Supplementary Materials

The anion impact on dimensionality of cadmium(II) complexes with nicotinamide

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1. Crystal structures

Table S1. Selected bond lengths (Å) and angles (°) for $[Cd(CH_3COO)_2(nia)_2]_2$ (**1**), $\{[Cd(nia)_4](ClO_4)_2\}_n$ (**2**) and $[Cd(H_2O)_3(nia)_3](ClO_4)_2 \cdot nia$ (**3**).

1		**2**		**3**	
		Bond lengths			
Cd1–N1	2.348(3)	Cd1–N1	2.349(2)	Cd1–N1	2.336(3)
Cd1–N3	2.312(3)	Cd1–N3	2.338(2)	Cd1–N3	2.321(3)
Cd1–O3	2.465(3)	Cd1–O1	2.329(2)	Cd1–N5	2.316(3)
Cd1–O4	2.360(4)			Cd1–O5	2.323(3)
Cd1–O5	2.277(4)			Cd1–O6	2.395(4)
Cd1–O6	2.365(4)			Cd1–O7	2.301(3)
		Bond angles			
O5–Cd1–N3	89.8(1)	O1–Cd1–N3^{ii}	90.50(7)	O7–Cd1–N5	87.8(1)
O5–Cd1–N1	90.2(1)	O1–Cd1–N3	89.50(7)	O7–Cd1–N3	91.7(1)
N3–Cd1–N1	179.0(1)	O1–Cd1–N1	95.30(6)	N5–Cd1–N3	93.4(1)
O5–Cd1–O4	100.3(3)	N3–Cd1–N1	98.64(7)	O7–Cd1–O5	177.9(1)
N3–Cd1–O4	95.0(1)	O1–Cd1–N1^{ii}	84.70(6)	N5–Cd1–O5	92.5(1)
N1–Cd1–O4	86.0(1)	N3–Cd1–N1^{ii}	81.36(7)	N3–Cd1–O5	90.3(1)
O5–Cd1–O6	123.9(3)			O7–Cd1–N1	91.3(1)
N3–Cd1–O6	90.3(1)			N5–Cd1–N1	171.9(1)
N1–Cd1–O6	88.9(1)			N3–Cd1–N1	94.6(1)
O4–Cd1–O6	135.5(1)			O5–Cd1–N1	88.2(1)
O5–Cd1–O3	154.0(3)			O7–Cd1–O6	87.8(2)
N3–Cd1–O3	90.1(1)			N5–Cd1–O6	84.6(1)
N1–Cd1–O3	90.4(1)			N3–Cd1–O6	177.9(1)
O4–Cd1–O3	53.8(1)			O5–Cd1–O6	90.2(2)
O6–Cd1–O3	82.1(1)			N1–Cd1–O6	87.4(1)

Symmetry code (ii) $-x+1, -y, -z$.

Table S2. The hydrogen bond geometry for $[Cd(CH_3COO)_2(nia)_2]_2$ (**1**), $\{[Cd(nia)_4](ClO_4)_2\}_n$ (**2**) and $[Cd(H_2O)_3(nia)_3](ClO_4)_2 \cdot nia$ (**3**).

D–H···A	*d*(D–H)/Å	*d*(H···A)/Å	*d*(D···A)/Å	∠(D–H···A)/°	Symmetry code on A
1					
N2–H12N···O2	0.87	1.99	2.856(5)	170	*x*, *y*+1, *z*
N4–H14N···O1	0.88	2.50	3.020(5)	119	*x*, *y*–1, *z*
N2–H22N···O4	0.86	2.45	2.879(7)	111	–*x*–1, 1/2+*y*, 1/2–*z*
N4–H24N···O3	0.87	2.30	3.151(7)	169	–*x*, –1/2+*y*, 1/2–*z*
C3–H3···O4	0.93	2.59	3.450(5)	154	–*x*–1, 1/2+*y*, 1/2–*z*
C9–H9···O3	0.93	2.33	3.219(7)	160	–*x*, –1/2+*y*, 1/2–*z*
C10–H10···O1	0.93	2.37	3.148(9)	142	–*x*, –1/2+*y*, 1/2–*z*
2					
N2–H12N···O6	0.85(4)	2.18(3)	2.980(4)	158(3)	*x*, *y*, *z*
N4–H14N···O3	0.88(4)	2.13(3)	3.010(4)	177(3)	*x*, –1/2–*y*, –1/2+*z*
N2–H22N···O2	0.91(3)	2.16(3)	3.004(3)	153(3)	–*x*+1, 1/2+*y*, 1/2–*z*
N4–H24N···O2	0.97(4)	2.00(4)	2.920(4)	159(4)	–*x*, –*y*–1, –*z*
C3–H3···O4	0.93	2.46	3.321(4)	154	–*x*, 1/2+*y*, 1/2–*z*
C5–H5···O3	0.93	2.41	3.272(3)	155	–*x*+1, 1/2+*y*, 1/2–*z*
3					
N2–H12N···O4	0.86(1)	2.12(1)	2.970(4)	172(4)	–*x*, –*y*+1, –*z*+2
N2–H22N···O9	0.86(1)	2.27(1)	3.112(4)	169(4)	–*x*+1/2, *y*–1/2, –*z*+3/2
N4–H24N···O3	0.86(1)	2.06(1)	2.913(4)	173(4)	*x*+3/2, –*y*+3/2, *z*+1/2
N6–H16N···O1	0.86(1)	2.03(2)	2.849(4)	159(4)	*x*–1/2, –*y*+3/2, *z*–1/2
N6–H26N···O2	0.86(1)	2.06(1)	2.921(4)	173(4)	*x*–3/2, –*y*+3/2, *z*–1/2
N8–H18N···O1	0.86(1)	2.07(1)	2.932(4)	177(5)	–*x*, –*y*+1, –*z*+2
N8–H28N···O10	0.86(1)	2.19(2)	3.011(5)	160(4)	–*x*–1/2, *y*–1/2, –*z*+3/2
O5–H15O···O3	0.83(1)	1.98(2)	2.777(4)	162(4)	*x*+1, *y*, *z*
O5–H25O···O13	0.82(1)	2.08(1)	2.898(5)	172(4)	*x*, *y*, *z*
O6–H16O···O12	0.82(1)	2.36(1)	3.171(7)	177(6)	–*x*+1, –*y*+1, –*z*+1
O7–H17O···O8	0.81(1)	2.11(2)	2.893(4)	163(4)	*x*, *y*, *z*
O7–H27O···N7	0.82(1)	1.89(1)	2.692(4)	167(4)	*x*, *y*, *z*
C11–H11···O8	0.93	2.44	3.361(5)	172	*x*, *y*, *z*
C16–H16···O4	0.93	2.56	3.229(4)	129	*x*+1/2, –*y*+3/2, *z*–1/2
C17–H17···O10	0.93	2.41	3.275(5)	154	*x*+1, *y*, *z*
C22–H22···O15	0.93	2.52	3.286(6)	139	–*x*+1, –*y*+1, –*z*+1

2. IR spectra

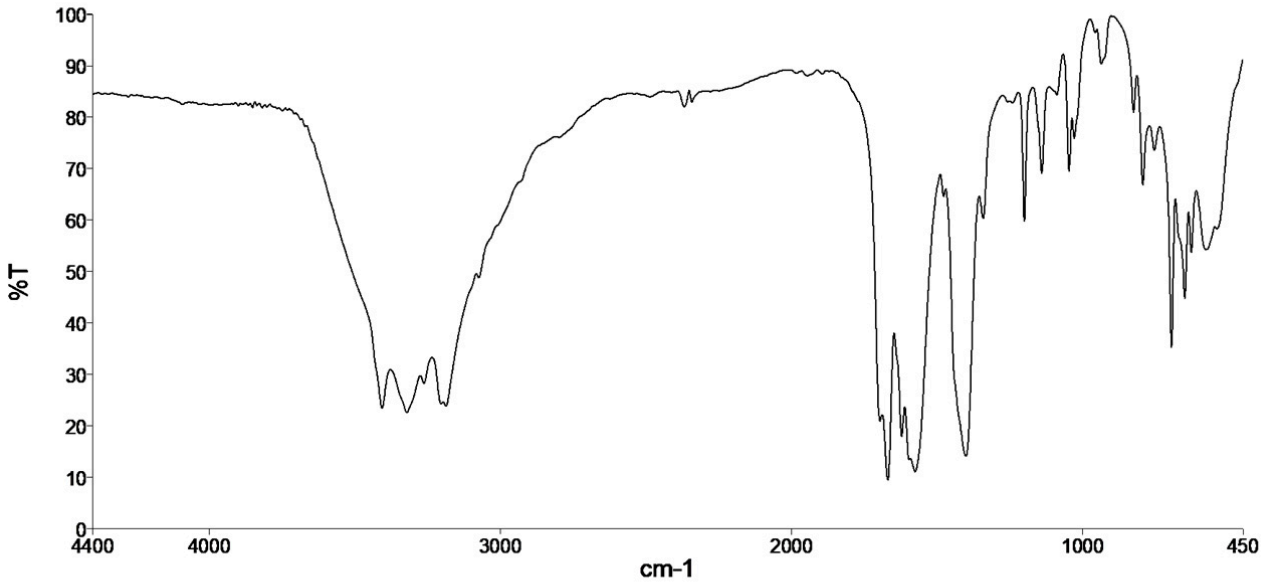

Figure S1. IR spectrum of $[Cd(CH_3COO)_2(nia)_2]_2$ (**1**).

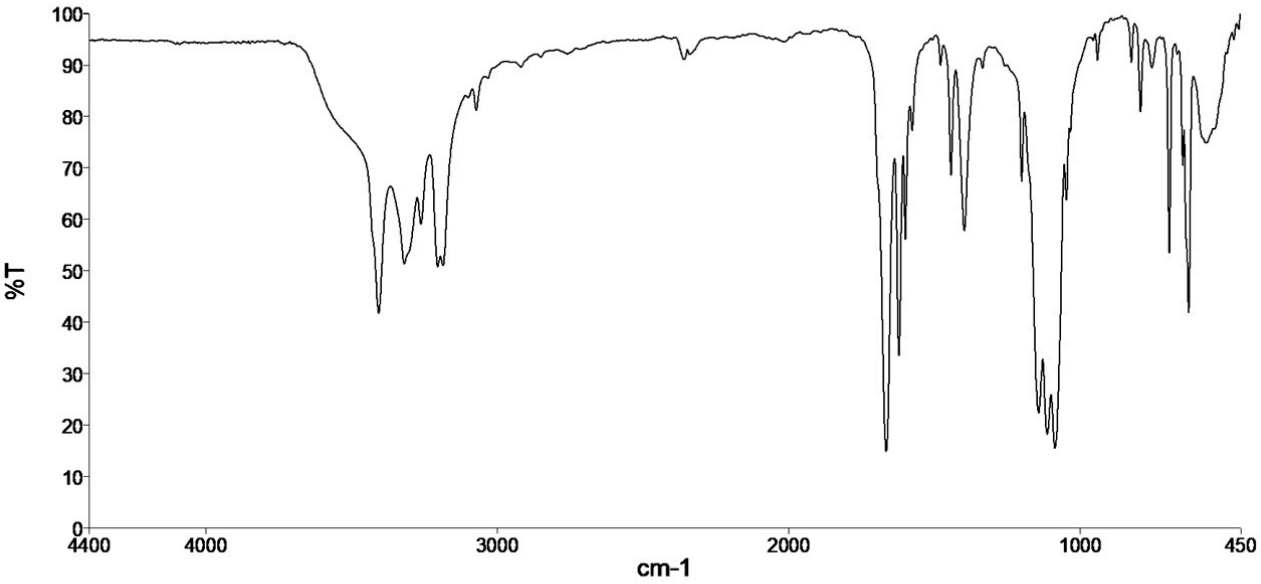

Figure S2. IR spectrum of $\{[Cd(nia)_4](ClO_4)_2\}_n$ (**2**).

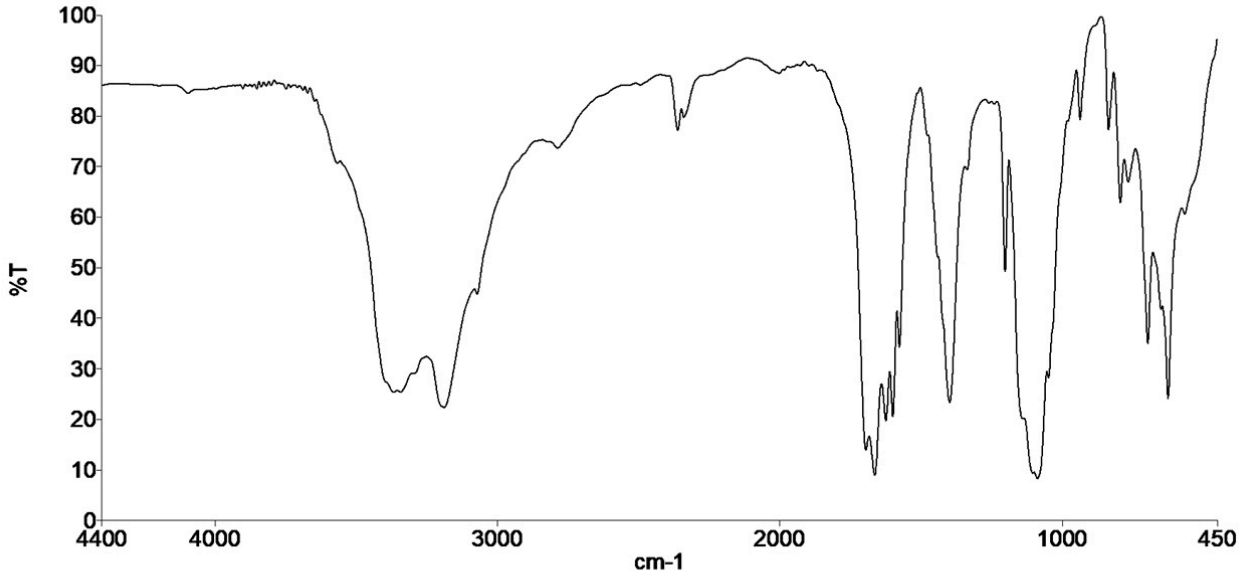

Figure S3. IR spectrum of $[Cd(H_2O)_3(nia)_3](ClO_4)_2 \cdot nia$ (**3**).

3. TGA/DTA curves

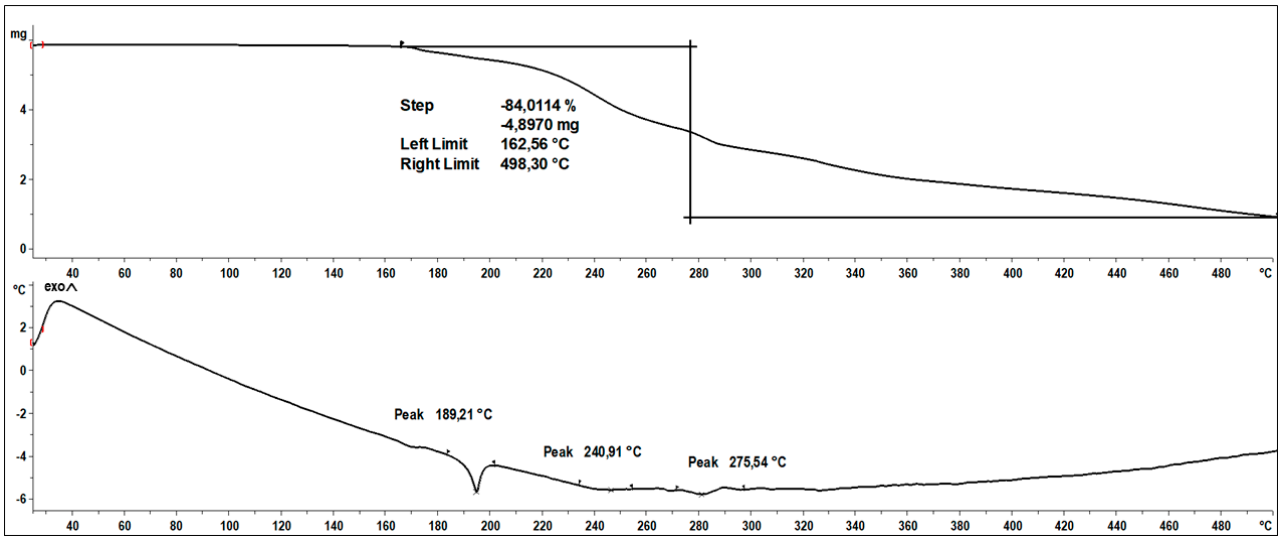

Figure S4. TGA/DTA curves of $[Cd(CH_3COO)_2(nia)_2]_2$ (**1**).

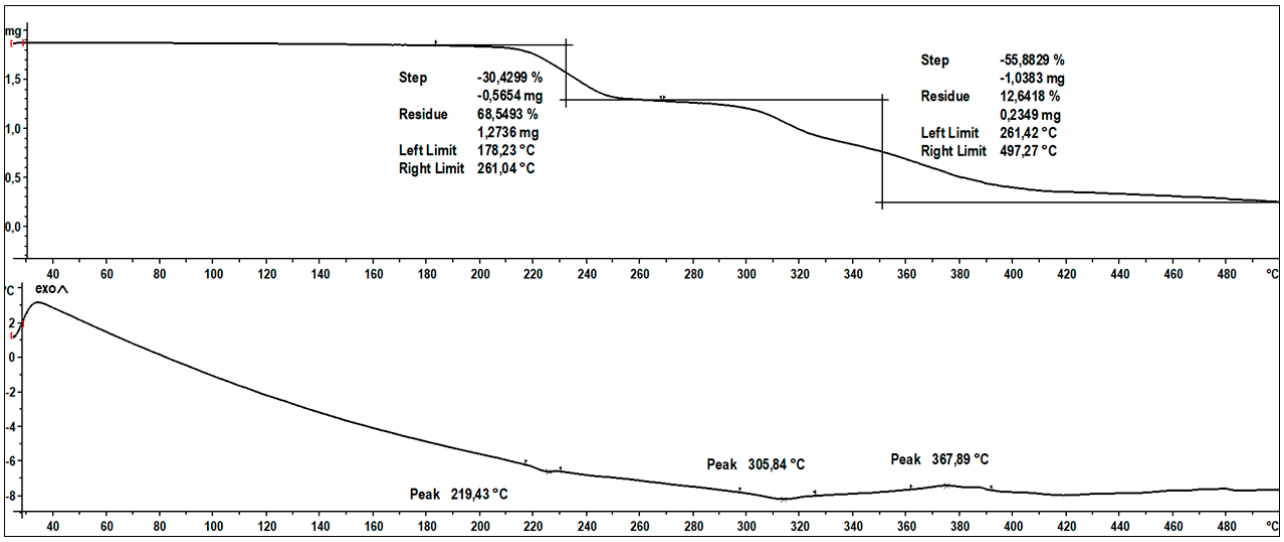

Figure S5. TGA/DTA curves of $\{[Cd(nia)_4](ClO_4)_2\}_n$ (**2**).

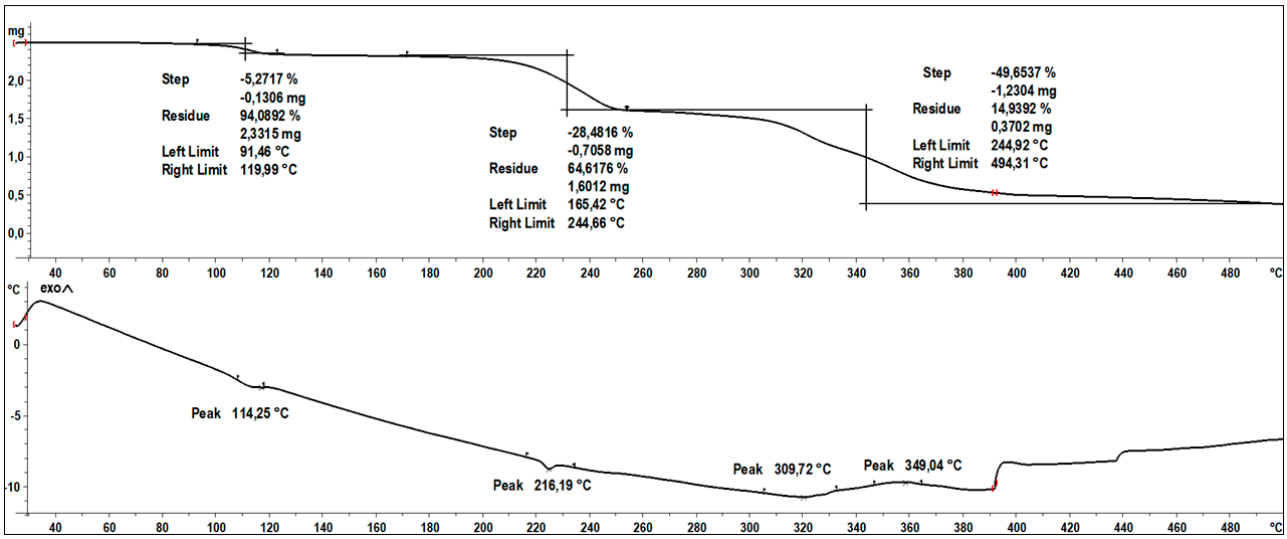

Figure S6. TGA/DTA curves of $[Cd(H_2O)_3(nia)_3](ClO_4)_2 \cdot nia$ (**3**).