

**Table S1**

Selected bond lengths (Å) and bond angles (°) for  $[\text{Co}_{0.14}\text{Ni}_{1.86}(\text{dipic})_2(\text{phen})_2(\text{H}_2\text{O})_2] \cdot 4\text{H}_2\text{O}(\mathbf{1})$ .

Bond Lengths		Bond Angles	
Ni1 Co1—O2	2.0909(18)	O2—Ni1 Co1—O1	86.69(6)
Ni1 Co1—O1	2.0856(14)	O2—Ni1 Co1—N1	96.23(7)
Ni1 Co1—N1	2.0794(18)	O2—Ni1 Co1—N2	91.29(7)
Ni1 Co1—N2	2.0807(16)	O2—Ni1 Co1—N3	176.37(7)
Ni1 Co1—N3	2.073(2)	O2—Ni1 Co1—N4	88.33(7)
Ni1 Co1—N4	2.0665(18)	O1—Ni1 Co1—N1	86.65(6)
Ni2 Co2—N5	1.9717(18)	O1—Ni1 Co1—N2	176.85(6)
Ni2 Co2—N6	1.9754(19)	O1—Ni1 Co1—N3	91.87(6)
Ni2 Co2—O4b	2.019(6)	O1—Ni1 Co1—N4	97.29(6)
N1—C12	1.368(3)	N1—Ni1 Co1—N2	95.98(7)
N1—C1	1.325(4)	N1—Ni1 Co1—N3	80.35(8)
N2—C22	1.323(3)	N1—Ni1 Co1—N4	174.16(8)
N2—C23	1.357(3)	N2—Ni1 Co1—N3	90.31(7)
N3—C11	1.360(3)	N2—Ni1 Co1—N4	80.22(7)
N5—C36	1.336(3)	N3—Ni1 Co1—N4	95.16(8)
N5—C32	1.328(3)	N5—Ni2 Co2—N6	173.90(8)
N4—C24	1.350(2)	N5—Ni2 Co2—O4b	80.3(2)
N6—C29	1.329(3)	N6—Ni2 Co2—O4b	105.0(2)

**Table S2**Hydrogen bonds parameters for  $[\text{Co}_{0.14}\text{Ni}_{1.86}(\text{dipic})_2(\text{phen})_2(\text{H}_2\text{O})_2] \cdot 4\text{H}_2\text{O}(\mathbf{1})$ .

D—H···A	d(D—H)	d(H···A)	d(D···A)	<(DHA)
C3—H1c3—O3c <sup>i</sup>	0.9600	2.4700	3.260(10)	139.620
C13—H1c13—O8 <sup>ii</sup>	0.9600	2.2900	3.082(2)	138.780
C2—H1c2—O7a <sup>iii</sup>	0.9600	2.4300	3.339(5)	158.120
O10—H1o10—O3a	0.836(14)	1.862(14)	2.696(3)	175.(5)
O2—H1o2—O7 <sup>iv</sup>	0.85(2)	1.86(3)	2.700(3)	173.(2)
O1—H1o1—O6 <sup>ii</sup>	0.85(3)	1.95(3)	2.794(2)	174.(3)
O11—H1o11—O5 <sup>v</sup>	0.84(2)	1.90(2)	2.719(2)	167.(3)
O1—H2o1—O13 <sup>ii</sup>	0.85(4)	1.95(4)	2.778(3)	167.(3)
O2—H2o2—O8 <sup>vi</sup>	0.848(17)	1.883(18)	2.727(2)	174.(3)
O13—H1o13—O3b <sup>vii</sup>	0.84(3)	2.08(3)	2.806(7)	144.(2)
O13—H1o13—C31b <sup>vii</sup>	0.84(3)	2.47(3)	3.300(5)	172.(3)
O9—H1o9—O4a	0.84(2)	2.05(2)	2.859(3)	161.(4)
O16—H1o16—O12	0.84(4)	2.05(4)	2.794(4)	148.(3)
O16a—H1o16a—O12	0.97(5)	2.05(4)	2.729(9)	125.(3)

Symmetry codes: (i) -x, 1-y, 1-z; (ii) -1+x, 1+y, z; (iii) 1-x, 1-y, 1-z; (iv) x, 1+y, z;

(v) 1-x, -y, 1-z; (vi) 1-x, 1-y, -z; (vii) 1+x, y, z; (viii) -1+x, y, z.