Electronic Supplementary Information (ESI) *for*

Achiral diamondoid or chiral quartz net: the effect of substituents in the topologies and catenation of coordination polymers based on tetrahedral Cd(COO)4 buiding units

Xiao-Feng Wang, *[a,b] Yue-Biao Zhang,[b] and Yan-Yong Lin[b]

[a] School of Chemistry and Chemical Engineering, University of South China, Hengyang 421001, P. R. China.

[b] MOE Key Laboratory of Bioinorganic and Synthetic Chemistry, School of Chemistry and Chemical Engineering, Sun Yat-Sen University, Guangzhou 510275, P. R. China.

*To whom correspondence should be addressed.

xfwang518@yahoo.com.cn

Tel: (86)-0734-8282375.

Table S1 Selection bond lengths (Å) and angles (°) for **1-4**

1[a]		**2**[b]		**3**[c]		**4**[d]	
Cd1-O1	2.302(4)	Cd1-O1	2.327(11)	Cd1-O1	2.370(9)	Cd1-O1	2.414(8)
Cd1-O2	2.688(5)	Cd1-O2	2.547(15)	Cd1-O2	2.462(10)	Cd1-O2	2.384(10)
Cd1-O3#1	2.465(4)	Cd1-O4#2	2.227(14)				
Cd1-O4#1	2.385(6)	Cd1-O5	2.611(11)	O1-Cd1-O1#1	105.7(3)	O1-Cd1-O1#1	106.8(3)
		Cd1-O6	2.288(10)	O1-Cd1-O2#1	79.1(3)	O1-Cd1-O2#1	79.1(3)
O1-Cd1-O1#2	117.77(14)	Cd1-O7#3	2.288(12)	O1-Cd1-O1#2	135.0(4)	O1-Cd1-O1#2	138.8(3)
O1-Cd1-O3#1	125.51(13)	Cd1-O8#3	2.679(17)	O1-Cd1-O2#2	91.1(3)	O1-Cd1-O2#2	94.2(3)
O1-Cd1-O4#1	93.48(15)	Cd2-O9	2.290(13)	O1-Cd1-O1#3	91.2(3)	O1-Cd1-O1#3	87.7(3)
O1#2-Cd1-O2	81.19(14)	Cd2-O10	2.606(14)	O1-Cd1-O2#3	139.8(4)	O1-Cd1-O2#3	135.7(4)
O2-Cd1-O2#2	81.83(17)	Cd2-O11#1	2.382(12)	O2-Cd1-O2#1	99.0(3)	O2-Cd1-O2#1	97.2(3)
O2-Cd1-O3#1	84.10(13)	Cd2-O12#1	2.498(13)	O2#1-Cd1-O2#3	82.7(3)	O2#1-Cd1-O2#3	83.5(3)
O2-Cd1-O4#1	91.39(18)			O2-Cd1-O2#3	166.1(3)	O2-Cd1-O2#3	170.7(4)
O1#2-Cd1-O3#1	75.88(13)	O1-Cd1-O5	89.3(3)				
O1#2-Cd1-O4#1	129.40(13)	O1-Cd1-O6	127.9(4)				
O2#2-Cd1-O3#1	126.55(12)	O1-Cd1-O4#2	127.4(4)				
O2#2-Cd1-O4#1	173.08(18)	O1-Cd1-O7#3	84.0(4)				
O3#1-Cd1-O3#3	141.95	O1-Cd1-O8#3	125.1(4)				
O3#3-Cd1-O4#1	98.96	O2-Cd1-O4#2	99.9(5)				
O4#1-Cd1-O4#3	95.42	O2-Cd1-O5	83.8(4)				
		O2-Cd1-O6	85.0(4)				
		O2-Cd1-O7#3	136.4(4)				
		O2-Cd1-O8#3	162.7(5)				
		O4#2-Cd1-O5	136.7(4)				
		O4#2-Cd1-O6	84.1(4)				
		O4#2-Cd1-O7#3	102.0(5)				
		O4#2-Cd1-O8#3	93.5(5)				
		O5-Cd1-O7#3	104.3(4)				
		O5-Cd1-O8#3	79.0(4)				
		O6-Cd1-O7#3	134.2(4)				
		O6-Cd1-O8#3	85.6(4)				
		O9-Cd2-O10#4	82.9(5)				
		O9-Cd2-O11#1	86.9(4)				
		O9-Cd2-O12#1	121.4(5)				
		O10-Cd2-O10#4	92.0(4)				
		O10-Cd2-O11#1	130.2(4)				
		O10-Cd2-O12#1	167.3(4)				
		O11#1-Cd2-O11#5	89.2(4)				
		O12#1-Cd2-O12#5	116.0(4)				

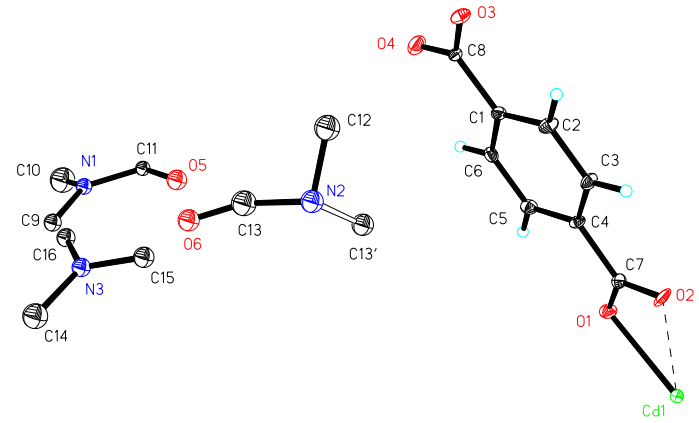
[a] Symmetry transformations used to generate equivalent atoms: #1 = 1/2+x, 1/2+y, z; #2 = -x, -y, z; #3 = -3/4+x, -1/4-y, -1/4+z.

[b] Symmetry transformations used to generate equivalent atoms: #1 = -1/4-x, 1/4+y, -1/4+z; #2 = -1/4+x, -1/4-y, 1/4+z; #3 = 1/4+x, -3/4-y, 1/4+z; #4 = -x, -y, z. #5 = 1/4+x, -1/4-y, -1/4+z.

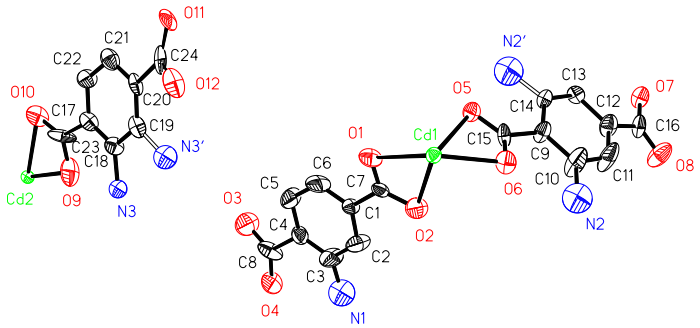
[c] Symmetry transformations used to generate equivalent atoms: #1 = 1-x, 1-y, z; #2 = 1-y, 1-x, -1/3-z; #3 = y, x, -1/3-z.

[d] Symmetry transformations used to generate equivalent atoms: #1 = 1-x, 1-y, z; #2 = 1-y, 1-x, -1/3-z; #3 = y, x, -1/3-z.

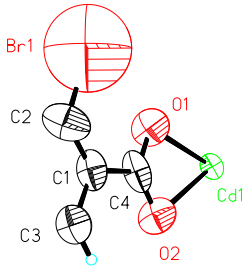
a)



b)



c)



d)

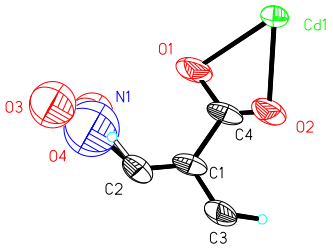


Figure S1. The asymmetric units of **1**-**4**.

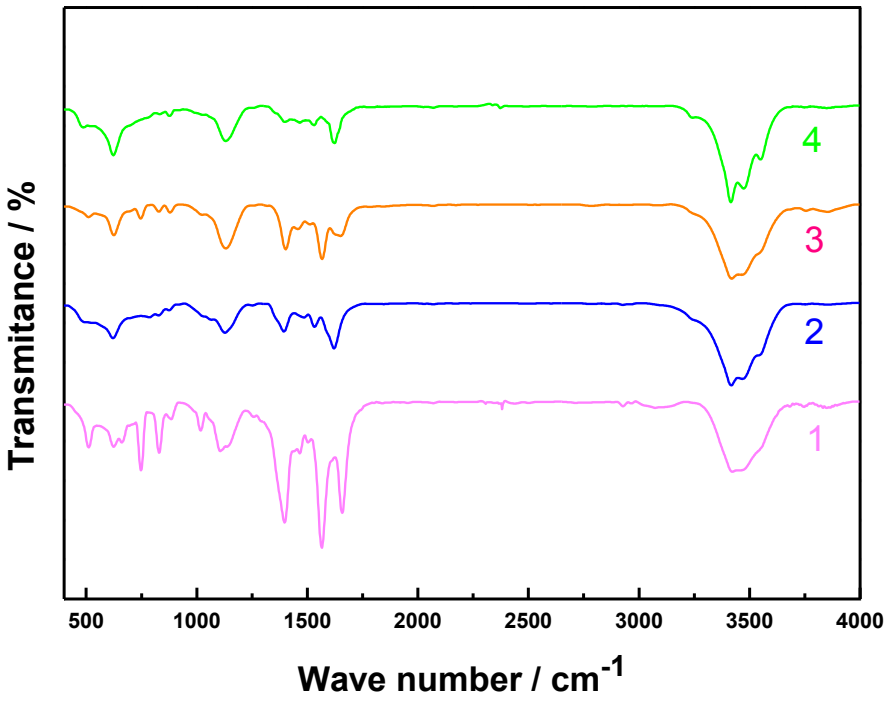


Figure S2. The FT-IR patterns of **1**-**4**.

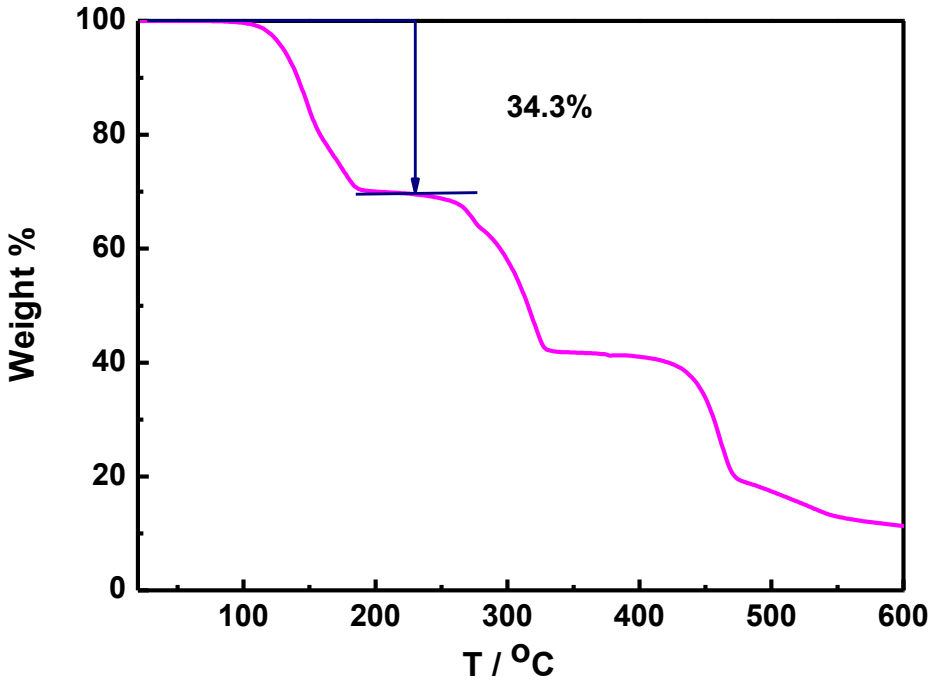


Figure S3. The TGA curve of **1**.

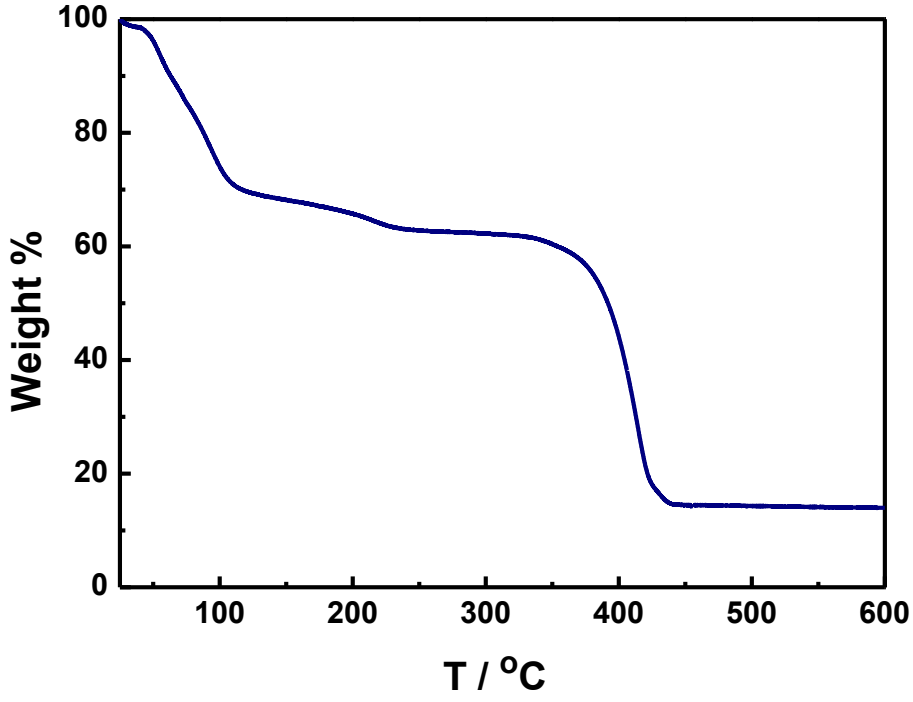


Figure S4. The TGA curve of **2**.

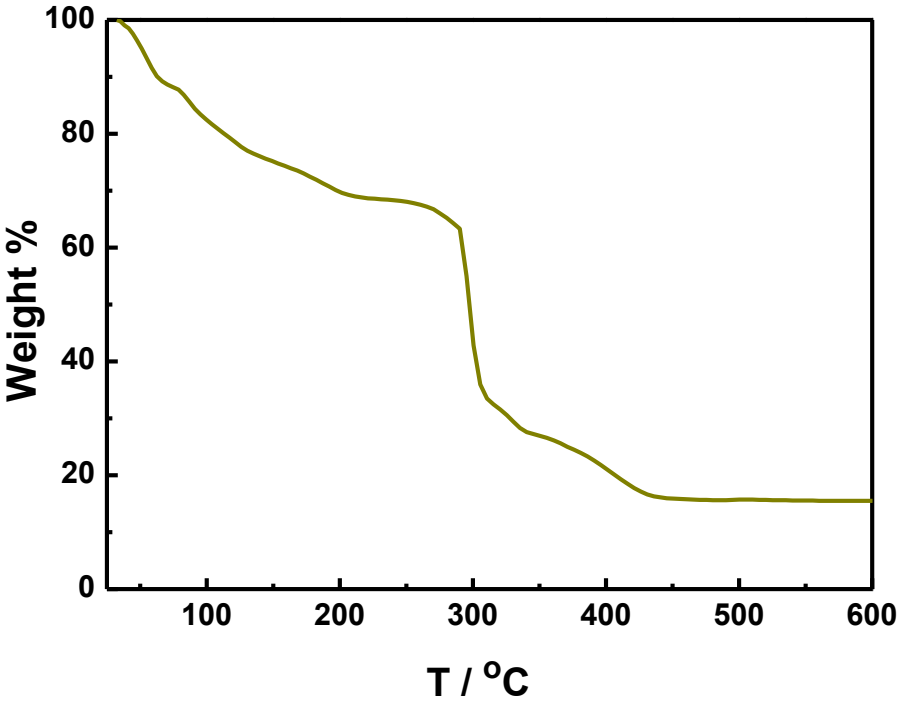


Figure S5. The TGA curve of **3**.

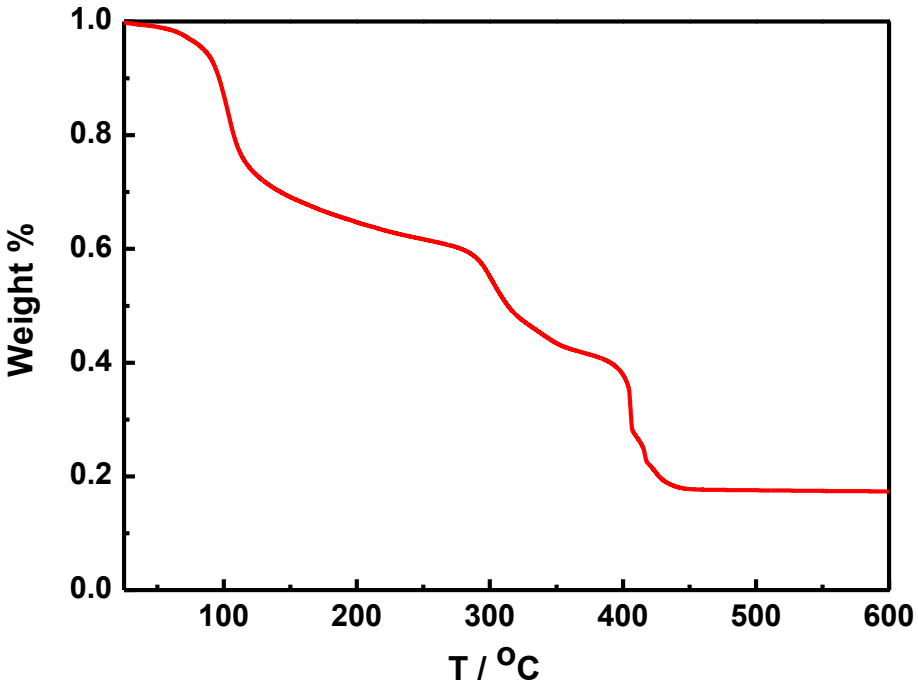


Figure S6. The TGA curve of **4**.