Supplementary Material (ESI) for Dalton Transactions

Supporting Information

Solvent Effect on the Construction of Two Microporous Yttrium-Organic Frameworks with High Thermostability via *In-Situ* Ligand Hydrolysis

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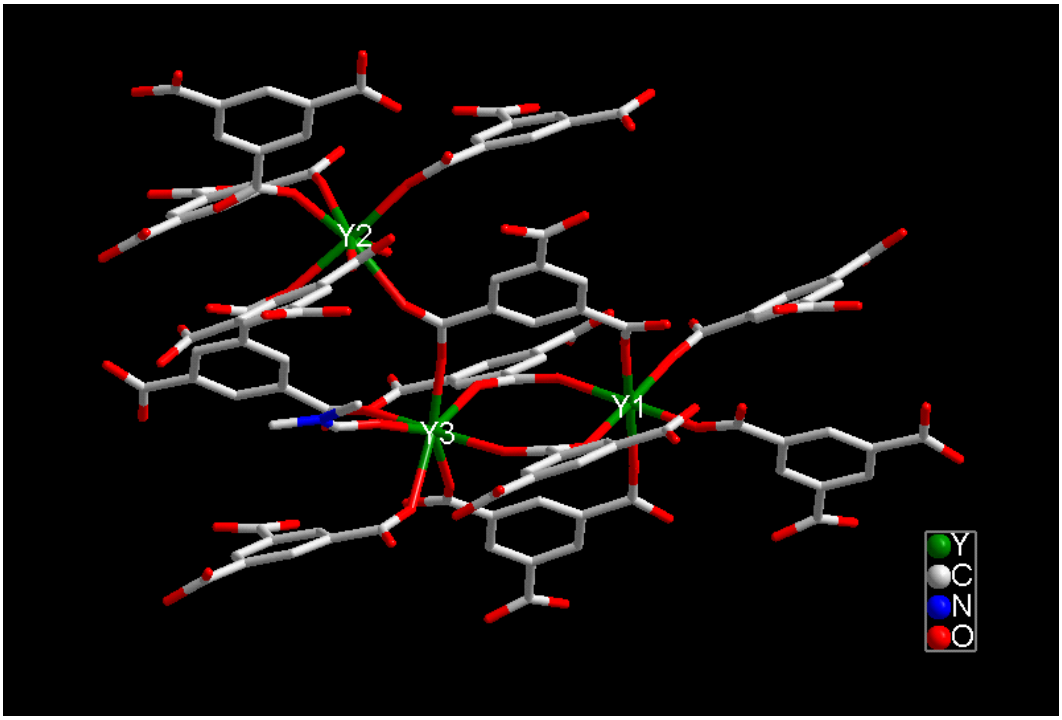
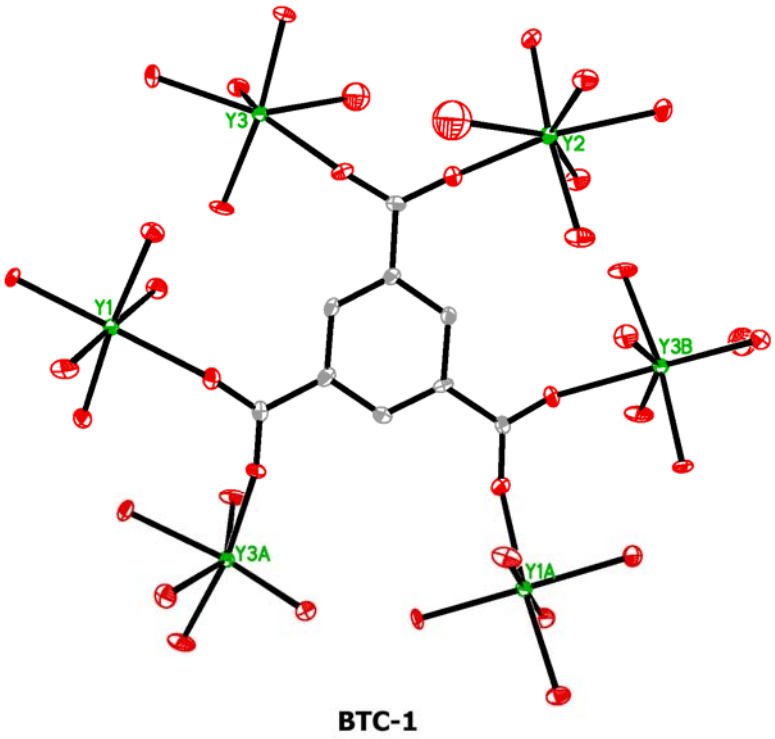


Figure S1. View of the coordination environment of Y^{III} centers in **1**.



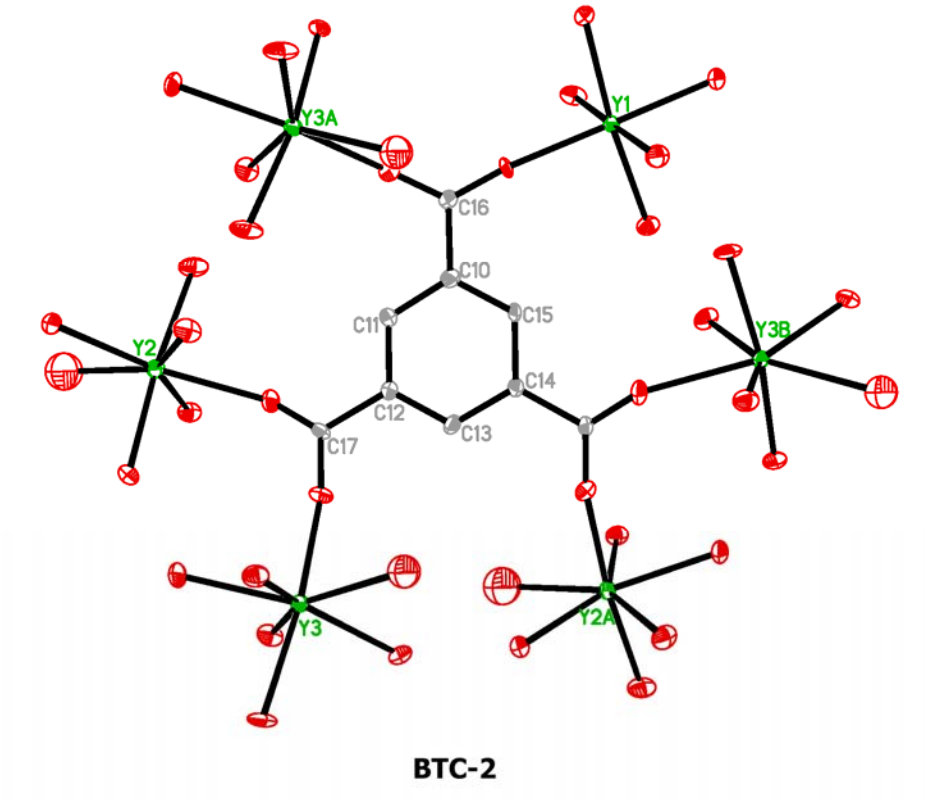


Figure S2. View of the coordination mode of the two crystallographically independent BTC molecules in **1** with the thermal ellipsoids at 30 % probability level.

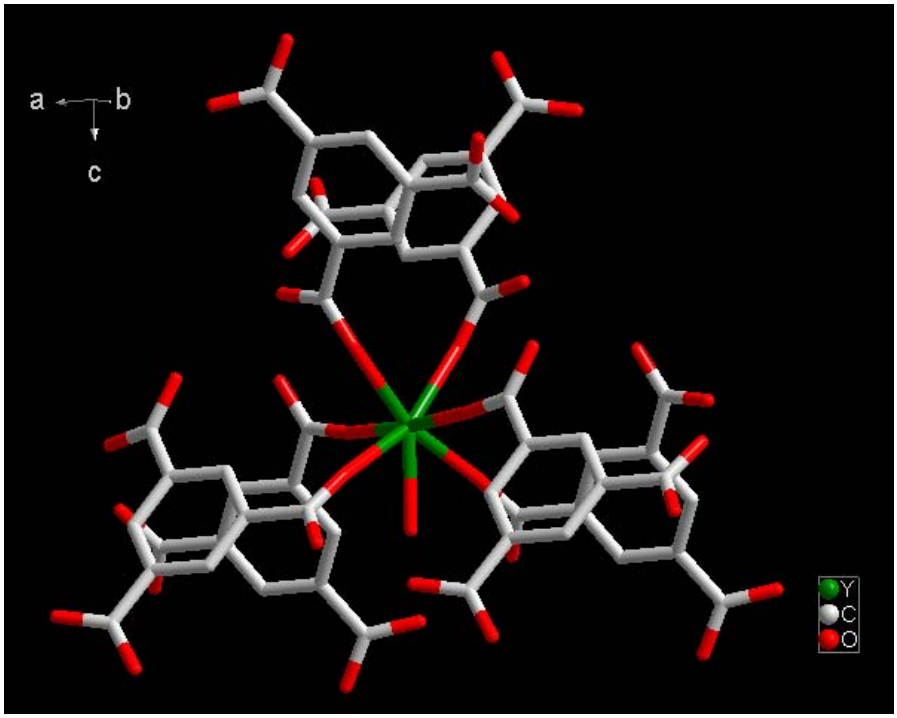


Figure S3. View of the coordination environment of Y^{III} center in **2**.

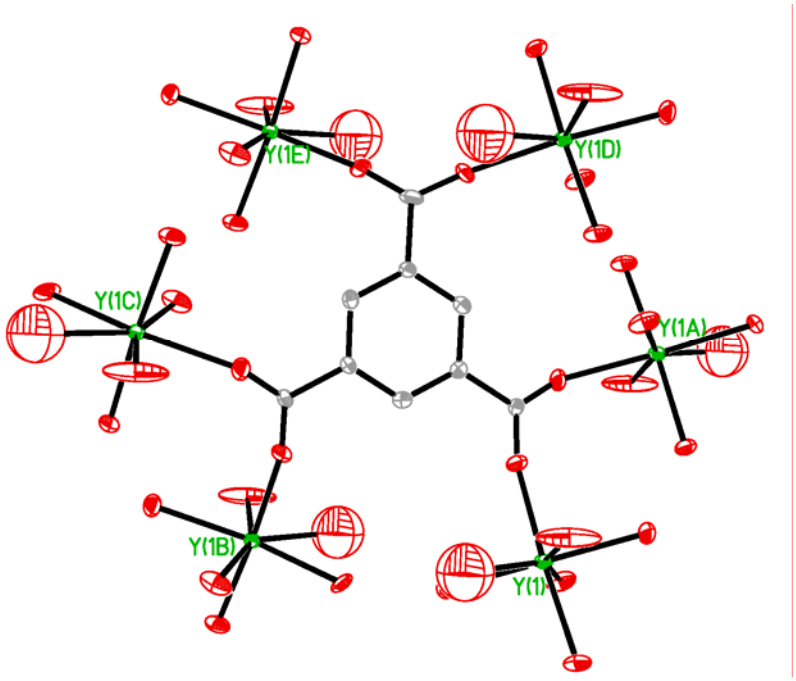


Figure S4. View of the coordination mode of BTC molecule in **2** with the thermal ellipsoids at 30 % probability level.

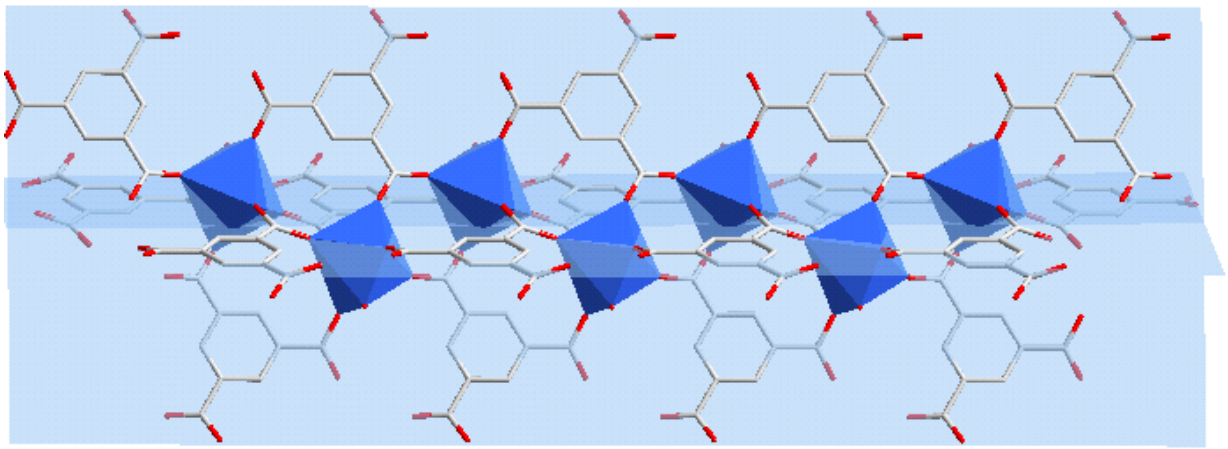


Figure S5. View of the connection mode of BTC molecule in the 1D chain of **2**.

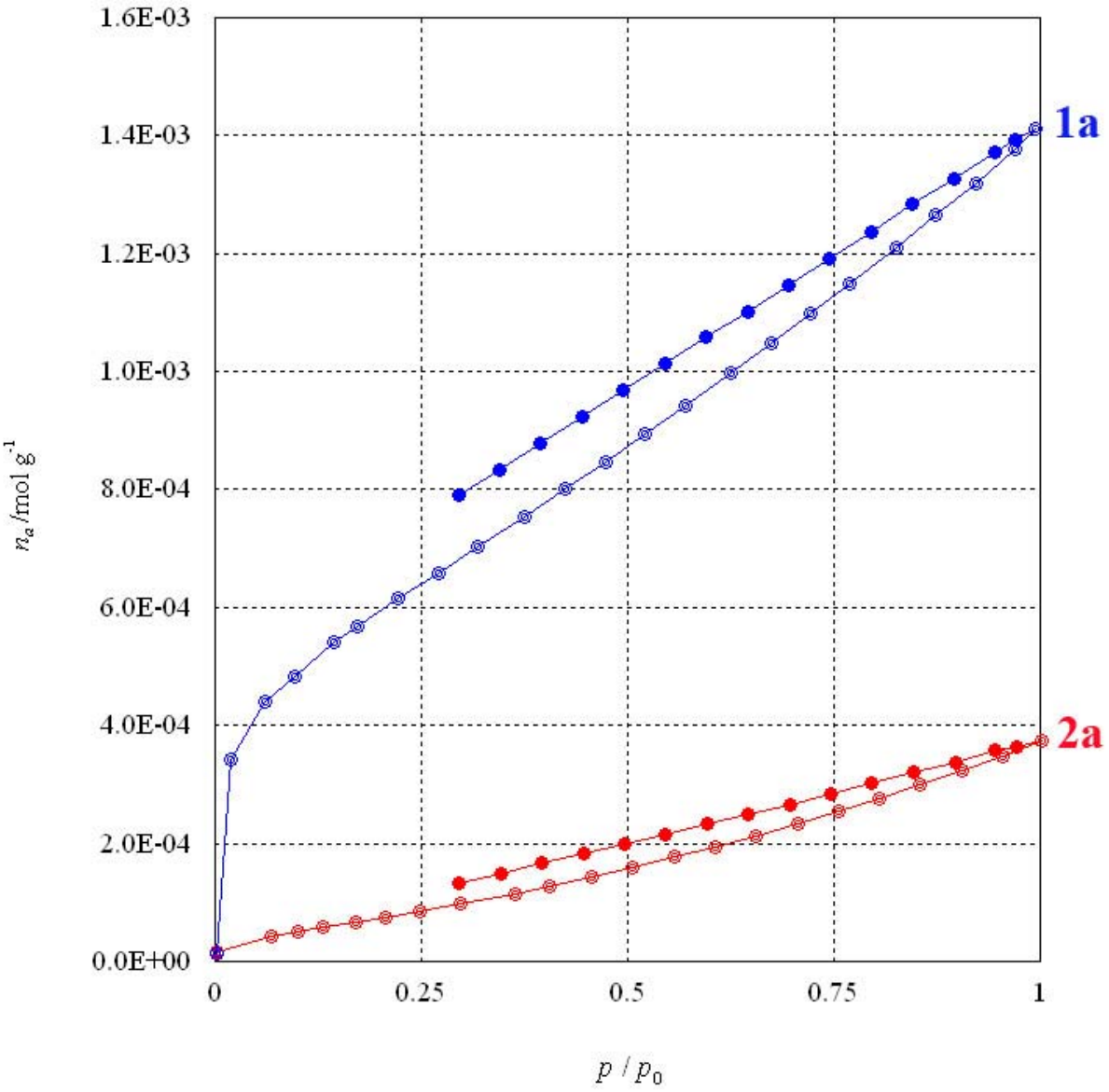


Figure S6. Nitrogen gas sorption isotherms at 77 K for the desolvated **1**a and **2**a.

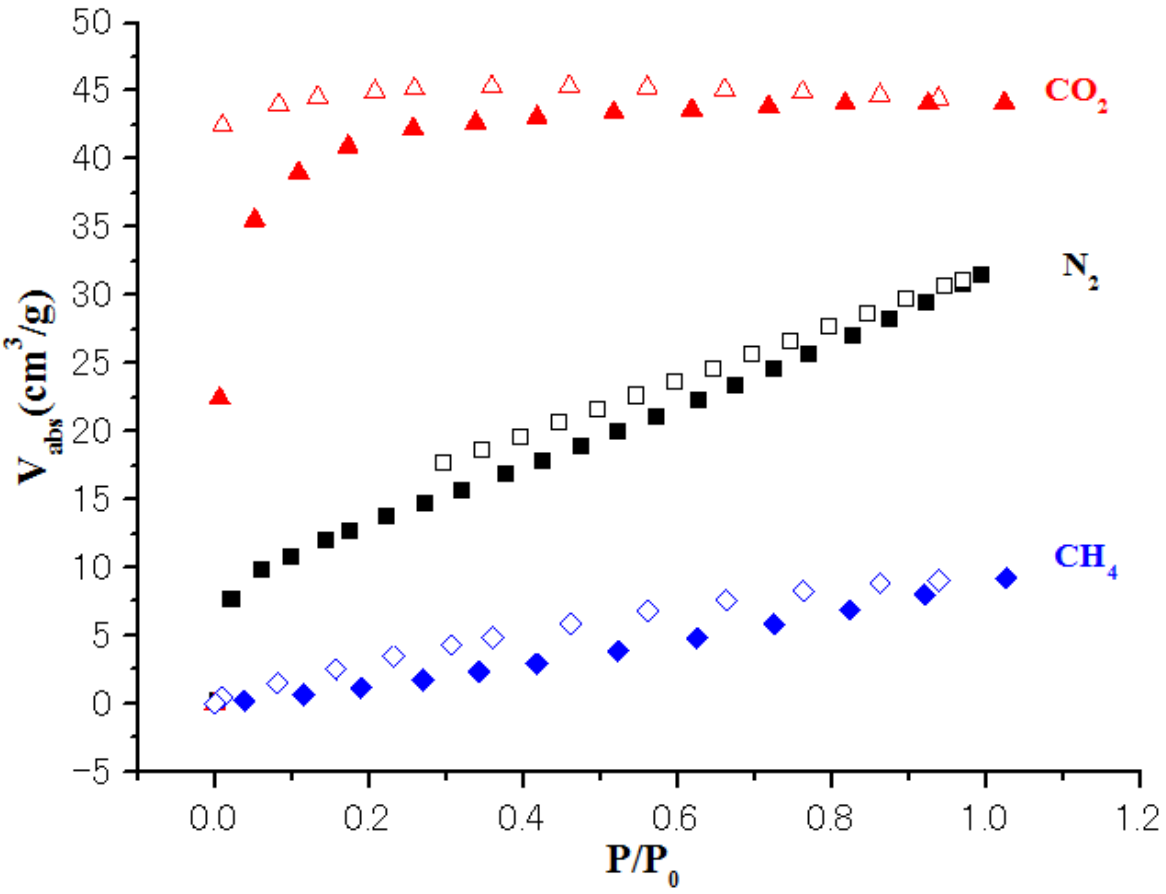


Figure S7. Gas sorption isotherms of desolvated compound **1**a at 77 K (N_2, black) and 195 K (CO_2, red; CH_4, blue).

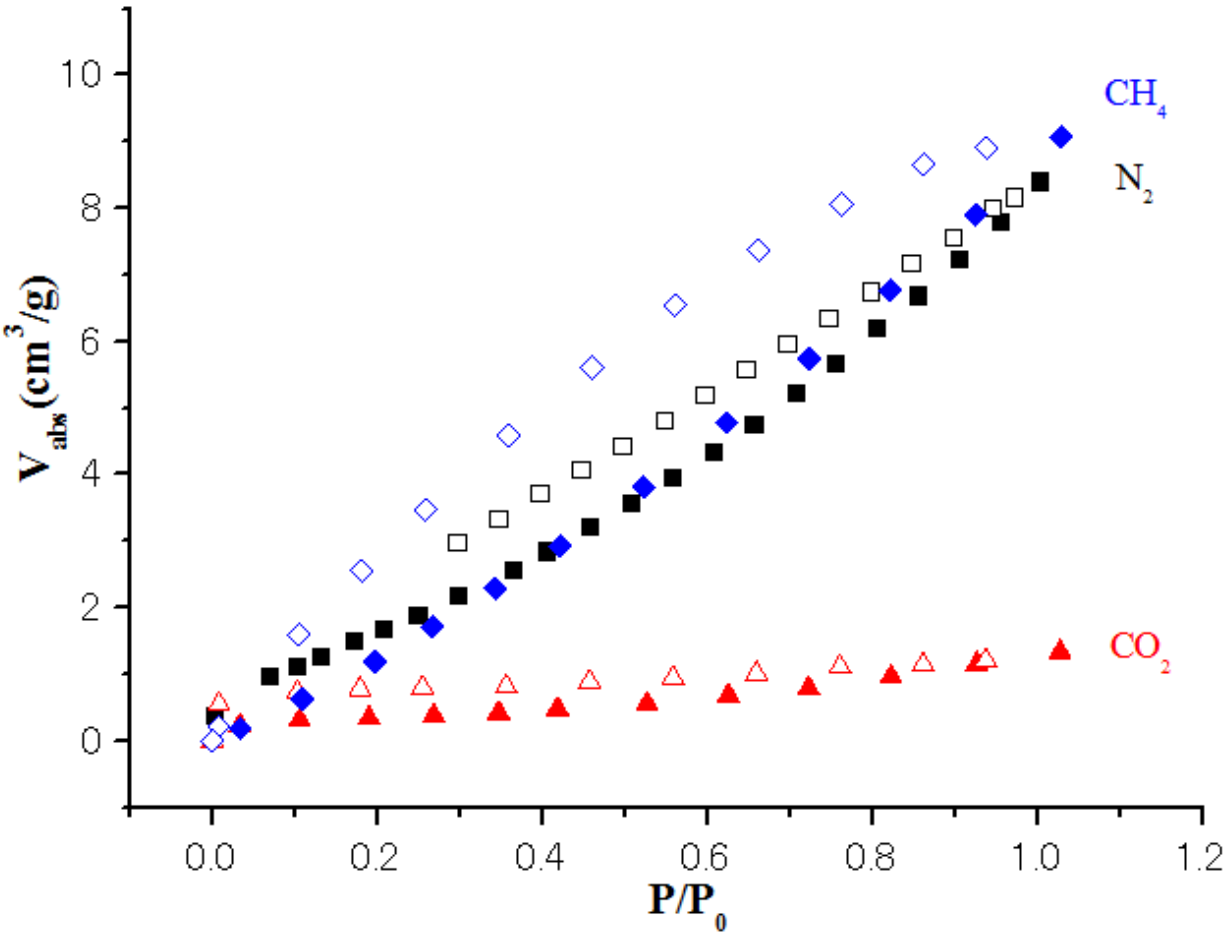


Figure S8. Gas sorption isotherms of desolvated compound **2**a at 77 K (N_2, black) and 195 K (CO_2, red; CH_4, blue).

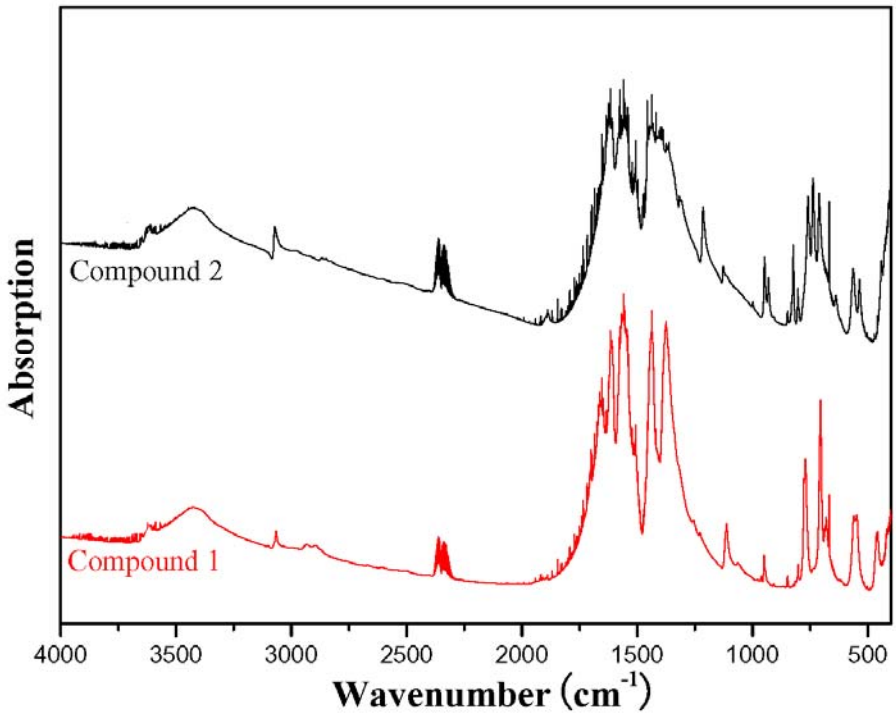


Figure S9. FTIR spectra of the as-synthesized **1** and **2.**

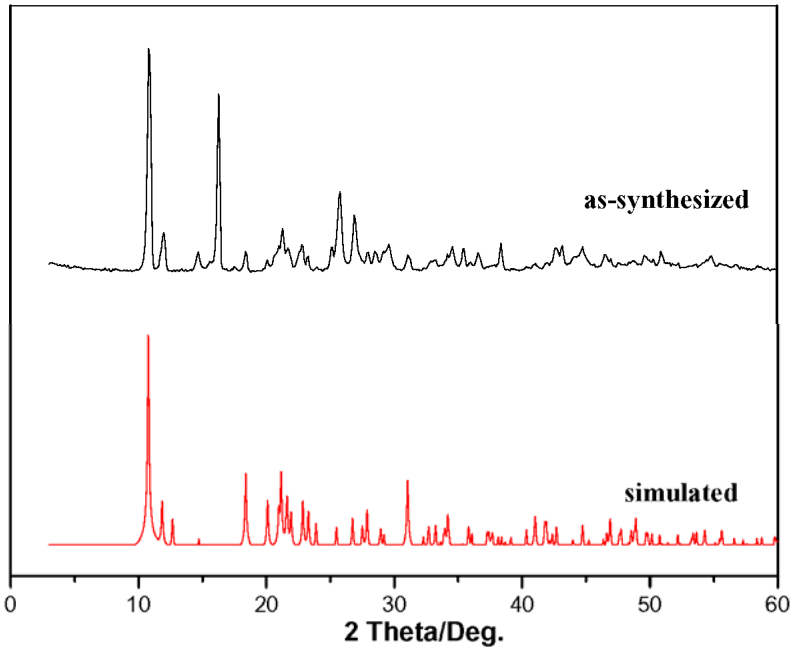


Figure S10. PXRD pattern of the as-synthesized **2.**

Compound **1**			
Y(1)-O(7)	2.209(8)	Y(1)-O(7)#1	2.209(8)
Y(1)-O(5)#1	2.220(8)	Y(1)-O(5)	2.220(8)
Y(1)-O(3)#1	2.228(10)	Y(1)-O(3)	2.228(10)
Y(2)-O(12)#2	2.212(8)	Y(2)-O(12)	2.212(8)
Y(2)-O(10)	2.274(10)	Y(2)-O(10)#2	2.274(10)
Y(2)-O(1)	2.292(9)	Y(2)-O(1)#2	2.292(9)
Y(2)-O(1W)	2.33(2)	Y(3)-O(4)	2.236(8)
Y(3)-O(9)	2.247(9)	Y(3)-O(2)	2.251(9)
Y(3)-O(6)#3	2.310(9)	Y(3)-O(11)	2.310(9)
Y(3)-O(8)	2.337(9)	Y(3)-O(13)	2.376(13)
Symmetry transformations used to generate equivalent atoms: #1 -x-1,-y+1,z #2 -x-1/2,-y+1/2,z #3 x+1/4,-y+3/4,z-1/4			
Compound **2**			
Y(1)-O(1)	2.229(8)	Y(1)-O(6)	2.223(16)
Y(1)-O(3)	2.221(8)	Y(1)-O(2)	2.228(8)
Y(1)-O(4)	2.268(9)	Y(1)-O(5)	2.273(9)
Y(1)-O(1W)	2.31(4)		
Symmetry transformations used to generate equivalent atoms: #1 -x,-y+1,-z #2 -x+1/2,y-1/2,-z+1/2 #3 -x-1/2,y-1/2,-z+1/2 #4 -x+1,-y+1,-z #5 -x+1/2,y+1/2,-z+1/2 #6 -x-1/2,y+1/2,-z+1/2			

Table S1. Bond lengths [Å] and angles [deg] for **1** and **2**.