SUPPORTING INFORMATION

Structural Factors Governing the Formation of Extended Structures in Group 10 and 12 Metal-Dithiolenes

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Table S1. Selected Coordination bond distances (Å) and angles (º) for compound **1**.

Ni-S1	2.1666(11)	Na-S1	3.020(2)
Ni-S2	2.1604(11)	Na-S2^{i}	3.068(2)
		Na-O11	2.279(4)
S1-Ni-S1^{i}	180.00(-)	Na-O21	2.288(4)
S1-Ni-S2	92.03(4)	Na-O31	2.286(4)
S1-Ni-S2^{i}	87.97(4)		
S2-Ni-S2^{i}	180.00(-)	Ni···Na	2.9484(18)

Symmetry codes: (i) -x, -y, -z+1.

Table S2. Selected Coordination bond distances (Å) and angles (º) for compound **2**.

Ni-S1	2.1723(6)	Na1-S1	2.8988(10)
Ni-S2	2.1769(6)	Na1-S3^{i}	3.0117(11)
Ni-S3	2.1812(6)	Na1-O1	2.296(2)
Ni-S4	2.1680(6)	Na1-O1w	2.462(2)
		Na1-O2w	2.3786(19)
S1-Ni-S2	91.14(2)	Na1-O3w	2.3822(18)
S1-Ni-S3	89.57(2)	Na2-S4^{ii}	2.9057(12)
S1-Ni-S4	177.79(3)	Na2-O2	2.296(2)
S2-Ni-S3	179.18(3)	Na2-O1w	2.341(2)
S2-Ni-S4	88.36(2)	Na2-O2w	2.400(2)
S3-Ni-S4	90.92(2)	Na2-O3w	2.439(2)

Symmetry codes: (i) -x+3/2, y+1/2, -z+3/2; (ii) x, -y+1, z+1/2

Table S3. Selected Coordination bond distances (Å) and angles (º) for compound **3**.

Ni-S1	2.1430(7)	Na-O1	2.364(4)
Ni-S2	2.1541(8)	Na-O2	2.360(2)
		Na-O3	2.337(3)
S1-Ni-S1i	180.0	Na-O4	2.440(2)
S1-Ni-S2	92.16(3)		
S1-Ni-S2i	87.84(3)	O1-Na-O2	89.01(7)
S2-Ni-S2i	180.0	O1-Na-O3	180.0
		O1-Na-O4	91.67(7)
		O2-Na-O2ii	178.02(15)
		O2-Na-O3	90.99(7)
		O2-Na-O4	90.99(7)
		O2-Na-O4ii	90.95(8)
		O2ii-Na-O4	89.11(8)
		O3-Na-O4	88.33(7)
		O4-Na-O4ii	176.67(14)

Symmetry codes: (i) -x+1/2, -y+3/2, -z; (ii) –x+1, y, -z+3/2.

Table S4. Selected Coordination bond distances (Å) and angles (º) for compound **4**.

Ni1-S1	2.1605(17)	Ni2-S2	2.3110(12)
Ni1-S2	2.1643(13)	Ni2-S3	2.2870(13)
Ni1-S3	2.1532(16)	Ni2-S5	2.1717(13)
Ni1-S4	2.1735(15)	Ni2-S5^{i}	2.3679(12)
S1-Ni1-S2	92.62(6)	Ni2-S6	2.1797(11)
S1-Ni1-S3	166.70(6)	S2-Ni2-S3	77.68(5)
S1-Ni1-S4	91.08(6)	S2-Ni2-S5	93.18(5)
S2-Ni1-S3	83.81(5)	S2-Ni2-S5i	98.65(4)
S2-Ni1-S4	175.63(7)	S2-Ni2-S6	151.80(5)
S3-Ni1-S4	92.06(6)	S3-Ni2-S5	168.58(5)
		S3-Ni2-S5i	91.97(5)
Ni1⋯Ni2	2.7158(8)	S3-Ni2-S6	93.03(5)
N12⋯Ni2^{i}	3.0361(11)	S5-Ni2-S5i	96.21(4)
		S5-Ni2-S6	91.94(4)
		S5i-Ni2-S6	108.32(5)
Na1-S1	3.157(2)	Na1-O1	2.309(3)
Na1-S4	2.943(2)	Na1-O2	2.357(4)
Na1-S6	3.273(2)	Na1-O3	2.287(4)

Symmetry codes: (i) -x+1, -y+1, -z+1.

Table S5. Selected coordination bond distances (Å) and angles (º) for compound **5**.

Ni1-S1	2.1608(14)	Na1-S2^{i}	2.934(2)
Ni1-S2	2.1642(13)	Na1-O1	2.365(4)
Ni1-S3	2.1890(13)	Na1-O2^{i}	2.429(3)
Ni1-S4	2.1210(13)	Na1-O5	2.307(5)
S1-Ni1-S2	91.89(5)	Na1-O6	2.464(4)
S1-Ni1-S3	89.07(5)	Na1-O1w^{ii}	2.512(4)
S1-Ni1-S4	176.98(6)	Na2-S2^{iii}	3.007(2)
S2-Ni1-S3	172.84(6)	Na2-O1^{iii}	2.450(3)
S2-Ni1-S4	88.62(5)	Na2-O2	2.342(4)
S3-Ni1-S4	90.80(5)	Na2-O6^{iii}	2.488(4)
		Na2-O7	2.299(5)
Ni2-S5	2.1617(13)	Na2-O1w	2.393(4)
Ni2-S6	2.1663(14)	Na3-S5^{iv}	2.942(2)
Ni2-S7	2.1200(13)	Na3-O3	2.337(4)
Ni2-S8	2.1913(14)	Na3-O4^{iv}	2.467(3)
S5-Ni2-S6	91.43(5)	Na3-O8	2.294(5)
S5-Ni2-S7	88.31(5)	Na3-O9	2.459(4)
S5-Ni2-S8	172.59(6)	Na3-O2w^{ii}	2.534(4)
S6-Ni2-S7	176.97(6)	Na4-S5^{v}	2.941(2)
S6-Ni2-S8	89.84(5)	Na4-O3^{v}	2.418(3)
S7-Ni2-S8	90.80(5)	Na4-O4	2.332(4)
		Na4-O9^{v}	2.490(4)
		Na4-O10	2.297(4)
		Na4-O2w	2.433(4)

Symmetry codes: (i) -x+3/2, y+1/2, -z+3/2; (ii) x, y+1, z; (iii) -x+3/2, y-1/2, -z+3/2; (iv) -x+3/2, y+1/2, -z+1/2; (v) -x+3/2, y-1/2, -z+1/2.

Table S6. Selected coordination bond distances (Å) and angles (º) for compound **6**.

Hg-S1	2.4724(17)	Na1-S1^{i}	2.915(3)
Hg-S2	2.5344(16)	Na1-O2	2.706(6)
Hg-S3	2.4443(18)	Na1-O3	2.288(6)
Hg-S4	2.6203(15)	Na1-O1w	2.319(5)
S1-Hg-S2	86.01(5)	Na1-O2w	2.391(5)
S1-Hg-S3	135.42(6)	Na1-O3w	2.413(5)
S1-Hg-S4	117.68(5)	Na2-S2	2.816(3)
S2-Hg-S3	119.04(6)	Na2-S4	3.505(3)
S2-Hg-S4	117.04(5)	Na2-O1	2.291(5)
S3-Hg-S4	84.93(5)	Na2-O2w	2.309(6)
		Na2-O3w	2.421(5)
		Na1⋯Na2	3.260(4)

Symmetry codes: (i) –x+1, y+1/2, -z+1/2.

Table S7. Selected coordination bond distances (Å) and angles (º) for compound **7**.

Hg1-S1	2.387(2)	K1-S2	3.373(3)
Hg1-S3	2.482(2)	K1-S3	3.291(3)
Hg1-S4	2.413(2)	K1-S5^{i}	3.330(3)
S1-Hg1-S3	131.67(8)	K1-O1	2.691(7)
S1-Hg1-S4	139.21(9)	K1-O2	2.737(8)
S3-Hg1-S4	88.92(9)	K1-O3	2.675(8)
Hg2-S2	2.396(2)	K2-S1	3.345(3)
Hg2-S5	2.485(2)	K2-S3^{ii}	3.327(3)
Hg2-S6	2.433(2)	K2-S5	3.290(3)
S2-Hg2-S5	134.64(8)	K2-O4	2.692(7)
S2-Hg2-S6	136.64(8)	K2-O5	2.760(9)
S5-Hg2-S6	88.65(8)	K2-O6	2.644(7)

Symmetry codes: (i) –x, -y+1, -z+1; (ii) –x+1, -y+1, -z+1.

Table S8. Selected coordination bond distances (Å) and angles (º) for compound **8**.

Zn-S1	2.3179(9)	Na1-S2^{i}	3.373(3)
Zn-S2	2.3229(9)	Na1-S4	3.291(3)
Zn-S3	2.3258(10)	Na1-O1	2.275(3)
Zn-S4	2.3143(10)	Na1-O1w	2.400(3)
S1-Zn-S2	93.11(3)	Na1-O2w	2.374(2)
S1-Zn-S3	118.41(4)	Na1-O3w^{i}	2.702(3)
S1-Zn-S4	119.06(4)		
S2-Zn-S3	119.90(4)	Na2-S1^{ii}	2.9712(17)
S2-Zn-S4	116.15(4)	Na2-S3^{iii}	2.9410(17)
S3-Zn-S4	92.55(3)	Na2-O2	2.373(3)
		Na2-O1w	2.439(3)
		Na2-O2w	2.423(3)
		Na2-O3w	2.594(3)

Symmetry codes: (i) x, -y+3/2, z-1/2, (ii) x+1, y, z; (iii) x+1, -y+3/2, z-1/2.

Table S9. Selected coordination bond distances (Å) and angles (º) for compound **9**.

Zn-S1	2.3068(6)	K1-S2	3.6463(7)
Zn-S2	2.3070(5)	K1-S4	3.2713(7)
Zn-S3	2.3170(6)	K1-O1	2.6671(16)
Zn-S4	2.3197(5)	K1-O1w	2.6965(18)
S1-Zn-S2	93.47(2)	K1-O1w^{i}	2.7368(18)
S1-Zn-S3	122.25(2)	K1-C22^{i}	3.362(2)
S1-Zn-S4	116.07(2)	K1-C23^{i}	3.263(2)
S2-Zn-S3	113.94(2)	K1-C24^{i}	3.354(2)
S2-Zn-S4	120.06(2)		
S3-Zn-S4	93.365(19)	K2-S1^{ii}	3.2093(6)
		K2-S2^{iii}	3.4229(7)
		K2-S3^{iii}	3.2851(6)
		K2-S4	3.1622(6)
		K2-O2	2.7917(15)
		K2-O2^{ii}	2.8228(15)

Symmetry codes: (i) –x+1, -y+1, -z+2; (ii) –x+1, -y+1, -z+1; (iii) –x+1, y+1/2, -z+3/2.

Table S10. Selected coordination bond distances (Å) and angles (º) for compound **10**.

Ni-S1	2.1956(16)	Hg-S1	2.4166(15)
Ni-S2	2.2039(17)	Hg-S2i	2.5495(15)
Ni-S3	2.1631(18)	Hg-S4i	2.8608(16)
Ni-S4	2.1715(16)	Hg-O1	2.472(5)
S1-Ni-S2	91.63(6)	S1-Hg-S2i	160.15(5)
S1-Ni-S3	88.60(6)	S1-Hg-S4i	123.73(5)
S1-Ni-S4	179.08(7)	S1-Hg-O1	93.65(11)
S2-Ni-S3	174.08(7)	S2i-Hg-S4i	67.89(5)
S2-Ni-S4	87.74(6)	S2i-Hg-O1	98.32(12)
S3-Ni-S4	91.95(6)	S4i-Hg-O1	105.77(12)
Ni···Hgi	2.6568(8)		

Symmetry codes: (i) –x+1, -y+1, -z+1.

Table S11. Selected coordination bond distances (Å) and angles (º) for compound **11**.

Ni1-S1	2.1726(18)	Hg1-S1	2.4989(19)
Ni1-S2	2.1864(18)	Hg-S2ii	2.654(2)
Ni1-S3	2.1745(18)	Hg1-S3ii	2.7875(19)
Ni1-S4	2.1481(19)	Hg1-Cl5	2.471(2)
S1-Ni-S2	91.53(7)		
S1-Ni-S3	178.37(9)	S1-Hg1-S2ii	142.38(6)
S1-Ni-S4	88.95(7)	S1-Hg1-S3ii	124.05(5)
S2-Ni-S3	88.32(7)	S1-Hg1-Cl5	104.32(7)
S2-Ni-S4	178.89(10)	S2ii-Hg1-S3ii	67.83(5)
S3-Ni-S4	91.24(7)	S2ii-Hg1-Cl5	104.86(7)
		S3ii-Hg1-Cl5	107.08(6)
Ni1-Hg1^{ii}	2.7425(10)		
Ni2-O1w	1.983(8)	Ni2-O2w	1.984(8)
Ni2-O3	2.046(7)		
O1w-Ni2-O1wi	180.0	O2w-Ni2-O2wi	180.0
O1w-Ni2-O2w	87.9(6)	O2w-Ni2-O3	92.7(4)
O1w-Ni2-O2wi	92.1(6)	O2w-Ni2-O3i	87.3(4)
O1w-Ni2-O3	87.3(3)	O3-Ni2-O3i	180.0
O1w-Ni2-O3i	92.7(3)		

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