Removal of Confined Ionic Liquid From A Metal Organic Framework By Extraction With Molecular Solvents.

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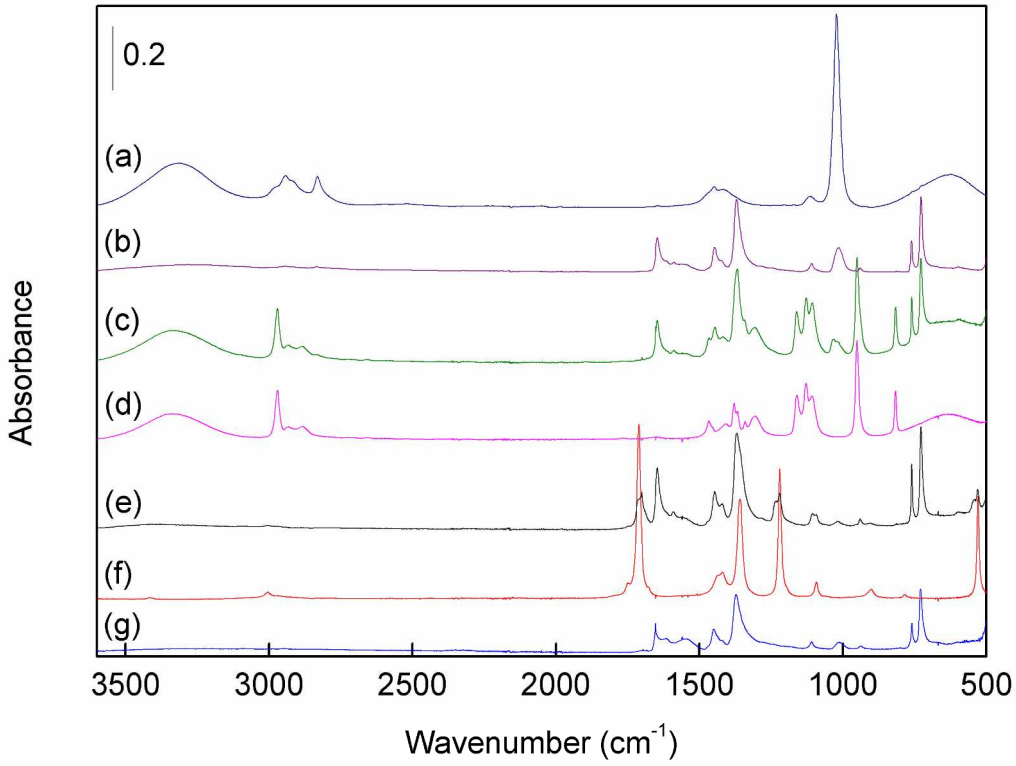

Fig. S1 FTIR spectra of confined solvent in CuBTC MOF: (a) Methanol, (b) CuBTC with methanol, (c) CuBTC with isopropanol, (d) isopropanol, (e) CuBTC with acetone, (f) acetone, and (g) pristine CuBTC.

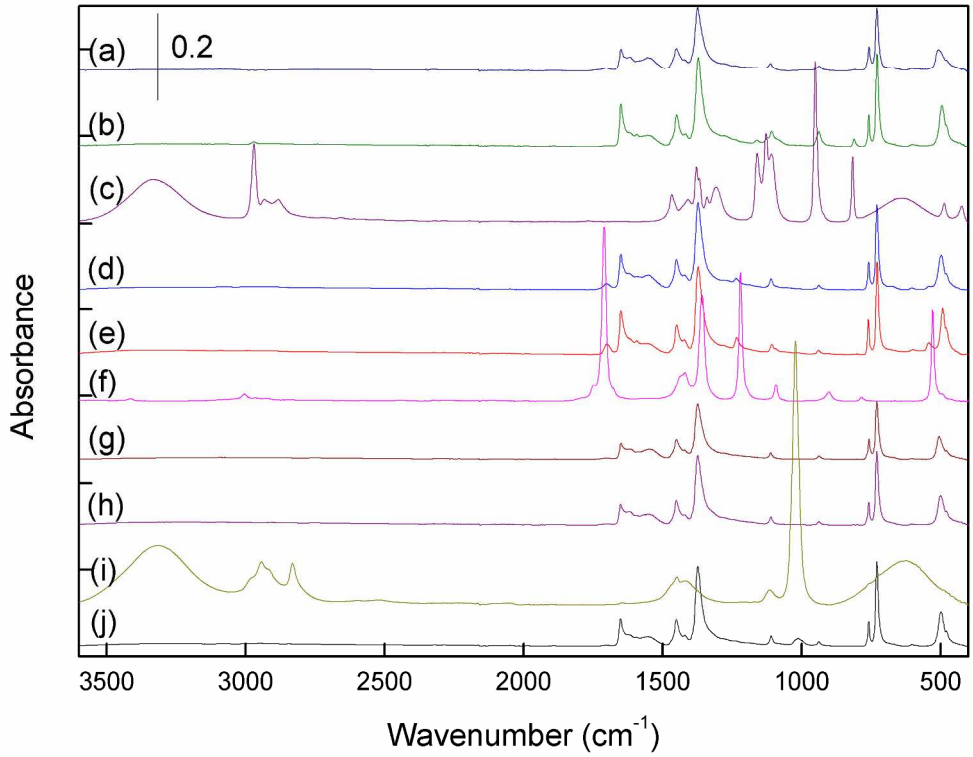

Fig. S2. FTIR spectra of pristine and CuBTC washed with solvents and dried for 24 h (a) CuBTC washed with isopropanol and dried at 150 °C, (b) CuBTC washed with isopropanol and dried at 70°C, (c) pure isopropanol, (d) washed with acetone and dried CuBTC at 150°C, (e) washed with acetone and dried CuBTC at 70°C, (f) pure acetone, (g) washed CuBTC with methanol and dried at 150°C, (h) washed CuBTC with methanol and dried at 70°C, (i) methanol, and (j) pristine CuBTC

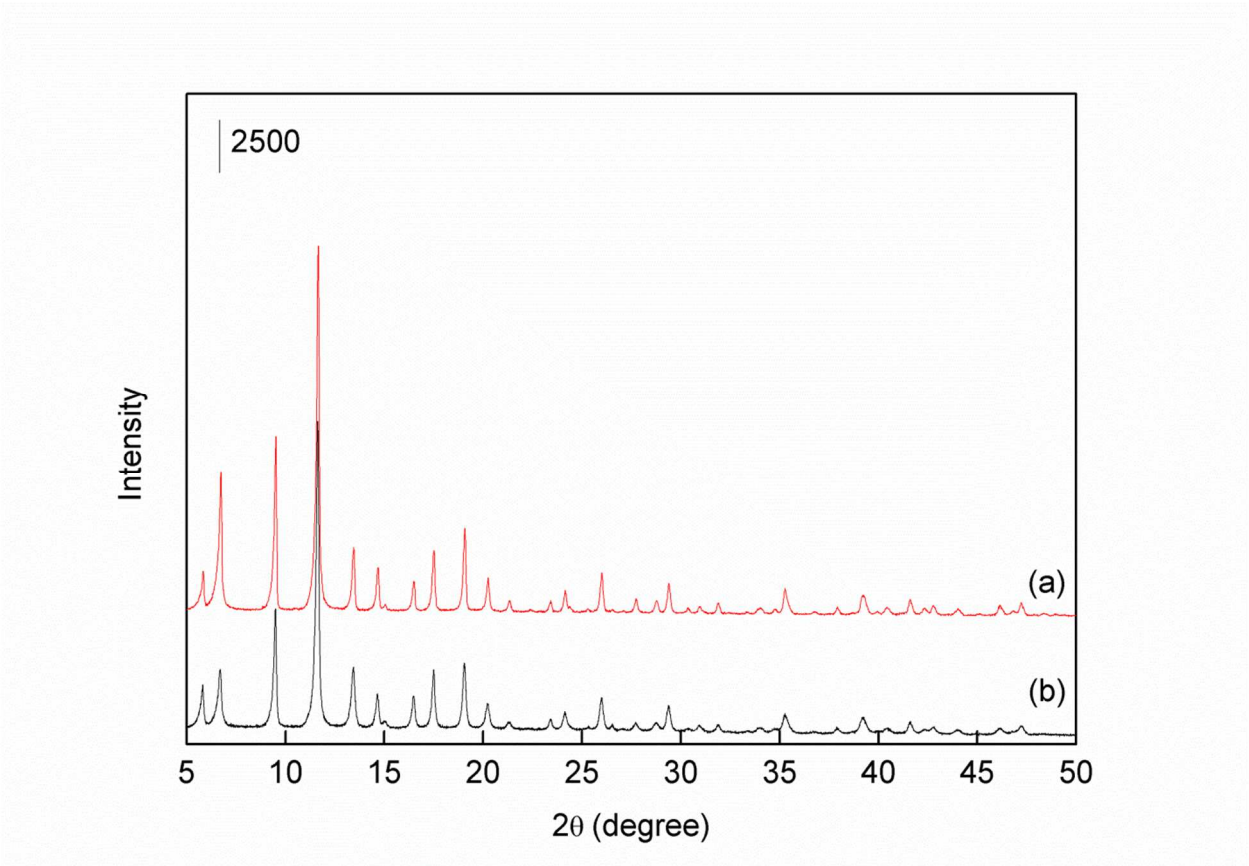

Fig. S3 PXRD pattern of IL extracted CuBTC with methanol (a) pristine CuBTC, (b) CuBTC after washing with methanol and dried at 70°C for 24 h.

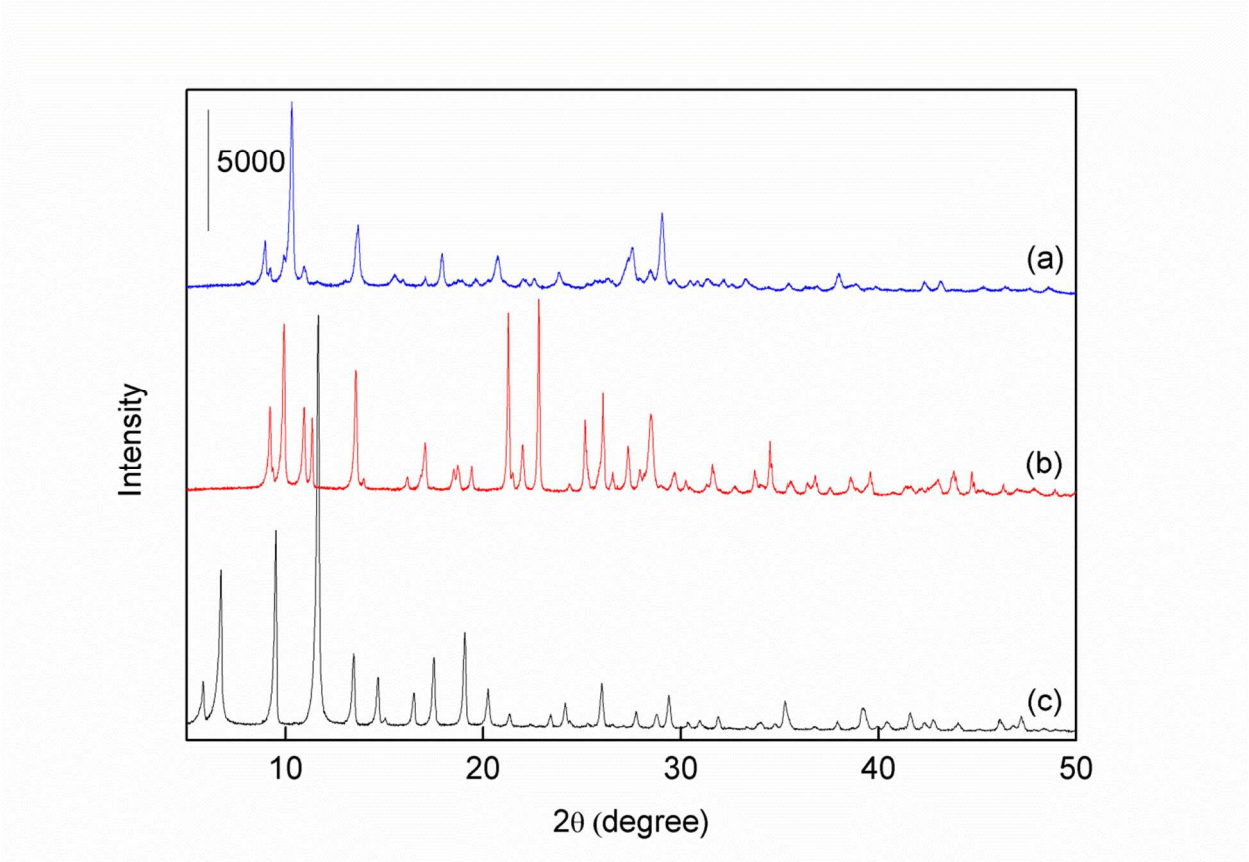

Fig. S4 PXRD patterns of CuBTC after holding 5h in water filtered and dried (a) at 150°C for 24 h, (b) at 70°C for 24 h, and (c) pristine CuBTC

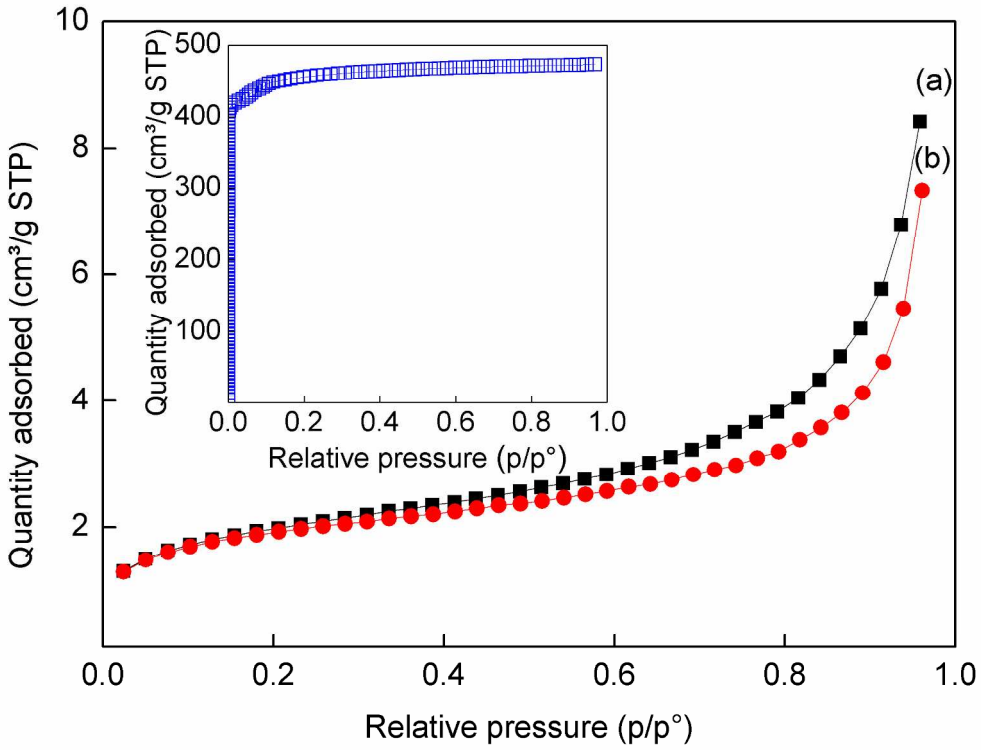

Fig. S5 Nitrogen adsorption isotherms of CuBTC and IL removed CuBTC. (a) pre-treated at 70°C for 24 h (b) pre-treated at 150°C for 24 h. Inset shows N_2 adsorption isotherms of pristine CuBTC pre-treated at 150°C for 24 h.

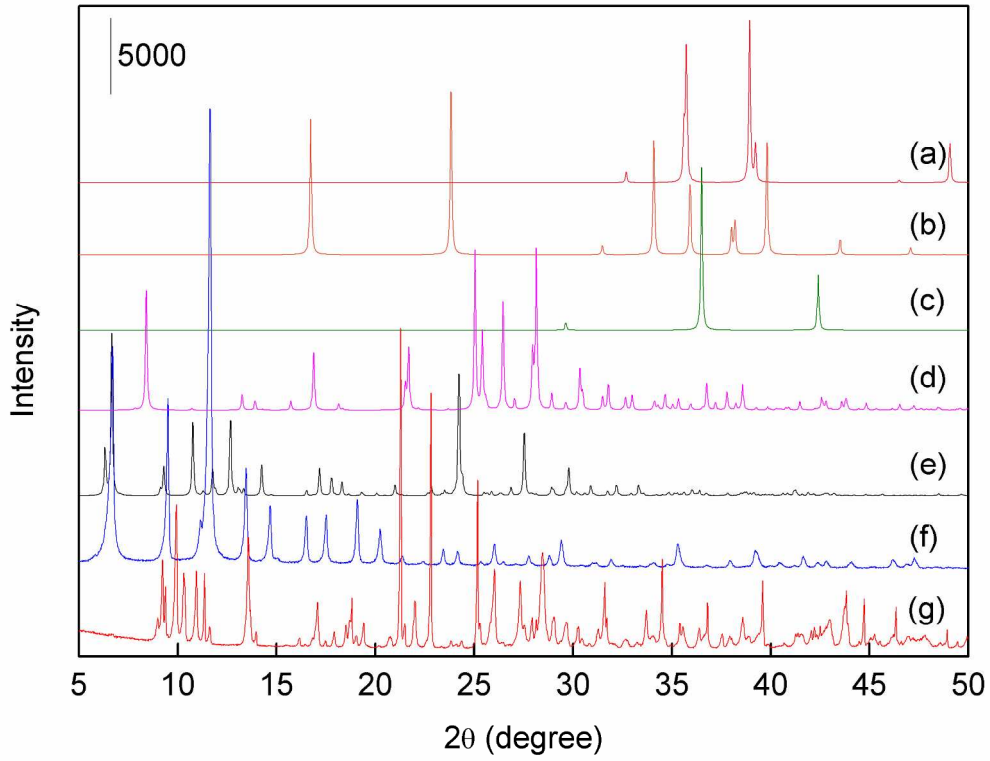

Fig. S6A Comparison of XRD pattern (a) CuO[1], (b) $Cu(OH)_2$[1], (c) Cu_2O[1], (d) 1,3,5-benzene try carboxylic acid with two water molecules[2], ($C_6H_3(CO_2H)_3.2H_2O$), (e) 1,3,5-benzene try carboxylic acid[3], ($C_6H_3(CO_2H)_3$, (f) activated CuBTC, and (g) IL impregnated CuBTC after washing with water.

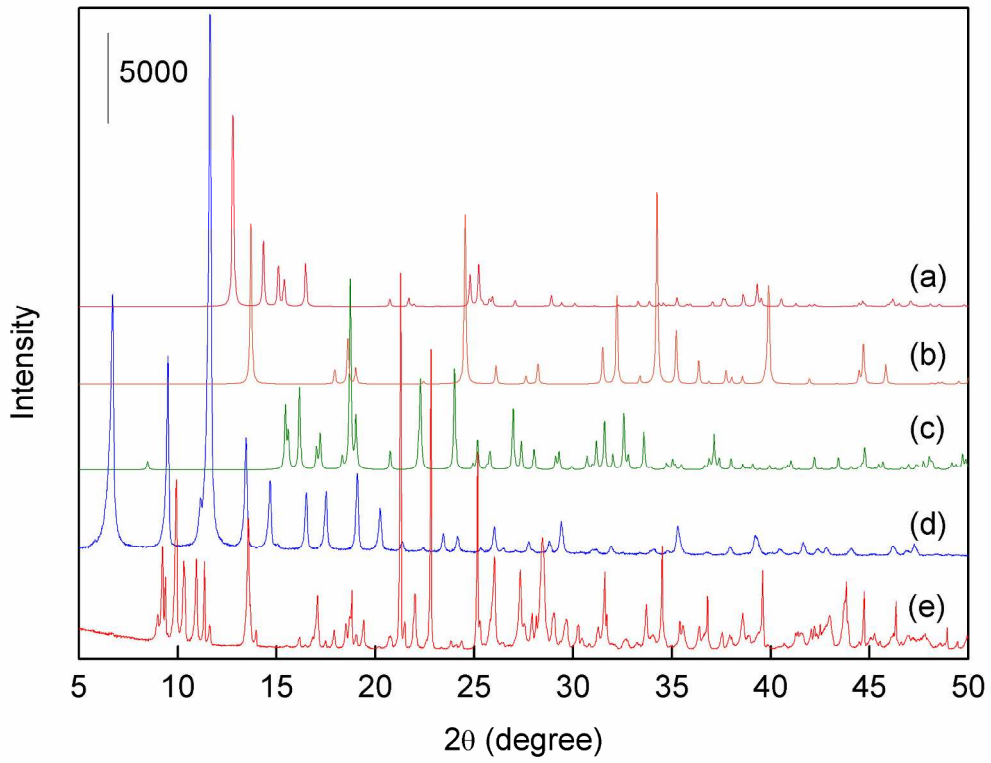

Fig. S6B Comparison of XRD pattern (a) $Cu_2(CH_3CO_2)_4.2H_2O$[4], (b) Cu_2SO_4[1], (c) $CuSO_4.5H_2O$[1], (d) activated CuBTC, and (e) IL impregnated CuBTC after washing with water.

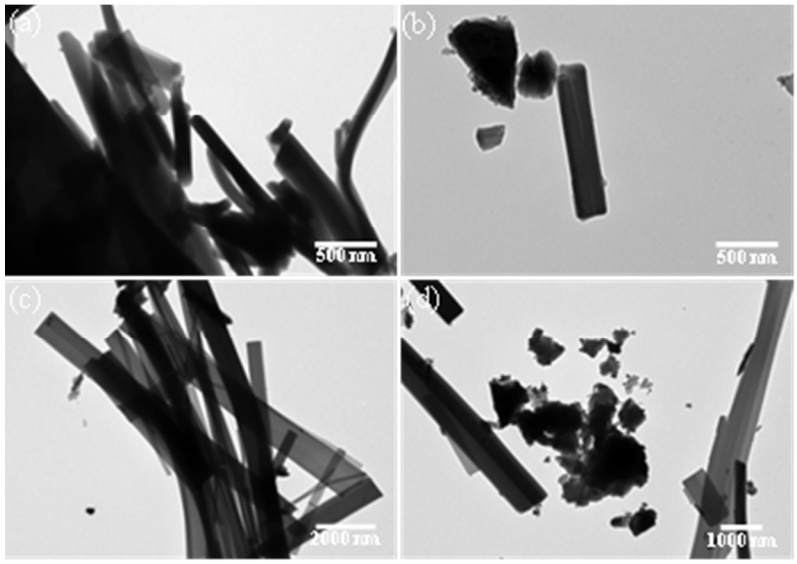

Fig. S7 TEM images of pristine CuBTC after washing with water at one place (a), and at another place of same sample (b), IL impregnated CuBTC after washing with water (c), and at another place of same sample (d).

References

1 http://www.crystallography.net/. The CIF file of Cu_2SO_4 (COD ID:9009694), $CuSO_4.5H_2O$ (COD ID:1010527), CuO (COD ID: 9008961), $Cu(OH)_2$ (COD ID: 9007849), and Cu_2O (COD ID:1010941) were taken from Crystallography Open Database (COD).

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3 Duchampt, D. J.; Marsh, R. E. The Crystal Structure of Trimesic Acid (Benzene-1,3,5-Tri Carboxylic Acid). *Acta Crystallogr. Sect. B-Struct. Sci.,* **1969**, B25, 5-19.

4 The CIF file of $Cu_2(CH_3CO_2)_4.2H_2O$ was taken from http://physical-chemistry.scb.uwa.edu.au/tonto/wiki/index.php/Metal_hydrates.cif.