	7.55E+01	4.48E-01	8.98E+01	8.93E-01	1.03E+02
3.90E-01	8.07E+01	3.96E-01	7.37E+01	3.98E-01	7.99E+01	3.98E-01	7.24E+01	3.99E-01	8.65E+01	8.43E-01	1.02E+02
3.40E-01	7.65E+01	3.48E-01	7.01E+01	3.50E-01	7.65E+01	3.50E-01	6.91E+01	3.50E-01	8.28E+01	7.93E-01	1.00E+02

2.91E-01	7.13E+01	3.00E-01	6.59E+01	2.92E-01	7.15E+01	2.92E-01	6.45E+01	2.92E-01	7.72E+01	7.44E-01	9.83E+01
2.41E-01	6.51E+01	2.42E-01	5.98E+01	2.42E-01	6.61E+01	2.42E-01	5.97E+01	2.42E-01	7.15E+01	6.94E-01	9.65E+01
1.92E-01	5.84E+01	2.01E-01	5.48E+01	1.93E-01	5.97E+01	1.93E-01	5.38E+01	1.94E-01	6.46E+01	6.45E-01	9.45E+01
1.42E-01	4.98E+01	1.56E-01	4.79E+01	1.57E-01	5.37E+01	1.58E-01	4.85E+01	1.57E-01	5.82E+01	5.95E-01	9.23E+01
9.33E-02	3.83E+01									5.46E-01	9.00E+01
										4.97E-01	8.74E+01
										4.48E-01	8.45E+01
										3.99E-01	8.12E+01
										3.50E-01	7.75E+01
										2.92E-01	7.22E+01
										2.42E-01	6.68E+01
										1.94E-01	6.02E+01
										1.46E-01	5.19E+01

Table S20. CH_4 adsorption and desorption data at 273 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.24E-03	3.01E-01	1.15E-03	5.06E-01	1.03E-03	3.50E-01	1.25E-03	5.98E-02	1.19E-03	8.50E-02	1.03E-03	4.75E-01
2.00E-03	4.36E-01	2.12E-03	6.96E-01	2.06E-03	6.03E-01	2.22E-03	1.15E-01	2.18E-03	1.64E-01	2.01E-03	9.56E-01
3.35E-03	5.98E-01	3.23E-03	8.03E-01	3.20E-03	7.31E-01	3.25E-03	1.76E-01	3.18E-03	2.42E-01	3.12E-03	1.35E+00
4.05E-03	6.22E-01	4.16E-03	8.55E-01	4.27E-03	8.09E-01	4.21E-03	2.31E-01	4.09E-03	3.13E-01	4.32E-03	1.54E+00
5.07E-03	6.66E-01	5.32E-03	9.13E-01	5.26E-03	8.64E-01	5.19E-03	2.89E-01	5.29E-03	4.07E-01	5.25E-03	1.63E+00
6.05E-03	6.98E-01	6.21E-03	9.47E-01	6.13E-03	9.00E-01	6.26E-03	3.53E-01	6.23E-03	4.81E-01	6.37E-03	1.72E+00
7.02E-03	7.28E-01	7.06E-03	9.81E-01	7.06E-03	9.44E-01	7.12E-03	4.02E-01	7.08E-03	5.48E-01	7.50E-03	1.78E+00
9.26E-03	8.68E-01	9.04E-03	1.11E+00	9.00E-03	1.09E+00	8.97E-03	5.15E-01	8.85E-03	6.91E-01	8.60E-03	1.84E+00
1.01E-02	8.83E-01	9.68E-03	1.13E+00	9.68E-03	1.12E+00	9.78E-03	5.63E-01	9.75E-03	7.63E-01	9.70E-03	1.89E+00
1.35E-02	8.72E-01	1.25E-02	1.30E+00	1.26E-02	1.35E+00	1.25E-02	7.38E-01	1.20E-02	9.73E-01	1.08E-02	1.93E+00
2.28E-02	1.37E+00	2.17E-02	1.92E+00	2.09E-02	1.98E+00	2.13E-02	1.28E+00	2.08E-02	1.70E+00	2.12E-02	2.82E+00
3.29E-02	1.94E+00	3.11E-02	2.54E+00	3.08E-02	2.71E+00	3.06E-02	1.84E+00	3.05E-02	2.50E+00	3.11E-02	3.56E+00
4.29E-02	2.43E+00	4.13E-02	3.16E+00	4.06E-02	3.42E+00	4.07E-02	2.46E+00	4.06E-02	3.31E+00	4.13E-02	4.30E+00
5.25E-02	2.92E+00	5.13E-02	3.79E+00	5.10E-02	4.16E+00	5.08E-02	3.05E+00	5.03E-02	4.11E+00	5.13E-02	5.02E+00
6.28E-02	3.45E+00	6.12E-02	4.39E+00	6.06E-02	4.85E+00	6.08E-02	3.65E+00	6.01E-02	4.83E+00	6.13E-02	5.70E+00
7.26E-02	3.95E+00	7.11E-02	5.00E+00	7.05E-02	5.51E+00	7.07E-02	4.21E+00	7.06E-02	5.56E+00	7.13E-02	6.38E+00
8.26E-02	4.38E+00	8.15E-02	5.50E+00	8.07E-02	6.12E+00	8.11E-02	4.75E+00	8.15E-02	6.28E+00	8.13E-02	7.04E+00
9.28E-02	4.92E+00	9.20E-02	6.01E+00	9.13E-02	6.73E+00	9.17E-02	5.26E+00	9.14E-02	6.91E+00	9.14E-02	7.70E+00
1.11E-01	5.89E+00	1.10E-01	6.97E+00	1.09E-01	7.82E+00	1.09E-01	6.25E+00	1.09E-01	8.17E+00	1.09E-01	8.84E+00
1.61E-01	8.26E+00	1.57E-01	9.52E+00	1.54E-01	1.06E+01	1.55E-01	8.68E+00	1.54E-01	1.13E+01	1.55E-01	1.17E+01
2.10E-01	1.07E+01	2.06E-01	1.21E+01	2.04E-01	1.36E+01	2.04E-01	1.12E+01	2.03E-01	1.46E+01	2.04E-01	1.46E+01
2.61E-01	1.29E+01	2.57E-01	1.45E+01	2.55E-01	1.63E+01	2.55E-01	1.37E+01	2.54E-01	1.76E+01	2.54E-01	1.74E+01
3.11E-01	1.52E+01	3.06E-01	1.70E+01	3.04E-01	1.90E+01	3.04E-01	1.59E+01	3.04E-01	2.05E+01	3.05E-01	2.00E+01

3.61E-01	1.72E+01	3.57E-01	1.92E+01	3.55E-01	2.15E+01	3.55E-01	1.82E+01	3.55E-01	2.34E+01	3.55E-01	2.25E+01
4.11E-01	1.92E+01	4.07E-01	2.13E+01	4.05E-01	2.38E+01	4.05E-01	2.02E+01	4.05E-01	2.59E+01	4.05E-01	2.49E+01
4.61E-01	2.09E+01	4.57E-01	2.33E+01	4.56E-01	2.60E+01	4.55E-01	2.21E+01	4.56E-01	2.84E+01	4.56E-01	2.71E+01
5.11E-01	2.27E+01	5.07E-01	2.53E+01	5.05E-01	2.81E+01	5.06E-01	2.40E+01	5.05E-01	3.08E+01	5.06E-01	2.93E+01
5.61E-01	2.41E+01	5.57E-01	2.71E+01	5.56E-01	3.01E+01	5.56E-01	2.58E+01	5.55E-01	3.30E+01	5.56E-01	3.13E+01
6.11E-01	2.58E+01	6.07E-01	2.89E+01	6.06E-01	3.20E+01	6.05E-01	2.76E+01	6.06E-01	3.52E+01	6.06E-01	3.32E+01
6.61E-01	2.71E+01	6.58E-01	3.06E+01	6.57E-01	3.37E+01	6.57E-01	2.92E+01	6.57E-01	3.73E+01	6.57E-01	3.51E+01
7.11E-01	2.86E+01	7.08E-01	3.21E+01	7.07E-01	3.54E+01	7.06E-01	3.07E+01	7.07E-01	3.93E+01	7.07E-01	3.68E+01
7.61E-01	2.98E+01	7.58E-01	3.37E+01	7.57E-01	3.70E+01	7.53E-01	3.28E+01	7.57E-01	4.12E+01	7.57E-01	3.86E+01
8.11E-01	3.12E+01	8.08E-01	3.53E+01	8.07E-01	3.86E+01	8.06E-01	3.42E+01	8.07E-01	4.29E+01	8.07E-01	4.02E+01
8.61E-01	3.23E+01	8.58E-01	3.67E+01	8.57E-01	4.01E+01	8.57E-01	3.57E+01	8.57E-01	4.45E+01	8.57E-01	4.18E+01
9.11E-01	3.35E+01	9.09E-01	3.81E+01	9.08E-01	4.15E+01	9.07E-01	3.71E+01	9.08E-01	4.61E+01	9.07E-01	4.33E+01
9.61E-01	3.46E+01	9.58E-01	3.93E+01	9.58E-01	4.29E+01	9.57E-01	3.82E+01	9.58E-01	4.76E+01	9.58E-01	4.47E+01
9.99E-01	3.57E+01	9.99E-01	4.04E+01	9.99E-01	4.41E+01	9.99E-01	3.95E+01	9.99E-01	4.89E+01	9.99E-01	4.60E+01
9.40E-01	3.41E+01	9.42E-01	3.89E+01	9.43E-01	4.25E+01	9.43E-01	3.80E+01	9.44E-01	4.73E+01	9.43E-01	4.44E+01
8.89E-01	3.30E+01	8.91E-01	3.76E+01	8.92E-01	4.13E+01	8.92E-01	3.68E+01	8.93E-01	4.58E+01	8.92E-01	4.29E+01
8.39E-01	3.18E+01	8.42E-01	3.63E+01	8.42E-01	3.98E+01	8.42E-01	3.54E+01	8.43E-01	4.43E+01	8.42E-01	4.14E+01
7.90E-01	3.06E+01	7.92E-01	3.50E+01	7.92E-01	3.83E+01	7.93E-01	3.40E+01	7.93E-01	4.26E+01	7.93E-01	3.99E+01
7.39E-01	2.93E+01	7.42E-01	3.34E+01	7.43E-01	3.67E+01	7.43E-01	3.25E+01	7.44E-01	4.09E+01	7.43E-01	3.82E+01
6.89E-01	2.80E+01	6.92E-01	3.19E+01	6.93E-01	3.51E+01	6.93E-01	3.11E+01	6.94E-01	3.91E+01	6.93E-01	3.65E+01
6.39E-01	2.66E+01	6.42E-01	3.03E+01	6.43E-01	3.35E+01	6.44E-01	2.94E+01	6.44E-01	3.73E+01	6.43E-01	3.47E+01
5.90E-01	2.51E+01	5.92E-01	2.86E+01	5.94E-01	3.16E+01	5.94E-01	2.79E+01	5.94E-01	3.52E+01	5.94E-01	3.29E+01
5.40E-01	2.35E+01	5.42E-01	2.68E+01	5.44E-01	2.98E+01	5.44E-01	2.62E+01	5.45E-01	3.31E+01	5.44E-01	3.09E+01
4.90E-01	2.19E+01	4.92E-01	2.50E+01	4.94E-01	2.77E+01	4.94E-01	2.42E+01	4.94E-01	3.09E+01	4.94E-01	2.88E+01
4.40E-01	2.02E+01	4.43E-01	2.30E+01	4.45E-01	2.56E+01	4.45E-01	2.23E+01	4.46E-01	2.84E+01	4.44E-01	2.67E+01
3.90E-01	1.83E+01	3.93E-01	2.11E+01	3.94E-01	2.34E+01	3.95E-01	2.04E+01	3.95E-01	2.61E+01	3.95E-01	2.44E+01
3.40E-01	1.64E+01	3.43E-01	1.89E+01	3.45E-01	2.11E+01	3.45E-01	1.82E+01	3.45E-01	2.35E+01	3.45E-01	2.20E+01

2.90E-01	1.43E+01	2.93E-01	1.66E+01	2.95E-01	1.86E+01	2.95E-01	1.60E+01	2.96E-01	2.07E+01	2.95E-01	1.95E+01
2.40E-01	1.20E+01	2.44E-01	1.41E+01	2.46E-01	1.59E+01	2.46E-01	1.36E+01	2.46E-01	1.78E+01	2.45E-01	1.69E+01
1.90E-01	9.69E+00	1.94E-01	1.16E+01	1.96E-01	1.31E+01	1.96E-01	1.12E+01	1.96E-01	1.47E+01	1.96E-01	1.41E+01
1.41E-01	7.30E+00	1.44E-01	8.97E+00	1.46E-01	1.01E+01	1.46E-01	8.54E+00	1.46E-01	1.15E+01	1.46E-01	1.12E+01

Table S21. CH_4 adsorption and desorption data at 298 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.33E-03	7.85E-02	5.04E-03	7.60E-03	2.02E-03	1.90E-03	3.05E-03	2.60E-03	3.02E-03	3.90E-03	1.10E-03	1.20E-03
2.05E-03	1.17E-01	6.00E-03	1.99E-02	3.36E-03	2.39E-02	4.02E-03	1.23E-02	4.30E-03	2.02E-02	9.67E-03	7.00E-04
3.07E-03	1.61E-01	7.22E-03	5.35E-02	4.13E-03	5.87E-02	5.02E-03	2.91E-02	5.11E-03	4.94E-02	1.07E-02	4.30E-03
4.06E-03	1.88E-01	9.07E-03	1.04E-01	5.24E-03	1.07E-01	6.03E-03	4.76E-02	6.11E-03	1.01E-01	2.29E-02	8.27E-02
5.10E-03	2.03E-01	9.95E-03	1.32E-01	6.18E-03	1.47E-01	7.25E-03	7.75E-02	7.04E-03	1.52E-01	3.28E-02	1.61E-01
6.01E-03	2.07E-01	1.28E-02	2.29E-01	7.08E-03	1.81E-01	9.32E-03	1.27E-01	9.22E-03	2.37E-01	4.28E-02	2.60E-01
7.09E-03	2.15E-01	2.21E-02	5.30E-01	8.98E-03	2.48E-01	9.93E-03	1.44E-01	1.01E-02	2.74E-01	5.23E-02	4.19E-01
9.41E-03	2.79E-01	3.18E-02	8.36E-01	9.74E-03	2.72E-01	1.26E-02	2.16E-01	1.26E-02	3.49E-01	6.20E-02	6.48E-01
1.02E-02	2.74E-01	4.14E-02	1.14E+00	1.25E-02	3.83E-01	2.17E-02	4.98E-01	2.20E-02	7.25E-01	7.14E-02	9.87E-01
1.31E-02	1.81E-01	5.15E-02	1.46E+00	2.16E-02	7.23E-01	3.13E-02	7.92E-01	3.16E-02	1.13E+00	8.16E-02	1.33E+00
2.34E-02	5.13E-01	6.19E-02	1.79E+00	3.13E-02	1.07E+00	4.16E-02	1.11E+00	4.12E-02	1.50E+00	9.16E-02	1.67E+00
3.31E-02	7.22E-01	7.13E-02	2.05E+00	4.16E-02	1.45E+00	5.14E-02	1.41E+00	5.20E-02	1.91E+00	1.10E-01	2.26E+00
4.27E-02	9.36E-01	8.25E-02	2.30E+00	5.16E-02	1.81E+00	6.14E-02	1.72E+00	6.17E-02	2.31E+00	1.56E-01	3.70E+00
5.29E-02	1.18E+00	9.24E-02	2.50E+00	6.17E-02	2.18E+00	7.17E-02	2.01E+00	7.15E-02	2.66E+00	2.06E-01	5.17E+00
6.29E-02	1.30E+00	1.11E-01	2.98E+00	7.10E-02	2.50E+00	8.21E-02	2.27E+00	8.18E-02	2.98E+00	2.57E-01	6.66E+00
7.27E-02	1.53E+00	1.59E-01	4.22E+00	8.21E-02	2.81E+00	9.19E-02	2.47E+00	9.25E-02	3.30E+00	3.07E-01	8.09E+00
8.30E-02	1.70E+00	2.09E-01	5.67E+00	9.23E-02	3.08E+00	1.11E-01	2.99E+00	1.11E-01	3.93E+00	3.57E-01	9.50E+00
9.29E-02	1.88E+00	2.59E-01	6.97E+00	1.10E-01	3.64E+00	1.58E-01	4.25E+00	1.58E-01	5.61E+00	4.07E-01	1.09E+01
1.12E-01	2.33E+00	3.09E-01	8.35E+00	1.58E-01	5.14E+00	2.08E-01	5.61E+00	2.07E-01	7.36E+00	4.58E-01	1.22E+01
1.61E-01	3.52E+00	3.59E-01	9.53E+00	2.08E-01	6.73E+00	2.58E-01	6.93E+00	2.58E-01	9.02E+00	5.08E-01	1.35E+01
2.11E-01	4.85E+00	4.09E-01	1.08E+01	2.58E-01	8.24E+00	3.08E-01	8.22E+00	3.07E-01	1.07E+01	5.58E-01	1.48E+01
2.61E-01	5.90E+00	4.59E-01	1.20E+01	3.08E-01	9.77E+00	3.58E-01	9.54E+00	3.58E-01	1.23E+01	6.08E-01	1.61E+01
3.11E-01	7.10E+00	5.09E-01	1.33E+01	3.58E-01	1.12E+01	4.08E-01	1.08E+01	4.08E-01	1.38E+01	6.58E-01	1.73E+01

3.61E-01	8.19E+00	5.59E-01	1.44E+01	4.08E-01	1.26E+01	4.58E-01	1.20E+01	4.58E-01	1.53E+01	7.08E-01	1.85E+01
4.11E-01	9.34E+00	6.09E-01	1.56E+01	4.58E-01	1.39E+01	5.08E-01	1.32E+01	5.08E-01	1.68E+01	7.58E-01	1.96E+01
4.61E-01	1.02E+01	6.59E-01	1.66E+01	5.09E-01	1.53E+01	5.58E-01	1.44E+01	5.58E-01	1.82E+01	8.08E-01	2.08E+01
5.11E-01	1.13E+01	7.09E-01	1.75E+01	5.58E-01	1.65E+01	6.08E-01	1.53E+01	6.08E-01	1.96E+01	8.58E-01	2.19E+01
5.61E-01	1.22E+01	7.59E-01	1.87E+01	6.09E-01	1.78E+01	6.59E-01	1.65E+01	6.58E-01	2.09E+01	9.09E-01	2.30E+01
6.11E-01	1.32E+01	8.09E-01	1.98E+01	6.58E-01	1.90E+01	7.08E-01	1.76E+01	7.08E-01	2.22E+01	9.59E-01	2.40E+01
6.61E-01	1.40E+01	8.59E-01	2.08E+01	7.09E-01	2.01E+01	7.58E-01	1.87E+01	7.59E-01	2.35E+01	9.99E-01	2.50E+01
7.11E-01	1.50E+01	9.09E-01	2.18E+01	7.58E-01	2.13E+01	8.09E-01	1.97E+01	8.09E-01	2.47E+01	9.42E-01	2.39E+01
7.61E-01	1.57E+01	9.60E-01	2.26E+01	8.09E-01	2.24E+01	8.57E-01	2.05E+01	8.58E-01	2.59E+01	8.91E-01	2.29E+01
8.11E-01	1.66E+01	9.99E-01	2.36E+01	8.58E-01	2.35E+01	9.09E-01	2.16E+01	9.09E-01	2.70E+01	8.41E-01	2.19E+01
8.61E-01	1.73E+01	9.41E-01	2.23E+01	9.09E-01	2.45E+01	9.59E-01	2.23E+01	9.59E-01	2.81E+01	7.91E-01	2.09E+01
9.11E-01	1.82E+01	8.90E-01	2.16E+01	9.59E-01	2.55E+01	9.99E-01	2.35E+01	9.99E-01	2.92E+01	7.41E-01	1.99E+01
9.61E-01	1.88E+01	8.40E-01	2.04E+01	9.99E-01	2.65E+01	9.42E-01	2.23E+01	9.42E-01	2.78E+01	6.91E-01	1.88E+01
9.99E-01	1.98E+01	7.91E-01	1.97E+01	9.41E-01	2.53E+01	8.91E-01	2.14E+01	8.91E-01	2.67E+01	6.41E-01	1.77E+01
9.39E-01	1.85E+01	7.40E-01	1.84E+01	8.91E-01	2.43E+01	8.41E-01	2.05E+01	8.41E-01	2.56E+01	5.91E-01	1.66E+01
8.88E-01	1.78E+01	6.90E-01	1.77E+01	8.41E-01	2.33E+01	7.91E-01	1.94E+01	7.92E-01	2.45E+01	5.41E-01	1.54E+01
8.38E-01	1.70E+01	6.40E-01	1.65E+01	7.92E-01	2.22E+01	7.42E-01	1.85E+01	7.42E-01	2.32E+01	4.91E-01	1.42E+01
7.88E-01	1.62E+01	5.91E-01	1.55E+01	7.41E-01	2.11E+01	6.91E-01	1.75E+01	6.92E-01	2.20E+01	4.42E-01	1.30E+01
7.38E-01	1.54E+01	5.40E-01	1.43E+01	6.91E-01	2.00E+01	6.41E-01	1.65E+01	6.42E-01	2.08E+01	3.92E-01	1.17E+01
6.88E-01	1.45E+01	4.91E-01	1.33E+01	6.41E-01	1.88E+01	5.92E-01	1.54E+01	5.92E-01	1.95E+01	3.42E-01	1.04E+01
6.39E-01	1.36E+01	4.41E-01	1.19E+01	5.92E-01	1.77E+01	5.41E-01	1.43E+01	5.42E-01	1.81E+01	2.92E-01	9.03E+00
5.88E-01	1.27E+01	3.90E-01	1.09E+01	5.41E-01	1.64E+01	4.92E-01	1.30E+01	4.92E-01	1.67E+01	2.42E-01	7.64E+00
5.38E-01	1.18E+01	3.41E-01	9.57E+00	4.92E-01	1.51E+01	4.43E-01	1.19E+01	4.43E-01	1.52E+01	1.92E-01	6.19E+00
4.88E-01	1.08E+01	2.91E-01	8.30E+00	4.42E-01	1.37E+01	3.91E-01	1.07E+01	3.92E-01	1.37E+01	1.42E-01	4.70E+00
4.39E-01	9.84E+00	2.41E-01	6.85E+00	3.92E-01	1.25E+01	3.42E-01	9.41E+00	3.42E-01	1.22E+01		
3.89E-01	8.82E+00	1.91E-01	5.58E+00	3.42E-01	1.10E+01	2.92E-01	8.18E+00	2.92E-01	1.06E+01		
3.39E-01	7.70E+00	1.41E-01	4.16E+00	2.92E-01	9.56E+00	2.42E-01	6.80E+00	2.43E-01	8.86E+00		

2.88E-01	6.55E+00		2.42E-01	7.99E+00	1.92E-01	5.49E+00	1.93E-01	7.18E+00
2.38E-01	5.42E+00		1.92E-01	6.47E+00	1.42E-01	4.09E+00	1.43E-01	5.38E+00
1.89E-01	4.25E+00		1.42E-01	4.87E+00				
1.39E-01	2.98E+00							

Table S22. N_2 adsorption and desorption data at 298 K.

SNU-100'		**SNU-100'-Li**		**SNU-100'-Mg**		**SNU-100'-Ca**		**SNU-100'-Co**		**SNU-100'-Ni**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.03E-03	2.40E-03	6.05E-03	1.92E-03	5.35E-03	4.08E-03	6.04E-03	1.60E-03	3.02E-03	2.40E-04	2.30E-02	2.65E-02
2.06E-03	2.47E-02	7.04E-03	5.84E-03	6.04E-03	6.64E-03	7.09E-03	5.60E-03	4.02E-03	4.88E-03	3.30E-02	8.11E-02
3.02E-03	4.26E-02	9.18E-03	1.62E-02	7.22E-03	1.15E-02	9.31E-03	1.62E-02	5.28E-03	1.14E-02	4.32E-02	1.41E-01
1.34E-02	7.67E-02	9.95E-03	1.91E-02	9.28E-03	2.36E-02	1.01E-02	1.96E-02	6.02E-03	1.42E-02	5.30E-02	2.02E-01
2.30E-02	1.20E-01	1.28E-02	4.62E-02	9.97E-03	2.68E-02	1.28E-02	4.06E-02	7.23E-03	2.08E-02	6.30E-02	2.53E-01
3.30E-02	1.69E-01	2.29E-02	1.18E-01	1.28E-02	5.44E-02	2.29E-02	1.02E-01	9.46E-03	3.34E-02	7.30E-02	3.11E-01
4.30E-02	2.25E-01	3.24E-02	1.81E-01	2.27E-02	1.22E-01	3.25E-02	1.57E-01	1.00E-02	3.61E-02	8.31E-02	3.72E-01
5.27E-02	2.82E-01	4.25E-02	2.48E-01	3.25E-02	1.83E-01	4.25E-02	2.16E-01	1.31E-02	1.02E-01	9.31E-02	4.31E-01
6.29E-02	3.63E-01	5.25E-02	3.26E-01	4.21E-02	2.48E-01	5.21E-02	2.70E-01	2.26E-02	1.79E-01	1.12E-01	5.41E-01
7.30E-02	3.51E-01	6.22E-02	3.84E-01	5.24E-02	3.20E-01	6.17E-02	3.31E-01	3.22E-02	2.61E-01	1.61E-01	8.23E-01
8.29E-02	4.38E-01	7.23E-02	4.23E-01	6.27E-02	3.84E-01	7.21E-02	3.68E-01	4.23E-02	3.30E-01	2.11E-01	1.09E+00
9.28E-02	5.16E-01	8.25E-02	4.07E-01	7.22E-02	4.29E-01	8.25E-02	3.76E-01	5.25E-02	4.26E-01	2.61E-01	1.39E+00
1.12E-01	6.53E-01	9.29E-02	4.11E-01	8.27E-02	4.53E-01	9.29E-02	3.93E-01	6.20E-02	5.01E-01	3.11E-01	1.67E+00
1.62E-01	8.83E-01	1.12E-01	4.95E-01	9.29E-02	4.51E-01	1.12E-01	4.77E-01	7.21E-02	5.67E-01	3.61E-01	1.96E+00
2.12E-01	1.23E+00	1.62E-01	6.81E-01	1.12E-01	5.50E-01	1.62E-01	6.77E-01	8.20E-02	5.91E-01	4.11E-01	2.25E+00
2.62E-01	1.48E+00	2.11E-01	9.57E-01	1.61E-01	8.05E-01	2.11E-01	9.59E-01	9.30E-02	6.14E-01	4.61E-01	2.54E+00
3.11E-01	1.90E+00	2.61E-01	1.20E+00	2.11E-01	1.07E+00	2.61E-01	1.19E+00	1.12E-01	7.04E-01	5.11E-01	2.81E+00
3.62E-01	2.04E+00	3.11E-01	1.52E+00	2.61E-01	1.30E+00	3.11E-01	1.47E+00	1.61E-01	9.82E-01	5.61E-01	3.09E+00
4.12E-01	2.39E+00	3.61E-01	1.73E+00	3.11E-01	1.62E+00	3.61E-01	1.73E+00	2.11E-01	1.35E+00	6.11E-01	3.37E+00
4.62E-01	2.54E+00	4.12E-01	1.97E+00	3.61E-01	1.89E+00	4.11E-01	1.90E+00	2.61E-01	1.65E+00	6.61E-01	3.65E+00
5.11E-01	2.85E+00	4.61E-01	2.25E+00	4.12E-01	2.08E+00	4.61E-01	2.18E+00	3.11E-01	2.02E+00	7.11E-01	3.94E+00
5.61E-01	2.98E+00	5.11E-01	2.52E+00	4.61E-01	2.35E+00	5.11E-01	2.41E+00	3.61E-01	2.35E+00	7.61E-01	4.22E+00
6.12E-01	3.28E+00	5.61E-01	2.76E+00	5.11E-01	2.69E+00	5.61E-01	2.68E+00	4.11E-01	2.60E+00	8.11E-01	4.49E+00

6.61E-01	3.49E+00	6.11E-01	2.95E+00	5.62E-01	2.91E+00	6.11E-01	2.91E+00	4.61E-01	2.95E+00	8.61E-01	4.78E+00
7.11E-01	3.81E+00	6.61E-01	3.15E+00	6.11E-01	3.16E+00	6.61E-01	3.19E+00	5.11E-01	3.27E+00	9.11E-01	5.06E+00
7.61E-01	3.89E+00	7.11E-01	3.50E+00	6.61E-01	3.39E+00	7.11E-01	3.43E+00	5.61E-01	3.57E+00	9.61E-01	5.34E+00
8.12E-01	4.14E+00	7.61E-01	3.72E+00	7.12E-01	3.65E+00	7.61E-01	3.63E+00	6.11E-01	3.88E+00	9.99E-01	5.60E+00
8.62E-01	4.23E+00	8.11E-01	3.91E+00	7.61E-01	3.92E+00	8.11E-01	3.89E+00	6.61E-01	4.17E+00	9.43E-01	5.27E+00
9.11E-01	4.53E+00	8.61E-01	4.22E+00	8.11E-01	4.15E+00	8.60E-01	4.07E+00	7.11E-01	4.43E+00	8.89E-01	4.98E+00
9.62E-01	4.62E+00	9.11E-01	4.33E+00	8.61E-01	4.46E+00	9.12E-01	4.27E+00	7.61E-01	4.79E+00	8.39E-01	4.71E+00
9.99E-01	4.99E+00	9.61E-01	4.61E+00	9.12E-01	4.58E+00	9.61E-01	4.41E+00	8.11E-01	5.08E+00	7.89E-01	4.44E+00
9.38E-01	4.58E+00	9.99E-01	4.72E+00	9.61E-01	4.81E+00	9.99E-01	4.62E+00	8.60E-01	5.40E+00	7.39E-01	4.17E+00
8.88E-01	4.39E+00	9.39E-01	4.48E+00	9.99E-01	5.00E+00	9.39E-01	4.35E+00	9.12E-01	5.64E+00	6.89E-01	3.89E+00
8.38E-01	4.19E+00	8.88E-01	4.28E+00	9.39E-01	4.71E+00	8.89E-01	4.22E+00	9.61E-01	5.95E+00	6.39E-01	3.62E+00
7.88E-01	4.02E+00	8.39E-01	4.08E+00	8.89E-01	4.53E+00	8.39E-01	4.01E+00	9.99E-01	6.24E+00	5.89E-01	3.34E+00
7.38E-01	3.85E+00	7.88E-01	3.82E+00	8.39E-01	4.32E+00	7.89E-01	3.78E+00	9.40E-01	5.82E+00	5.39E-01	3.05E+00
6.88E-01	3.66E+00	7.39E-01	3.62E+00	7.89E-01	4.05E+00	7.39E-01	3.54E+00	8.89E-01	5.61E+00	4.89E-01	2.77E+00
6.38E-01	3.39E+00	6.88E-01	3.34E+00	7.40E-01	3.80E+00	6.89E-01	3.32E+00	8.39E-01	5.33E+00	4.39E-01	2.48E+00
5.88E-01	3.13E+00	6.39E-01	3.09E+00	6.89E-01	3.53E+00	6.39E-01	3.06E+00	7.89E-01	5.02E+00	3.89E-01	2.19E+00
5.38E-01	2.92E+00	5.89E-01	2.87E+00	6.39E-01	3.29E+00	5.89E-01	2.81E+00	7.40E-01	4.65E+00	3.39E-01	1.90E+00
4.88E-01	2.70E+00	5.39E-01	2.65E+00	5.89E-01	3.05E+00	5.39E-01	2.58E+00	6.89E-01	4.39E+00	2.89E-01	1.61E+00
4.38E-01	2.47E+00	4.89E-01	2.40E+00	5.39E-01	2.82E+00	4.89E-01	2.33E+00	6.39E-01	4.10E+00	2.39E-01	1.33E+00
3.88E-01	2.22E+00	4.39E-01	2.13E+00	4.89E-01	2.54E+00	4.40E-01	2.06E+00	5.89E-01	3.79E+00	1.89E-01	1.04E+00
3.38E-01	1.97E+00	3.89E-01	1.86E+00	4.40E-01	2.23E+00	3.89E-01	1.84E+00	5.39E-01	3.50E+00	1.39E-01	7.49E-01
2.88E-01	1.70E+00	3.39E-01	1.64E+00	3.89E-01	2.00E+00	3.39E-01	1.62E+00	4.90E-01	3.17E+00		
2.38E-01	1.36E+00	2.89E-01	1.38E+00	3.39E-01	1.77E+00	2.89E-01	1.35E+00	4.40E-01	2.80E+00		
1.88E-01	1.07E+00	2.39E-01	1.09E+00	2.89E-01	1.48E+00	2.39E-01	1.09E+00	3.89E-01	2.54E+00		
1.38E-01	7.75E-01	1.89E-01	8.34E-01	2.39E-01	1.20E+00	1.89E-01	8.33E-01	3.39E-01	2.24E+00		
		1.39E-01	5.95E-01	1.89E-01	9.53E-01	1.39E-01	5.86E-01	2.89E-01	1.91E+00		
				1.39E-01	6.89E-01			2.40E-01	1.55E+00		

		1.89E-01	1.24E+00
		1.39E-01	9.46E-01

Table S23. Water vapor sorption isotherms measured at 293 K up to 1 atm for **SNU-100'**.

P (atm)	*V* (cc/g)
0.0044	0.2828
0.0045	0.308
0.00461	0.3323
0.00478	0.3553
0.00511	0.4094
0.00631	0.5919
0.00729	0.7611
0.00819	0.9275
0.00923	1.0866
0.0103	1.1713
0.0403	2.9398
0.0503	4.3511
0.0604	5.7297
0.0713	7.1394
0.0811	8.547
0.0917	10.129
0.101	11.386
0.15	18.7907
0.202	26.4552
0.254	33.4301
0.306	42.9242
0.351	53.3832
0.367	58.3805
0.414	70.1902

0.467	90.5525
0.512	107.3576
0.566	116.5299
0.618	123.6
0.665	130.6692
0.716	139.414
0.769	153.241
0.814	168.9801
0.862	202.4317
0.838	201.0674
0.815	199.4663
0.742	194.1749
0.686	189.2259
0.635	184.643
0.592	180.3415
0.56	176.2141
0.531	172.3098
0.485	165.2745
0.429	143.941
0.348	120.9366
0.293	96.8668
0.25	91.4947
0.192	84.2222
0.149	78.7417

Table S24. CO_2 adsorption isotherms measured at 298 K up to 1 atm for **SNU-100'** (black), **SNU-100'** after exposure to water vapor for 7 days (blue), **SNU-100'** after immersion in water for 7 days (red), and **SNU-100'** after measurement of water vapor sorption isotherm.

After exposure to water vapor for 7 days		After immersion in water for 7 days		After measurement of water vapor sorption	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
0.00105	0.1667	9.99E-04	0.1503	0.00105	0.1477
0.00202	0.3297	0.00206	0.3158	0.00205	0.2753
0.00308	0.4955	0.00312	0.4746	0.0031	0.412
0.00413	0.6654	0.00419	0.6364	0.00416	0.555
0.00519	0.8354	0.00505	0.7687	0.00524	0.7003
0.00602	0.9686	0.00606	0.927	0.00606	0.8148
0.0073	1.1758	0.00709	1.0982	0.00706	0.9543
0.00815	1.3075	0.00814	1.2636	0.0081	1.1031
0.00916	1.4689	0.00921	1.4307	0.00916	1.2532
0.0102	1.6374	0.0103	1.5945	0.0102	1.4043
0.0192	3.1009	0.0197	3.0812	0.0216	3.1216
0.0315	5.0512	0.0296	4.6079	0.0293	4.276
0.0395	6.2832	0.0395	6.1007	0.0415	6.0356
0.0516	8.1114	0.0495	7.5788	0.0517	7.4949
0.0595	9.2687	0.0595	9.0256	0.0594	8.5693
0.0717	11.0078	0.0696	10.4442	0.0715	10.2255
0.0797	12.1188	0.0796	11.8248	0.0794	11.2818
0.0917	13.7624	0.0897	13.175	0.0916	12.8732
0.106	15.6584	0.106	15.3529	0.106	14.6628
0.157	21.835	0.149	20.4752	0.156	20.6397
0.208	27.2692	0.208	26.8608	0.206	26.0167
0.249	31.29	0.25	31.004	0.257	30.9645

0.307	36.6677	0.299	35.494	0.307	35.6883
0.349	40.3984	0.349	40.0863	0.357	40.1764
0.398	44.3864	0.4	44.3158	0.399	43.2962
0.449	47.9169	0.452	47.9124	0.448	46.555
0.501	51.0482	0.503	51.025	0.499	49.586
0.552	53.895	0.554	53.8778	0.55	52.3362
0.602	56.477	0.604	56.4452	0.601	54.8606
0.653	58.8692	0.655	58.8481	0.652	57.17
0.704	61.1025	0.706	61.0417	0.703	59.3132
0.754	63.1551	0.756	63.1055	0.753	61.2844
0.805	65.0947	0.806	65.0271	0.804	63.1417
0.855	66.9048	0.857	66.8443	0.854	64.8555
0.906	68.6207	0.907	68.5351	0.905	66.4831
0.956	70.2402	0.957	70.1454	0.955	68.001
0.999	71.6265	0.999	71.5514	0.999	69.3187
0.944	70.0235	0.943	69.902	0.944	67.8599
0.894	68.5301	0.892	68.4235	0.894	66.4582
0.844	66.9298	0.843	66.8452	0.844	64.9712
0.794	65.2443	0.793	65.1714	0.795	63.3597
0.745	63.422	0.743	63.3534	0.745	61.6374
0.695	61.4529	0.694	61.3936	0.696	59.7491
0.646	59.3534	0.644	59.2827	0.647	57.7372
0.596	57.0676	0.595	56.9714	0.597	55.5451
0.547	54.5674	0.545	54.4756	0.548	53.1553
0.498	51.8421	0.496	51.7138	0.499	50.5303
0.449	48.8622	0.447	48.6668	0.45	47.6636
0.4	45.5419	0.398	45.2679	0.401	44.4892

0.351	41.7487	0.349	41.2519	0.352	40.932
0.293	36.4735	0.3	36.7918	0.294	35.7833
0.251	32.572	0.251	32.1854	0.243	30.8628
0.193	26.6887	0.201	27.2678	0.193	25.7653
0.152	22.2128	0.152	21.9095	0.143	20.249

Table S25. CO_2 adsorption and desorption data of SNU-100'-Ca for ten cycles at 298 K.

Cycle 1		**Cycle 2**		**Cycle 3**		**Cycle 4**		**Cycle 5**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
0.0021	0.0045	0.001002	0.115	0.001006	0.1051	0.00101	0.1	0.001007	0.107475
0.004036	0.098	0.002107	0.2741	0.002224	0.1977	0.002194	0.213131	0.002086	0.223636
0.005114	0.1072	0.003092	0.3917	0.003108	0.2958	0.003068	0.311919	0.003151	0.342626
0.006149	0.1328	0.004155	0.5239	0.00416	0.4214	0.004124	0.437576	0.004214	0.467778
0.007143	0.1924	0.005221	0.6583	0.005215	0.5534	0.005195	0.559798	0.005365	0.560404
0.008457	0.1584	0.006289	0.7938	0.006284	0.6823	0.006262	0.686566	0.006351	0.681212
0.009351	0.2819	0.007348	0.9345	0.007341	0.8165	0.007321	0.818081	0.007417	0.809091
0.010368	0.4356	0.008425	1.074	0.008407	0.9532	0.008389	0.943232	0.00848	0.943434
0.021961	1.413	0.009488	1.2117	0.00948	1.085	0.009449	1.075455	0.009544	1.077677
0.031186	2.5266	0.010568	1.3515	0.010543	1.2168	0.01052	1.209293	0.010619	1.211414
0.04115	3.7914	0.02171	2.9022	0.021908	2.7702	0.021675	2.713636	0.022029	2.757172
0.051171	5.1146	0.031821	4.2905	0.031667	4.0768	0.031804	4.063333	0.031751	4.070909
0.061297	6.413	0.04186	5.6402	0.041772	5.4133	0.041602	5.325455	0.041935	5.389394
0.071403	7.6924	0.051753	6.9333	0.05182	6.702	0.051767	6.606667	0.051914	6.683131
0.081377	8.9547	0.061809	8.2196	0.061788	7.9609	0.06181	7.857374	0.061899	7.908081
0.09145	10.2006	0.071829	9.4797	0.07182	9.1965	0.071862	9.091111	0.071918	9.133232
0.10942	12.2885	0.081778	10.6978	0.081797	10.4008	0.081834	10.28131	0.081992	10.33232
0.15592	17.3433	0.091796	11.8928	0.091827	11.5909	0.091905	11.44404	0.092004	11.49939
0.2061	22.4067	0.10995	13.9973	0.11002	13.6579	0.11003	13.48303	0.11012	13.54737
0.25635	27.3287	0.15699	19.1195	0.15704	18.6739	0.15712	18.43131	0.1572	18.5199
0.30599	32.272	0.20694	24.2006	0.2071	23.6376	0.20707	23.30192	0.2072	23.38828
0.35529	38.0627	0.25687	29.2014	0.25687	28.4688	0.25721	28.0803	0.25722	28.17434
0.40604	43.4132	0.3058	34.6726	0.30669	33.4921	0.30663	32.87798	0.30676	33.00869

0.45718	47.5995	0.35587	40.4214	0.35607	39.027	0.35608	38.37616	0.3563	38.42051
0.50775	51.2323	0.40719	45.1673	0.40674	44.102	0.40678	43.48707	0.4069	43.4897
0.55829	54.5005	0.45779	49.0136	0.4578	48.09	0.458	47.53949	0.45787	47.47333
0.60815	57.64	0.50834	52.4864	0.50831	51.5636	0.50818	50.9904	0.5082	50.94899
0.65847	60.5668	0.55866	55.6714	0.55853	54.7718	0.55874	54.21576	0.55876	54.11758
0.70876	63.2918	0.60856	58.6223	0.60856	57.765	0.60894	57.1299	0.60897	57.00051
0.75904	65.9332	0.6589	61.4173	0.6591	60.5823	0.65882	59.95909	0.65895	59.84253
0.80899	68.3755	0.70943	63.9205	0.7092	63.2177	0.70918	62.53808	0.70934	62.41141
0.85919	70.7141	0.75936	66.3664	0.75908	65.7541	0.75914	65.08222	0.75911	64.85909
0.90915	73.0855	0.80936	68.6814	0.80935	68.1727	0.80959	67.42606	0.80948	67.29657
0.95959	75.1541	0.85939	70.9795	0.85964	70.4582	0.85945	69.69879	0.8597	69.47202
0.9994	77.1477	0.90977	73.0968	0.90938	72.6827	0.9097	71.86182	0.90957	71.60788
		0.95951	75.2173	0.95986	74.76	0.95963	74.00364	0.95975	73.72869
		0.9994	77.0191	0.9994	76.7195	0.9994	75.80212	0.9994	75.47657

Cycle 6		**Cycle 7**		**Cycle 8**		**Cycle 9**		**Cycle 10**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
0.001065	0.00299	0.021806	1.163196	0.001069	0.0062	0.001064	0.012	0.001049	0.0368
0.006359	0.013402	0.031787	2.453918	0.021762	1.1941	0.005345	0.0323	0.003146	0.0177
0.007427	0.080103	0.041753	3.717835	0.031694	2.5087	0.006406	0.1223	0.004183	0.0962
0.008496	0.152062	0.051858	4.957216	0.041964	3.8306	0.007481	0.2123	0.005247	0.1815
0.009556	0.226289	0.061886	6.17299	0.051896	5.0797	0.008541	0.3078	0.006303	0.2729
0.010635	0.304124	0.071883	7.359794	0.061898	6.327	0.009612	0.4051	0.007069	0.4952
0.021735	1.781443	0.081918	8.517216	0.071949	7.544	0.010682	0.4994	0.008226	0.6073
0.031694	3.092474	0.091865	9.665155	0.081942	8.7255	0.021682	2.0177	0.009297	0.7096
0.04176	4.37701	0.11007	11.68577	0.091965	9.8954	0.031676	3.3596	0.010376	0.8106
0.051803	5.630515	0.1572	16.59928	0.11014	11.9438	0.041781	4.6954	0.02127	2.3241
0.061807	6.860206	0.20716	21.4566	0.15708	16.9667	0.051794	5.9789	0.031527	3.7177

0.071891	8.041753	0.25696	26.2401	0.20718	21.9743	0.061844	7.2295	0.041484	5.0209
0.081873	9.199175	0.30678	31.2099	0.25704	26.8918	0.071904	8.4695	0.051482	6.3055
0.091904	10.35753	0.35607	36.70124	0.30652	32.194	0.081894	9.67	0.061551	7.5605
0.10999	12.36825	0.40683	41.85773	0.35606	37.9606	0.091874	10.852	0.071564	8.7967
0.15716	17.32485	0.45781	45.90041	0.40696	43.1244	0.11008	12.9229	0.081564	10
0.20699	22.18876	0.5084	49.34423	0.45799	47.1767	0.1569	17.9425	0.091585	11.1811
0.25708	27.00649	0.55871	52.54361	0.5082	50.7162	0.20684	22.8931	0.10965	13.2266
0.30656	32.03938	0.60892	55.51619	0.55874	53.9748	0.25695	27.803	0.15664	18.2324
0.35599	37.66979	0.65898	58.36814	0.60887	57.031	0.30621	32.965	0.20667	23.2266
0.40675	42.80567	0.70879	61.14794	0.65894	59.9214	0.35613	38.5355	0.25642	28.1915
0.45784	46.7767	0.7593	63.70938	0.70923	62.641	0.40687	43.5128	0.30568	33.6838
0.50822	50.26144	0.80958	66.08371	0.75903	65.2481	0.45772	47.425	0.35581	39.3201
0.5585	53.44186	0.8595	68.35979	0.80953	67.6929	0.50832	50.8982	0.40681	44.0488
0.60897	56.38052	0.90965	70.62742	0.8594	70.0867	0.55863	54.0032	0.45745	47.853
0.65889	59.1532	0.95969	72.73794	0.90963	72.3471	0.60875	57.0232	0.50807	51.2754
0.70883	61.98505	0.9994	74.72309	0.95961	74.5395	0.65893	59.7432	0.55823	54.3929
0.75943	64.48082			0.9994	76.4519	0.70921	62.38	0.60863	57.2867
0.80925	66.87814					0.75916	64.8518	0.65846	60.0653
0.85944	69.17577					0.80952	67.2368	0.70898	62.6579
0.90959	71.36546					0.85941	69.4873	0.75889	65.1348
0.95969	73.54691					0.90965	71.6059	0.80932	67.441
0.9994	75.49722					0.95959	73.725	0.85914	69.7291
						0.9994	75.52	0.90914	71.8571
								0.95952	73.9378
								0.9994	75.9614

Table S26. CO_2 adsorption and desorption data of SNU-100'-Co at 298 K depending on the activation temperature.

100 °C		**150 °C**		**200 °C**		**250 °C**		**300 °C**		**350 °C**		**400 °C**	
P (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)	*P* (atm)	*V* (cc/g)
1.25E-03	0.1756	1.25E-03	0.1683	1.26E-03	0.1615	1.29E-03	0.1277	1.26E-03	0.1558	1.26E-03	0.2052	9.96E-04	0.0335
2.28E-03	0.3417	2.28E-03	0.333	2.28E-03	0.3196	2.26E-03	0.2701	2.26E-03	0.3116	2.26E-03	0.3734	2.05E-03	0.0787
3.01E-03	0.4619	3.26E-03	0.4899	3.26E-03	0.4733	3.26E-03	0.4222	3.25E-03	0.4697	3.24E-03	0.5356	3.05E-03	0.1211
4.36E-03	0.6915	4.03E-03	0.6173	4.03E-03	0.599	4.26E-03	0.5816	4.29E-03	0.6389	4.27E-03	0.7096	4.09E-03	0.1607
5.24E-03	0.8361	5.00E-03	0.7828	5.00E-03	0.7616	5.02E-03	0.7078	5.28E-03	0.805	5.00E-03	0.8354	5.03E-03	0.1952
6.01E-03	0.9644	6.01E-03	0.9557	6.01E-03	0.9314	6.03E-03	0.876	6.26E-03	0.9652	6.02E-03	1.016	6.13E-03	0.2392
7.38E-03	1.1896	7.38E-03	1.1876	7.38E-03	1.1621	7.39E-03	1.107	7.24E-03	1.1288	7.38E-03	1.247	7.12E-03	0.273
9.25E-03	1.5148	9.25E-03	1.5164	9.26E-03	1.485	9.26E-03	1.4351	9.20E-03	1.4749	9.27E-03	1.5867	9.36E-03	0.3513
1.01E-02	1.6553	1.01E-02	1.6526	1.01E-02	1.6196	1.01E-02	1.5715	9.96E-03	1.6002	1.01E-02	1.7334	1.02E-02	0.3865
1.25E-02	2.225	1.27E-02	2.1606	1.27E-02	2.0972	1.25E-02	2.0315	1.24E-02	2.119	1.31E-02	2.088	1.29E-02	0.538
2.16E-02	3.8627	2.13E-02	3.7474	2.14E-02	3.6907	2.10E-02	3.5908	2.14E-02	3.7899	2.22E-02	3.6797	2.26E-02	0.9099
3.10E-02	5.531	3.10E-02	5.4956	3.07E-02	5.3752	3.09E-02	5.402	3.09E-02	5.5562	3.14E-02	5.2557	3.18E-02	1.2582
4.08E-02	7.193	4.06E-02	7.2104	4.09E-02	7.2057	4.08E-02	7.1803	4.07E-02	7.3795	4.18E-02	6.9813	4.18E-02	1.624
5.20E-02	9.3244	5.07E-02	9.1057	5.05E-02	8.9948	5.06E-02	9.0048	5.04E-02	9.2671	5.17E-02	8.6243	5.16E-02	2.0505
6.06E-02	10.7631	6.06E-02	10.7291	6.05E-02	10.6659	6.03E-02	10.7037	6.07E-02	10.9662	6.15E-02	10.2173	6.18E-02	2.3351
7.08E-02	12.2268	7.05E-02	12.2186	7.08E-02	12.1907	7.05E-02	12.2228	7.07E-02	12.4708	7.16E-02	11.8162	7.20E-02	2.486
8.12E-02	13.748	8.12E-02	13.6817	8.10E-02	13.621	8.09E-02	13.7152	8.07E-02	13.8591	8.18E-02	13.5257	8.24E-02	2.506
9.12E-02	15.094	9.14E-02	15.0916	9.14E-02	15.041	9.15E-02	15.1681	9.15E-02	15.3746	9.17E-02	15.0616	9.28E-02	2.5871
1.10E-01	17.4163	1.10E-01	17.547	1.10E-01	17.5154	1.10E-01	17.7252	1.10E-01	17.8958	1.10E-01	17.7963	1.11E-01	2.7776
1.56E-01	23.923	1.56E-01	24.068	1.56E-01	23.9755	1.56E-01	24.2004	1.56E-01	24.28	1.56E-01	24.2489	1.62E-01	3.6837
2.05E-01	30.5286	2.05E-01	30.8721	2.05E-01	30.864	2.05E-01	31.073	2.05E-01	31.3378	2.06E-01	30.6784	2.11E-01	4.7602
2.56E-01	36.7484	2.56E-01	36.7879	2.56E-01	36.7485	2.56E-01	37.1914	2.55E-01	37.1833	2.56E-01	36.1139	2.61E-01	5.3241
3.06E-01	42.1721	3.06E-01	42.4424	3.06E-01	42.446	3.06E-01	42.7859	3.06E-01	42.8221	3.07E-01	41.5509	3.11E-01	6.3656

3.56E-01	47.2872	3.56E-01	47.5978	3.56E-01	47.3489	3.56E-01	47.8727	3.56E-01	47.8833	3.57E-01	45.7376	3.61E-01	7.3147
4.07E-01	51.7938	4.07E-01	52.052	4.07E-01	51.9313	4.07E-01	52.4912	4.07E-01	52.2806	4.08E-01	50.2913	4.12E-01	7.633
4.57E-01	55.7639	4.57E-01	55.9031	4.57E-01	55.8996	4.57E-01	56.4339	4.57E-01	56.3004	4.58E-01	53.5517	4.61E-01	8.3175
5.07E-01	59.7687	5.07E-01	60.1229	5.07E-01	59.7819	5.07E-01	60.1828	5.07E-01	60.0374	5.08E-01	57.0435	5.11E-01	9.5127
5.58E-01	62.8855	5.58E-01	63.4053	5.58E-01	63.4366	5.58E-01	63.9057	5.58E-01	63.73	5.59E-01	59.914	5.61E-01	10.073
6.08E-01	66.1366	6.08E-01	66.4837	6.08E-01	66.4115	6.08E-01	66.9163	6.08E-01	66.6678	6.09E-01	62.9942	6.11E-01	10.5172
6.58E-01	69.1656	6.59E-01	69.685	6.58E-01	69.3366	6.58E-01	69.8586	6.58E-01	69.3432	6.59E-01	65.2961	6.61E-01	11.5854
7.09E-01	71.43	7.09E-01	72.1899	7.09E-01	71.8537	7.09E-01	72.6555	7.09E-01	72.3687	7.09E-01	68.4338	7.11E-01	11.5475
7.59E-01	74.6079	7.59E-01	74.4982	7.59E-01	74.5418	7.59E-01	75.2097	7.59E-01	74.8463	7.60E-01	70.0246	7.61E-01	12.4691
8.09E-01	76.7339	8.09E-01	76.9273	8.09E-01	77.1771	8.09E-01	77.7603	8.09E-01	76.7621	8.10E-01	72.3609	8.11E-01	12.9054
8.59E-01	79.2639	8.59E-01	79.4996	8.59E-01	78.8868	8.59E-01	79.5788	8.59E-01	79.1502	8.60E-01	74.0981	8.61E-01	13.232
9.09E-01	80.7978	9.09E-01	81.2357	9.09E-01	81.0621	9.09E-01	81.8308	9.09E-01	80.9066	9.10E-01	76.2222	9.11E-01	14.2697
9.60E-01	83.1185	9.60E-01	82.841	9.60E-01	83.1242	9.60E-01	83.522	9.60E-01	83.0119	9.60E-01	77.7019	9.62E-01	13.917
9.99E-01	85.0612	9.99E-01	85.0335	9.99E-01	84.4841	9.99E-01	85.2401	9.99E-01	84.4727	9.99E-01	79.5802	9.99E-01	15.4468
9.41E-01	82.3269	9.41E-01	82.9013	9.41E-01	82.7476	9.41E-01	83.0264	9.41E-01	82.9599	9.40E-01	77.6357	9.39E-01	14.3976
8.90E-01	81.4176	8.90E-01	81.0767	8.90E-01	81.3189	8.90E-01	81.6581	8.90E-01	81.0925	8.90E-01	75.9715	8.88E-01	14.33
8.40E-01	79.13	8.40E-01	79.6859	8.40E-01	79.1198	8.40E-01	79.6762	8.40E-01	79.2299	8.40E-01	74.6324	8.38E-01	14.473
7.90E-01	77.7687	7.91E-01	77.6273	7.90E-01	77.3974	7.90E-01	77.889	7.91E-01	77.6648	7.90E-01	72.2667	7.88E-01	13.6797
7.41E-01	75.1564	7.41E-01	75.2207	7.41E-01	75.004	7.41E-01	75.2996	7.41E-01	75.5833	7.40E-01	70.801	7.38E-01	13.5438
6.91E-01	73.0991	6.91E-01	73.0683	6.91E-01	72.5176	6.91E-01	73.2057	6.91E-01	73.5441	6.91E-01	68.3116	6.88E-01	13.8541
6.41E-01	70.444	6.41E-01	70.7573	6.41E-01	70.2612	6.41E-01	70.7247	6.41E-01	71.0066	6.41E-01	66.172	6.38E-01	13.0478
5.91E-01	67.7405	5.91E-01	67.941	5.91E-01	67.1652	5.91E-01	68.0269	5.92E-01	68.4626	5.91E-01	63.5531	5.89E-01	12.7414
5.42E-01	64.6515	5.42E-01	64.7013	5.42E-01	64.0489	5.42E-01	65.2683	5.42E-01	65.6366	5.42E-01	61.6855	5.38E-01	12.6556
4.92E-01	61.4555	4.92E-01	61.5621	4.92E-01	61.0502	4.92E-01	61.8269	4.92E-01	62.3916	4.92E-01	58.2981	4.89E-01	12.0763
4.43E-01	57.3176	4.43E-01	57.5727	4.43E-01	56.8612	4.43E-01	57.885	4.43E-01	58.4943	4.42E-01	54.9014	4.40E-01	11.1236
3.93E-01	53.9123	3.93E-01	53.7586	3.92E-01	53.1269	3.93E-01	54.3031	3.93E-01	55.0357	3.92E-01	51.4097	3.88E-01	11.3096
3.43E-01	49.4744	3.43E-01	49.4176	3.43E-01	48.841	3.43E-01	49.8256	3.43E-01	50.6198	3.43E-01	47.1062	3.39E-01	10.4133

2.94E-01	44.8493	2.94E-01	44.4542	2.94E-01	43.8412	2.94E-01	44.8749	2.94E-01	45.6396	2.93E-01	42.7129	2.89E-01	9.7661
2.45E-01	39.194	2.45E-01	38.842	2.45E-01	38.2556	2.45E-01	39.1533	2.45E-01	39.9565	2.43E-01	37.3495	2.39E-01	9.0259
1.95E-01	33.2694	1.95E-01	32.848	1.95E-01	32.2941	1.95E-01	33.0037	1.95E-01	33.9086	1.94E-01	31.7424	1.89E-01	8.1556
1.45E-01	26.7444	1.45E-01	25.9996	1.45E-01	25.4348	1.46E-01	26.1895	1.45E-01	26.8865	1.44E-01	25.095	1.39E-01	7.0391