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Supporting Information

Coordination polymers with pyridine-2,4,6-tricarboxylic acid and alkaline-earth/lanthanides/transition metals: Synthesis and X-ray structures

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Table S1. Selected Bond Distances (Å) and Bond Angles (^{o}) in **1 – 10**

1

Cd1–O1 2.352(3)	Cd1–O4 2.303(3)	Cd1–O2 2.356(3)
Cd1–OW1 2.349(3)	Cd1–O3 2.352(3)	Cd1–OW2 2.290(3)
Cd1–O1a 2.370(3)		

O1–Cd1–O2	69.38(9)	O1–Cd1–O3	125.72(9)
O3–Cd1–O2	73.54(9)	O4–Cd1–O1	82.33(10)
O4–Cd1–O2	106.02(9)	O4–Cd1–O3	71.38(9)
O1–Cd1–OW1	151.18(9)	O4–Cd1–OW1	89.28(10)
OW1–Cd1–O2	139.35(9)	OW1–Cd1–O3	76.38(10)
OW2–Cd1–O1	101.42(11)	OW2–Cd1–O2	78.19(10)
OW2–Cd1–O3	108.21(10)	OW2–Cd1–O4	175.24(9)
OW2–Cd1–OW1	86.03(11)	O4–Cd1–O1a	83.66(10)
O1–Cd1–O1a	70.63(11)	OW2–Cd1–O1a	94.77(10)
O2–Cd1–O1a	136.94(9)	OW1–Cd1–O1a	81.04(10)
O3–Cd1–O1a	146.24(9)		

*Atom O1a is related to O1 by the symmetry operation, 2-x, -y, 1-z

2

Cd1–OW5	2.270(9)	Cd1–N2	2.321(9)	Cd2–OW1	2.365(15)
Cd1–O5	2.346(8)	Cd1–O7	2.396(9)	Cd2–O3	2.395(9)
Cd1–OW4	2.368(9)	Cd1–O5	2.346(8)	Cd2–O1	2.409(9)
Cd1–O5	2.481(8)	Cd2–O7	2.375(8)	Cd2–O8	2.436(10)
Cd1–OW3	2.314(9)	Cd2–N1	2.277(10)	Cd2–OW2	2.595(5)

OW5–Cd1–OW3	167.0(4)	N2–Cd1–OW4	135.0(3)
O5–Cd1–OW4	84.8(3)	OW5–Cd1–O7	86.0(3)
OW5–Cd1–N2	109.3(4)	OW3–Cd1–O7	99.3(3)
OW3–Cd1–N2	83.7(3)	N1–Cd2–OW1	90.4(4)
OW5–Cd1–O5	82.9(3)	N1–Cd2–O7	154.1(3)
OW3–Cd1–O5	87.7(3)	OW1–Cd2–O7	81.8(4)
N2–Cd1–O5	135.5(3)	N1–Cd2–O3	69.8(3)
OW5–Cd1–OW4	91.9(4)	OW1–Cd2–O3	87.8(4)
OW3–Cd1–OW4	78.2(3)	O7–Cd2–O3	133.9(3)
N1–Cd2–O1	69.3(3)	O1–Cd2–O8	139.9(3)
OW1–Cd2–O1	85.3(4)	N1–Cd2–OW2	93.7(3)

O7–Cd2–O1	85.4(3)	OW1–Cd2–OW2	173.2(3)
O3–Cd2–O1	138.5(3)	O7–Cd2–OW2	92.2(3)
N1–Cd2–O8	149.4(3)	O3–Cd2–OW2	98.7(3)
OW1–Cd2–O8	84.8(4)	O1–Cd2–OW2	91.1(3)
O7–Cd2–O8	54.8(3)	O8–Cd2–OW2	94.4(3)
O3–Cd2–O8	79.7(3)		

3

Ni1–OW5	2.0466(17)	Ni2–O1	2.1499(15)	Ni1–OW4	2.0503(16)
Ni2–O3	2.1010(15)	Ni1–O6	2.0889(15)	Ni2–OW2	2.0974(17)
Ni2–N1	1.9965(18)	Ni2–N2	2.0750(18)	Ni2–OW1	2.0815(16)

OW5–Ni1–OW5	180.0 2	OW5–Ni1–OW4	87.99(6)
OW5–Ni1–OW4	92.01(6)	OW5–Ni1–OW4	92.01(6)
OW5–Ni1–OW4	87.99(6)	OW4–Ni1–OW4	180.0
OW5–Ni1–O6	89.04(6)	OW5–Ni1–O6	90.96(6)
OW4–Ni1–O6	93.88(7)	OW4–Ni1–O6	86.12(7)
OW5–Ni1–O6	90.96(6)	OW5–Ni1–O6	89.04(6)
OW4–Ni1–O6	86.12(7)	OW4–Ni1–O6	93.88(7)
O6–Ni1–O6	180.000(1)	N1–Ni2–N2	170.13(6)
N1–Ni2–OW1	94.05(7)	N2– Ni2– OW1	88.04(7)
N1–Ni2–OW2	91.63(7)	N2– Ni2– OW2	87.85(7)
OW1–Ni2–OW2	169.53(6)	O3–Ni2–O1	154.63(5)
N1–Ni2–O3	78.08(6)	N2– Ni2– O3	92.15(7)
OW1–Ni2–O3	94.98(6)	OW2– Ni2– O3	94.79(6)
N1–Ni2–O1	76.56(6)	OW2–Ni2–O1	85.75(6)
N2–Ni2–O1	113.21(6)	OW1–Ni2–O1	87.03(6)

4

Mn1–O2	2.200(5)	Mn1–O1	2.211(5)	Mn1–OW1	2.234(5)
Mn1–O3	2.264(4)	Mn1–N1	2.304(5)	Mn1–O6	2.322(5)
Mn1–O3′	2.525(5)	Mn2–O5	2.119(4)	Mn2–O4	2.257(5)
Mn2–OW2	2.144(5)				

O2–Mn1–O1	166.12(17)	O2–Mn1–OW1	80.19(18)
O1–Mn1–OW1	89.81(17)	O2–Mn1–O3	89.21(17)
O1–Mn1–O3	79.89(17)	OW1–Mn1–O3	82.47(17)
O2–Mn1–N1	91.43(18)	O1–Mn1–N1	102.37(17)

OW1–Mn1–N1	140.96(18)	O3–Mn1–N1	135.87(17)
O2–Mn1–O6	93.66(19)	O1–Mn1–O6	92.71(19)
OW1–Mn1–O6	73.60(17)	O3–Mn1–O6	155.00(17)
N1–Mn1–O6	68.94(18)	O2–Mn1–O3′	94.59(17)
O1–Mn1–O3′	89.53(16)	OW1–Mn1–O3′	151.15(16)
O3–Mn1–O3	69.03(17)	N1–Mn1–O3	66.94(16)
O6–Mn1–O3	135.24(16)	O5–Mn2–OW2	90.0(2)
O5–Mn2–OW2	90.0(2)	Mn1–O3–Mn1	110.97(17)
O5–Mn2–OW2	90.0(2)	O5–Mn2–OW2	90.0(2)
OW2–Mn2–OW2	180.000(1)	O5–Mn2–O4	94.33(19)
O5–Mn2–O4	85.67(19)	OW2–Mn2–O4	87.97(19)
OW2–Mn2–O4	92.03(19)	O5–Mn2–O4	85.67(19)
O5–Mn2–O4	94.33(19)	OW2–Mn2–O4	92.03(19)
OW2–Mn2–O4	87.97(19)	O4–Mn2–O4	180.00(19)

*Atom O3 related to O3′ by the symmetry operation -x, 2-y, 1-z.

5

N1–Mg3	2.191(6)	N2–Mg1	2.123(5)	O1–Mg1	2.200(5)
O2–Mg3	2.008(5)	O3–Mg2	2.025(5)	O5–Mg2	2.080(5)
O6–Mg1	2.185(5)	O7–Mg3	2.183(8)	O8–Mg1	2.034(7)
O11–Mg3	2.171(6)	OW1–Mg2	2.046(6)	OW2–Mg2	2.108(7)
OW3–Mg2	2.077(6)	OW4–Mg2	2.082(6)	OW5–Mg1	2.056(7)
OW6–Mg1	2.085(6)	OW7–Mg3	2.052(7)	OW8–Mg3	2.114(6)

O8– Mg1–OW5	85.7(3)	O8–Mg1–OW6	87.1(3)
OW5–Mg1–OW6	171.9(3)	O8–Mg1–N2	160.7(3)
OW5– Mg1–N2	96.9(2)	OW6–Mg1–N2	91.1(2)
O8–Mg1–O6	126.7(3)	OW5–Mg1–O6	89.8(2)
OW6–Mg1–O6	91.5(2)	N2–Mg1–O6	72.6(2)
O8–Mg1–O1	87.9(3)	OW5–Mg1–O1	94.5(3)
OW6–Mg1–O1	88.9(2)	N2–Mg1–O1	72.84(19)
O6–Mg1–O1	145.4(2)	OW8–Mg3–N1	91.7(2)
O7–Mg3–N1	71.1(3)	O11–Mg3– N1	72.4(2)
O3– Mg2–OW1	85.7(3)	OW7–Mg3–N	197.1(2)
O3–Mg2–OW3	88.4(2)	OW1–Mg2–OW3	99.5(3)
O3–Mg2–O5	165.9(2)	OW1–Mg2–O5	87.1(2)
OW3–Mg2–O5	80.8(2)	O3–Mg2–OW4	101.3(2)
OW1–Mg2–OW4	90.1(3)	OW3–Mg2–OW4	166.9(3)
O5–Mg2–OW4	90.9(2)	O3– Mg2– OW2	94.1(2)
OW1–Mg2–OW2	174.2(3)	OW3–Mg2–OW2	86.3(3)

O5–Mg2–OW2	94.2(2)	OW4–Mg2–OW2	84.2(3)
O2–Mg3–OW7	82.6(2)	O2–Mg3–OW8	88.4(2)
OW7–Mg3–OW8	171.0(2)	O2–Mg3–O11	100.6(2)
OW7–Mg3–O11	96.5(3)	OW8–Mg3–O11	84.5(3)
O2–Mg3–O7	115.8(3)	OW7–Mg3–O7	83.8(3)
OW8–Mg3–O7	100.7(3)	O11–Mg3–O7	143.3(3)
O2–Mg3–N1	173.0(3)		

6

Mg1–OW1	2.076(3)	Mg1–OW2	2.088(3)	Mg1–N1	2.152(3)
Mg1–O3	2.198(3)	Mg1–O5	2.224(3)	Mg1–O2	2.233(3)
Mg1–O4	2.251(3)	Mg2–OW5	2.039(3)	Mg2–OW5	2.039(3)
Mg2–OW3	2.047(3)	Mg2–OW4	2.048(3)		

OW1–Mg1– OW2	177.45(13)	OW1–Mg1–N1	87.56(12)
OW2–Mg1– N1	93.36(12)	OW1–Mg1–O3	92.32(12)
OW2–Mg1– O3	85.73(11)	N1–Mg1–O3	151.39(13)
OW1–Mg1– O5	98.56(12)	OW2–Mg1–O5	83.98(11)
N1–Mg1– O5	72.38(12)	O3–Mg1–O5	135.63(11)
OW1–Mg1– O2	86.48(12)	OW2–Mg1–O2	91.54(11)
N1–Mg1– O2	72.22(11)	O3–Mg1–O2	79.21(11)
O5–Mg1–O2	143.97(12)	OW1– Mg1–O4	84.07(12)
OW2–Mg1–O4	96.30(12)	N1– Mg1–O4	149.02(12)
O3–Mg1–O4	59.00(11)	O5– Mg1–O4	79.44(11)
O2–Mg1–O4	136.56(12)	OW3–Mg2–OW4	87.65(12)
OW5–Mg2–OW5	180.000(1)	OW5–Mg2–OW3	87.88(11)
OW5–Mg2–OW3	92.12(12)	OW5–Mg2–OW3	92.12(12)
OW5–Mg2– OW3	87.88(11)	OW5–Mg2–OW4	91.01(12)
OW5–Mg2–OW4	88.99(12)	OW3–Mg2–OW4	92.35(12)
OW3–Mg2–OW4	87.65(12)	OW3–Mg2–OW4	92.35(12)
OW5–Mg2–OW4	88.99(12)	OW5–Mg2–OW4	91.01(12)

7

Ca2–O3	2.322(4)	Ca2–O4	2.352(4)	Ca2–OW1	2.382(4)
Ca2–O5	2.415(4)	Ca2–O1′	2.430(4)	Ca2–N1	2.500(5)
Ca2–O1	2.551(4)	Ca1–O6	2.266(4)	Ca1–OW2	2.340(5)
Ca1–O2	2.372(4)				

O3–Ca2–O4	172.30(15)	O3–Ca2–OW1	81.91(15)
O4–Ca2–OW1	91.88(15)	O3–Ca2–O5	89.55(16)
O4–Ca2–O5	93.57(16)	OW1–Ca2–O5	77.57(15)
O3–Ca2–O1	94.51(15)	O4–Ca2–O1	80.02(14)
OW1–Ca2–O1	81.54(14)	O5–Ca2–O1	157.94(13)
O3–Ca2–N1	86.43(15)	O4–Ca2–N1	101.26(14)
OW1–Ca2–N1	140.83(15)	O5–Ca2–N1	65.02(14)
O1–Ca2–N1	136.81(14)	O3–Ca2–O1	94.96(15)
O4–Ca2–O1	88.69(14)	OW1–Ca2–O1	154.51(14)
O5–Ca2–O1	127.84(14)	O1–Ca2–O1	73.46(14)
N1–Ca2–O1	63.47(13)	O6–Ca1–O6	180.000(1)
O6–Ca1–OW2	87.92(17)	O6–Ca1–OW2	92.08(17)
O6–Ca1–OW2	92.08(17)	O6–Ca1–OW2	87.92(17)
OW2–Ca1–OW2	180.000(1)	O6–Ca1–O2	93.16(15)
O6–Ca1–O2	86.84(15)	OW2–Ca1–O2	87.75(17)
OW2–Ca1–O2	92.25(17)	O6–Ca1–O2	86.84(15)
O6–Ca1–O2	93.16(15)	OW2–Ca1–O2	92.25(17)
OW2–Ca1–O2	87.75(17)	O2–Ca1–O2	180.000(1)

*Atom O1 is related to O1' by the symmetry operation 1-x, -y, 1-z;

8

Sr1–OW5	2.544(7)	Sr1–O1	2.559(4)	Sr1–O3	2.668(4)
Sr1–N1	2.708(4)	Sr1–O6	2.713(3)	Sr2–O1	2.542(4)
Sr2–OW2	2.575(5)	Sr2–OW1	2.630(4)	Sr2–OW3	2.641(6)
Sr2–O4	2.641(4)	Sr2–OW4	2.723(7)	Sr2–OW1'	2.733(4)
Sr2–O6	2.757(4)	Sr2–O3	2.849(4)		

OW5–Sr1–O1	101.34(9)	O1–Sr1–O1	157.32(18)
OW5–Sr1–O3	139.49(8)	O1–Sr1–O3	86.00(12)
O1–Sr1–O3	76.75(12)	OW5–Sr1–O3	139.49(8)
O1'–Sr1–O3	76.75(12)	O1–Sr1–O3	86.00(12)
O3–Sr1–O3'	81.03(17)	OW5–Sr1–N1	78.07(9)
O1–Sr1–N1	60.59(12)	O1'–Sr1–N1	124.92(12)
O3–Sr1–N1	129.64(12)	O3–Sr1–N1	71.12(12)
OW5– Sr1–N1	78.07(9)	O1–Sr1–N1	60.59(12)
O3–Sr1–N1	129.64(12)	O3'–Sr1–N1	71.12(12)
OW5–Sr1–O6	72.17(9)	O1'–Sr1–O6	67.62(11)
O1–Sr1–O6	120.08(11)	O3–Sr1–O6	144.11(12)
O3–Sr1–O6	69.85(12)	N1–Sr1–O6	112.09(12)

N1–Sr1–O6	59.83(12)	OW5–Sr1–O6	72.17(9)
O1–Sr1–O6	120.08(11)	O1–Sr1–O6	67.62(11)
O3–Sr1–O6	69.85(12)	O3'–Sr1–O6	144.11(12)
N1–Sr1–O6	59.83(12)	N1–Sr1–O6'	112.09(12)
O6–Sr1–O6	144.34(17)	O1–Sr2–OW2	84.73(16)
O1–Sr2 –OW1	131.96(14)	OW2–Sr2–OW1	143.14(16)
O1–Sr2–OW3	108.24(18)	OW2–Sr2–OW3	74.9(2)
OW1–Sr2–OW3	87.69(18)	O1–Sr2–O4	116.69(11)
OW2–Sr2–O4	93.61(15)	OW1–Sr2–O4	74.32(13)
OW3–Sr2–O4	132.3(2)	O1–Sr2–OW4	73.10(18)
OW2–Sr2–OW4	130.0(2)	OW1–Sr2–OW4	70.1(2)
OW3–Sr2–OW4	70.8(3)	O4–Sr2–OW4	136.3(2)
O1–Sr2–OW1	156.50(13)	OW2–Sr2–OW1'	71.85(16)
OW1– Sr2–OW1	71.53(15)	OW3–Sr2–OW1	68.1(2)
O4–Sr2–OW1	64.41(13)	OW4–Sr2 –OW1	123.77(18)
O1–Sr2–O6	67.16(12)	OW2–Sr2–O6	133.23(15)
OW1–Sr2–O6	75.66(12)	OW3–Sr2–O6	148.0(2)
O4–Sr2–O6	69.45(12)	OW4–Sr2–O6	77.77(19)
OW1–Sr2–O6	128.71(12)	O1–Sr2–O3	73.80(11)
OW2–Sr2–O3	70.06(15)	OW1–Sr2–O3	117.93(13)
OW3–Sr2–O3	144.6(2)	O4–Sr2–O3	47.35(11)
OW4–Sr2–O3	138.47(17)	OW1–Sr2–O3	95.80(12)
O6–Sr2–O3	66.64(11)		

*Atom Ow1 is related to Ow1' by the symmetry operation 1-x, 1-y, -z;
O1, O1' and O6, O6' are related by the symmetry operation 1-x, y, 0.5-z;
O3, O3' are related by the symmetry operation -x, y, 0.5-z;

9

Ba1–O3	2.735(9)	Ba1–O6	2.783(9)	Ba1–OW2	2.797(12)
Ba1–O11	2.805(10)	Ba1–O4	2.854(10)	Ba1–O1	2.859(9)
Ba1–O9	2.887(9)	Ba1–O10	2.932(9)	Ba1–N1	2.947(10)
Ba1–O8	2.971(10)	Ba2–O10	2.692(9)	Ba2–O9	2.724(9)
Ba2–O7	2.780(8)	Ba2–O4	2.818(10)	Ba2–O3	2.826(8)
Ba2–O12	2.831(10)	Ba2–OW1	2.845(10)	Ba2–N2	2.991(9)

O3–Ba1–O6	81.2(3)	O3–Ba1–OW2	141.8(4)
O6–Ba1–OW2	108.3(4)	O3–Ba1–O11	71.3(3)
O6–Ba1–O11	152.5(3)	OW2–Ba1–O11	93.1(4)
O3–Ba1–O4	148.2(3)	O6–Ba1–O4	67.4(3)
OW2–Ba1–O4	59.0(4)	O11–Ba1–O4	140.1(3)
O3–Ba1–O1	73.4(3)	O6–Ba1–O1	110.0(3)
OW2–Ba1–O1	68.5(4)	O11–Ba1–O1	61.5(3)

O4–Ba1–O1	121.3(3)	O3–Ba1–O9	96.9(3)
O6–Ba1–O9	78.6(3)	OW2–Ba1– O9	121.1(4)
O11–Ba1–O9	105.3(3)	O4–Ba1–O9	72.7(3)
O1– Ba1–O9	165.3(3)	O3– Ba1–O10	69.4(3)
O6– Ba1–O10	108.3(3)	OW2–Ba1–O10	135.0(3)
O11–Ba1–O10	63.3(3)	O4–Ba1–O10	114.8(3)
O1–Ba1–O10	120.4(3)	O9–Ba1–O10	44.9(2)
O3–Ba1–N1	74.2(3)	O6–Ba1–N1	57.1(3)
OW2–Ba1–N1	80.5(4)	O11–Ba1–N1	112.3(3)
O4–Ba1–N1	92.0(3)	O1–Ba1–N1	53.5(3)
O9–Ba1–N1	135.5(3)	O10–Ba1–N1	142.7(3)
O3–Ba1–O8	137.9(3)	O6–Ba1–O8	126.5(3)
OW2–Ba1–O8	65.9(4)	O11–Ba1–O8	77.6(3)
O4–Ba1–O8	65.4(3)	O1–Ba1–O8	115.1(3)
O9–Ba1–O8	64.6(3)	O10–Ba1–O8	71.5(3)
N1–Ba1–O8	145.7(3)	O10–Ba2–O9	171.9(3)
O10–Ba2–O7	94.9(3)	O9–Ba2–O7	77.0(3)
O10–Ba2–O4	108.0(3)	O9–Ba2–O4	75.7(3)
O7–Ba2–O4	118.0(3)	O10–Ba2–O3	71.7(3)
O9–Ba2–O3	114.9(2)	O7–Ba2–O3	148.5(3)
O4–Ba2–O3	46.3(3)	O10–Ba2–O12	77.5(3)
O9–Ba2–O12	105.8(3)	O7–Ba2–O12	110.0(3)
O4–Ba2–O12	130.6(3)	O3–Ba2–O12	95.1(3)
O10–Ba2–OW1	121.7(3)	O9–Ba2–OW1	66.3(3)
O7–Ba2–OW1	140.3(3)	O4–Ba2– W1	67.8(3)
O3– Ba2–OW1	66.2(3)	O12–Ba2–OW1	68.3(3)
O10–Ba2–N2	83.3(3)	O9–Ba2–N2	92.6(3)
O7–Ba2 –N2	54.8(3)	O4– Ba2–N2	167.8(3)
O3–Ba2–N2	145.2(3)	O12–Ba2–N2	55.2(3)
OW1–Ba2–N2	110.7(3)		

10

Dy1–O4	2.286(8)	Dy1–O1	2.349(9)	Dy1–OW4	2.410(9)
Dy1–O3	2.427(10)	Dy1–OW1	2.434(9)	Dy1–OW2	2.453(10)
Dy1–N1	2.472(14)	Dy1–O5	2.496(9)	Dy1–O6	2.518(8)

O4–Dy1–O1	149.2(3)	O4–Dy1–OW4	96.4(3)
O1–Dy1–OW4	73.9(3)	O4–Dy1–O3	75.6(3)
O1–Dy1–O3	130.1(3)	OW4–Dy1–O3	140.6(3)
O4–Dy1–OW1	75.5(3)	O1–Dy1–OW1	95.0(3)
OW4–Dy1–OW1	144.1(3)	O3–Dy1–OW1	72.1(3)
O4–Dy1–OW2	76.6(3)	O1–Dy1–OW2	72.6(3)

OW4–Dy1–OW2	73.4(3)	O3–Dy1–OW2	137.8(3)
OW1–Dy1–OW2	70.7(3)	O4–Dy1–N1	133.2(4)
O1–Dy1–N1	65.5(4)	OW4–Dy1–N1	130.1(4)
O3–Dy1–N1	64.9(4)	OW1–Dy1–N1	69.5(4)
OW2–Dy1–N1	117.6(4)	O4–Dy1–O5	125.7(3)
O1–Dy1–O5	81.6(3)	OW4–Dy1–O5	77.2(3)
O3–Dy1–O5	77.0(3)	OW1–Dy1–O5	136.0(3)
OW2–Dy1–O5	145.1(3)	N1–Dy1–O5	69.3(4)
O4–Dy1–O6	74.5(3)	O1–Dy1–O6	126.0(3)
OW4–Dy1–O6	70.2(3)	O3–Dy1–O6	70.6(3)
OW1–Dy1–O6	136.6(3)	OW2–Dy1–O6	129.8(3)
N1–Dy1–O6	112.2(4)	O5–Dy1–O6	52.4(3)

Table S2. Geometrical parameters of H-bonds (Å, deg) for the water hexamer[a].

Ow3···Ow1	2.839 (7)	Ow3···H1W3··Ow1	167.89(6)
Ow2···Ow3	2.720(9)	Ow2···H2W2··Ow3	154.59(6)
Ow2···Ow2'	3.033(7)	Ow2···H1W2··Ow2'	107.23(5)
Ow1···O3	2.680(8)	Ow1···Ow3··Ow2	101.22(13)
Ow1···O2	2.675(7)	Ow1···H1W1··O2	159.98(5)
Ow3···O4	2.887(6)	Ow1···H2W1··O3	156.50(4)
Cd1···Ow2	2.290(6)	Ow3···H2W3··O4	167.05(4)
Cd1···Ow1	2.349(8)	Ow3···Ow2··Ow2'	141.01(15)

[a]Please refer to Figure 2 for atom designation.

Table S3. H-bonding distances (Å) and angles ([o]) in **5**[a].

Ow3···O11	2.861(9)	Ow3···H1W3···O11	143.86(4)
Ow3···O1	2.937(9)	Ow3···H2W3···O1	144.71(6)
Ow1···O11′	2.957(11)	Ow1···H2W1···O11′	162.06(15)
Ow1···O8	2.890(12)	Ow1···H1W1···O8	176.35(7)
Ow2···O12	2.767(11)	Ow2···H1W2···O12	172.95(5)
Ow4···O6	2.785(11)	Ow4···H2W4···O6	136.78(3)
Ow4···O9	2.847(9)	Ow4···H1W4···O9	169.42(8)
Ow5···O4	2.949(11)	Ow5···H1W5···O4	175.00(7)
Ow5···O12	2.707(12)	Ow5···H2W5···O12	161.32(8)
Ow6··O10	2.805(12)	Ow6···H1W6···O10	169.68(8)
Ow6··O3	3.139(10)	Ow6···H2W6···O3	156.54(8)

Ow7··O4′	2.780(11)	Ow7···H2W7···O4′	169.94(7)
Ow7··O9	2.956(10)	Ow7···H1W7···O9	156.24(10)
Ow8··O5	2.940(1)	Ow8···H1W8···O5	137.33(3)
Ow8··O10	2.771(9)	Ow8···H2W8···O10	155.82(13)

*Atom O4 is related to O4′ by the symmetry operation, x, -1+y, z
*Atom O10 is related to O10′ by the symmetry operation, 0.5+x, -0.5-y, 0.5+z
*Atom O11 is related to O11′ by the symmetry operation, x, 1+y, z

[a]Please refer to Figure S2 for atom designation.

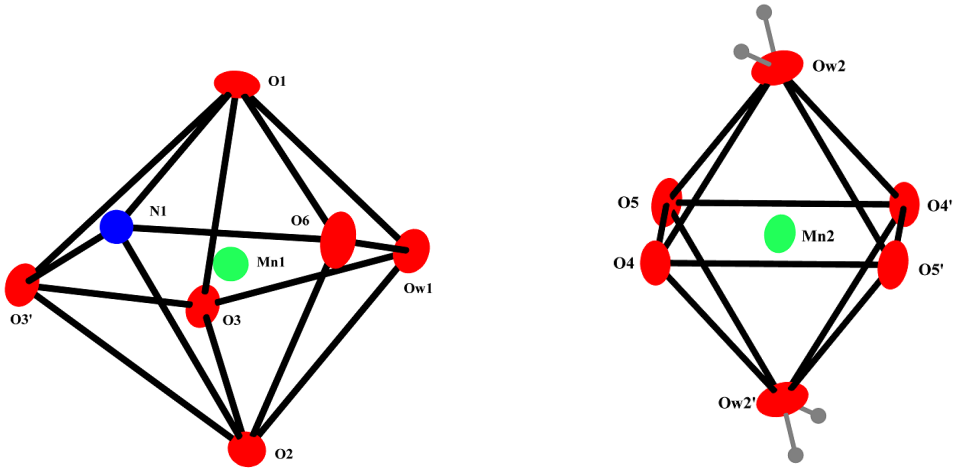

Fig. S1: Coordination polyhedron around Mn metals in **4**.

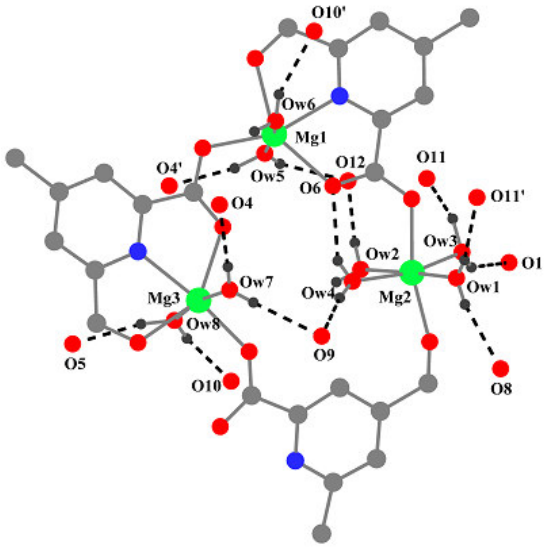

Fig. S2: Hydrogen bonding interactions in **5**.

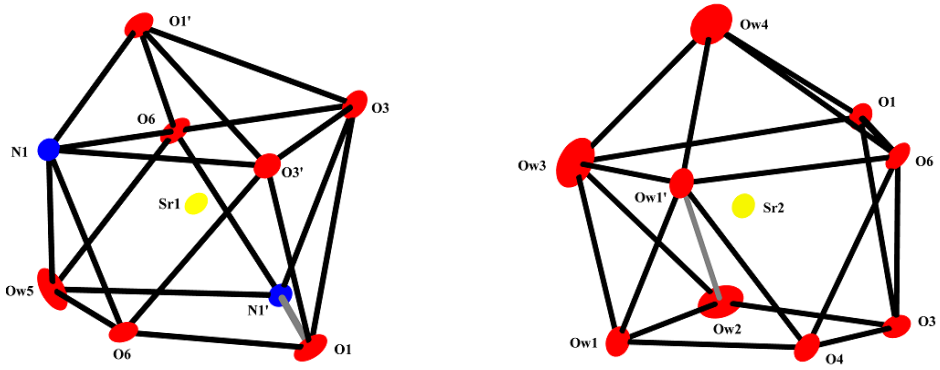

Fig. S3: Coordination polyhedron around Sr metals in **8**.

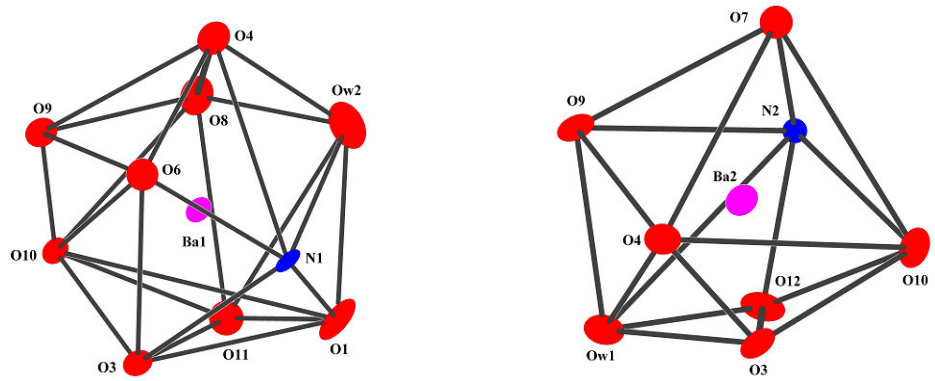

Fig. S4 Coordination polyhedron around Ba metals in **9**.

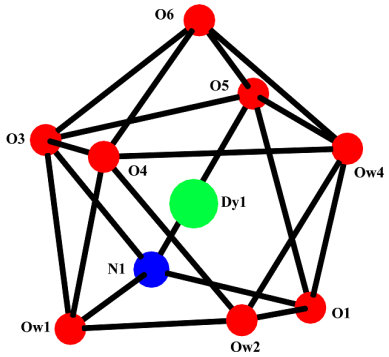

Fig. S5: Coordination polyhedron around Dy metal in **10**.