Electronic Supplementary Material (ESI) for CrystEngComm.

Supplementary Information

Bottom-up approach for the preparation of hybrid nanosheets based on coordination polymers made of metal-diethyloxaloacetates complexes linked by 4,4'-bipyridine

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Table S1. Selected bond lengths [Å] and angles [°] for $[Cu(deox)_2(H_2O)]$.

Cu(1)-O(19)	1.919(2)
Cu(1)-O(12)	1.930(2)
Cu(1)-O(14A)	1.9425(19)
Cu(1)-O(24A)	1.954(2)
Cu(1)-O(1)	2.298(2)
O(19)-Cu(1)-O(12)	88.12(8)
O(19)-Cu(1)-O(14A)	168.65(9)
O(12)-Cu(1)-O(14A)	92.87(8)
O(19)-Cu(1)-O(24A)	92.45(8)
O(12)-Cu(1)-O(24A)	172.72(9)
O(14A)-Cu(1)-O(24A)	85.16(8)
O(19)-Cu(1)-O(1)	91.90(9)
O(12)-Cu(1)-O(1)	97.40(9)
O(14A)-Cu(1)-O(1)	99.17(9)
O(24A)-Cu(1)-O(1)	89.83(9)

Table S2. Selected bond lengths [Å] and angles [°] for $[Co(deox)_2(tbpy)_2]\cdot H_2O$.

Co(1)-O(1)	2.026(2)
Co(1)-O(1)#1	2.026(2)
Co(1)-O(4)	2.086(2)
Co(1)-O(4)#1	2.086(2)
Co(1)-N(1)	2.183(3)
Co(1)-N(1)#1	2.183(3)
O(1)-Co(1)-O(1)#1	94.61(13)
O(1)-Co(1)-O(4)	89.74(9)
O(1)#1-Co(1)-O(4)	175.23(9)
O(1)-Co(1)-O(4)#1	175.23(9)
O(1)#1-Co(1)-O(4)#1	89.74(9)
O(4)-Co(1)-O(4)#1	85.97(12)
O(1)-Co(1)-N(1)	90.11(10)
O(1)#1-Co(1)-N(1)	89.58(10)
O(4)-Co(1)-N(1)	88.47(10)
O(4)#1-Co(1)-N(1)	91.87(10)
O(1)-Co(1)-N(1)#1	89.58(10)
O(1)#1-Co(1)-N(1)#1	90.11(10)
O(4)-Co(1)-N(1)#1	91.87(10)
O(4)#1-Co(1)-N(1)#1	88.47(10)
N(1)-Co(1)-N(1)#1	179.53(15

Symmetry transformations used to generate equivalent atoms: #1 -x,-y+1,z

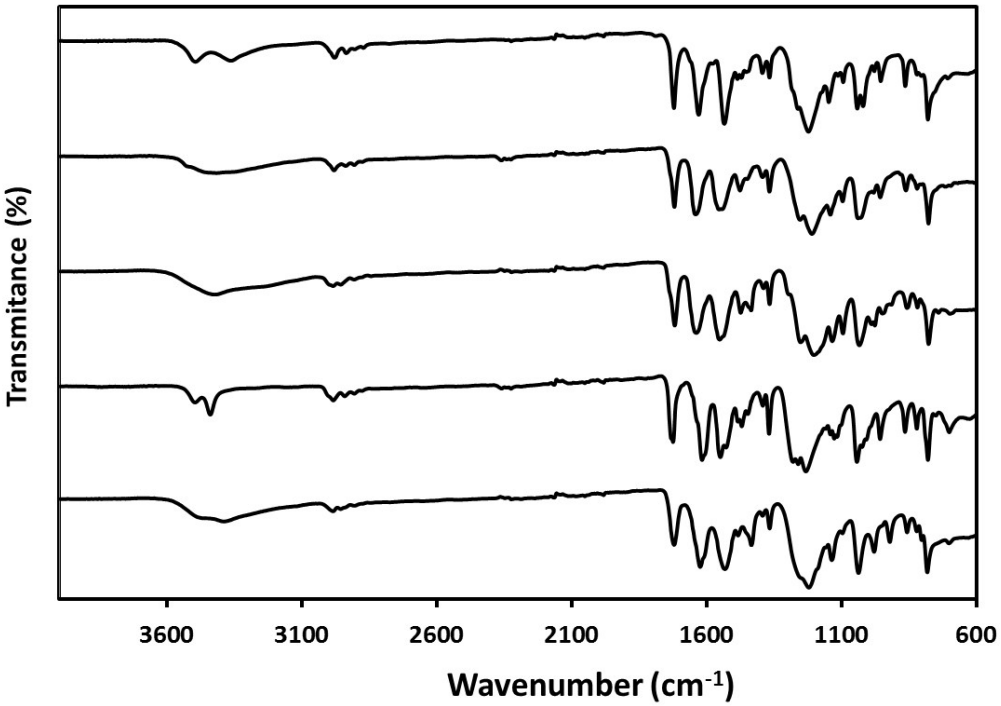

Fig. S1. ATR-FTIR recorded spectra of $[M(deox)_2(H_2O)_n]$ (M = Cu, n=1; M = Co, Mn, Ni, Zn; n=2). From bottom to top, M= Co, Cu, Mn, Ni and Zn respectively.

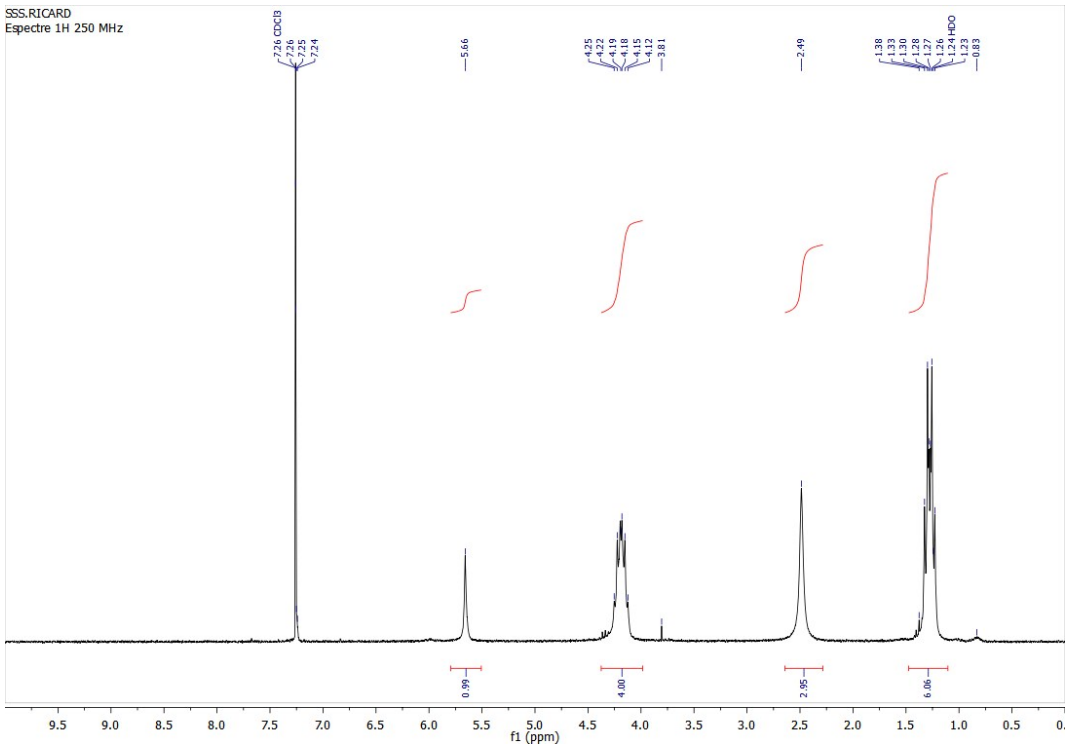

Fig. S2. ^{1}H- NMR of $[Zn(deox)_2(H_2O)_2]$ measured in $CDCl_3$.

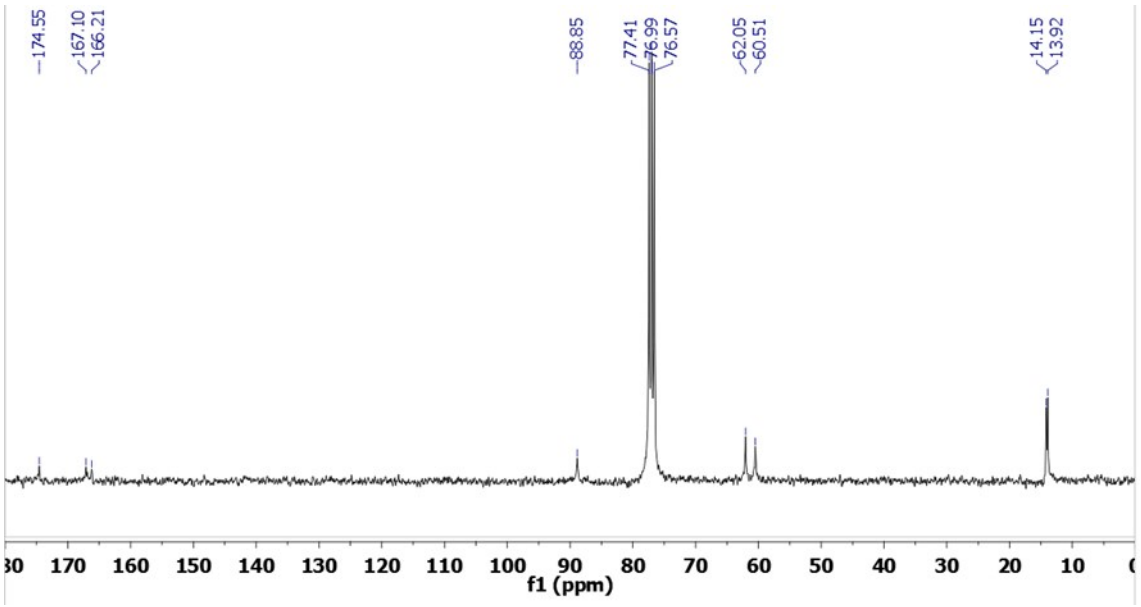

Fig. S3. ^{13}C- NMR of $[Zn(deox)_2(H_2O)_2]$ measured in $CDCl_3$.

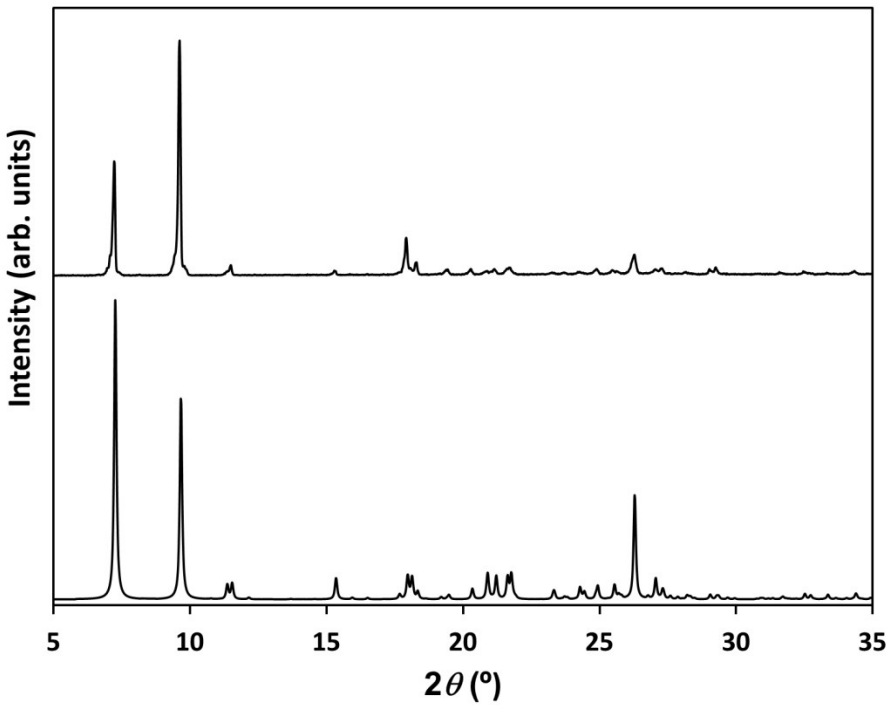

Fig. S4. X-ray diffractograms of $[Cu(deox)_2(H_2O)]\cdot$(up) measured at room temperature. Calculated pattern from resolved crystal structure is also included (down) as a reference.

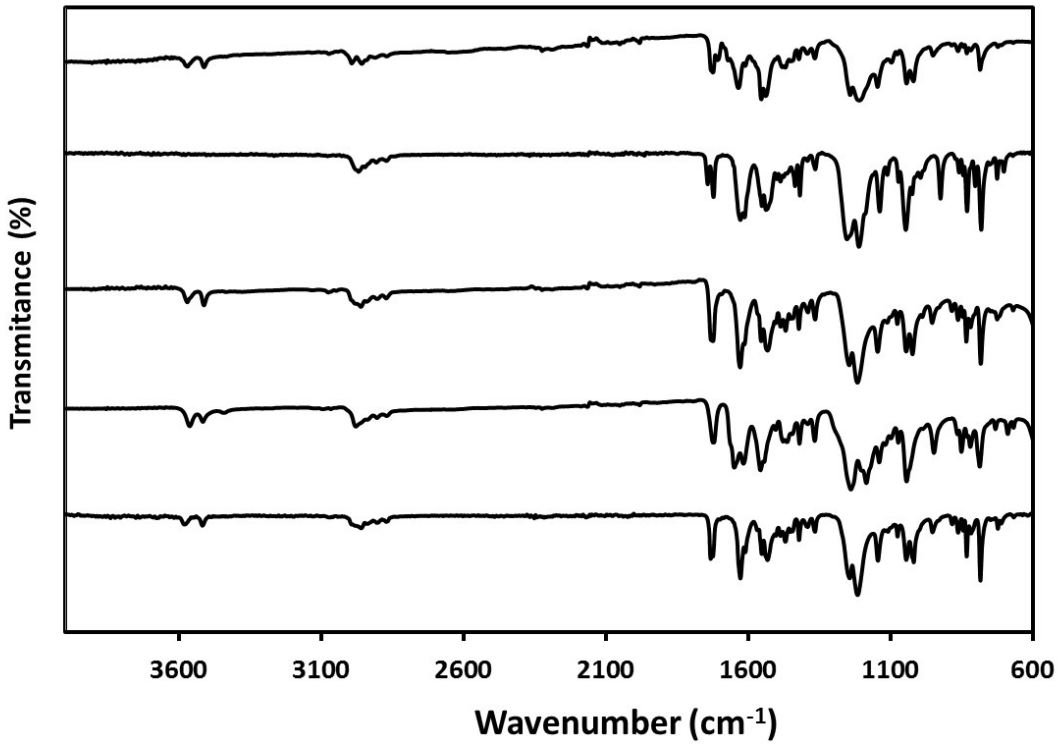

Fig. S5. ATR-FTIR recorded spectra of $[M(deox)_2(tbpy)_2] \cdot nH_2O$ (M = Cu, n=1; M = Co, Mn, Ni, Zn; n=2). From bottom to top, M= Co, Cu, Mn, Ni and Zn respectively.

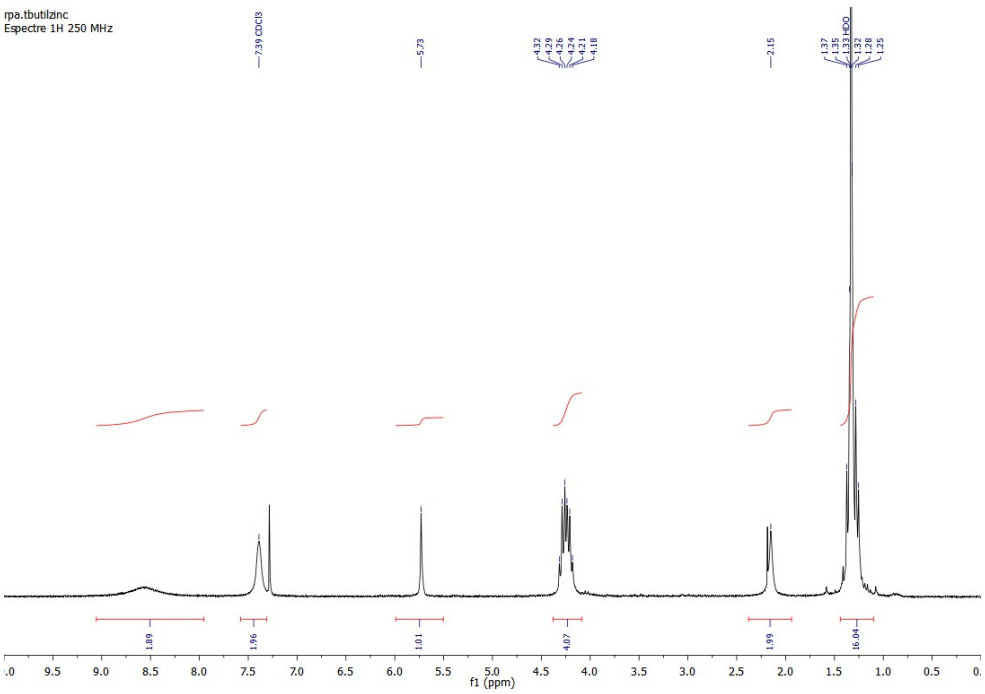

Fig. S6. ^{1}H-NMR of [Zn(deox)$_2$(tbpy)$_2$] 2H$_2$O measured in CDCl$_3$.

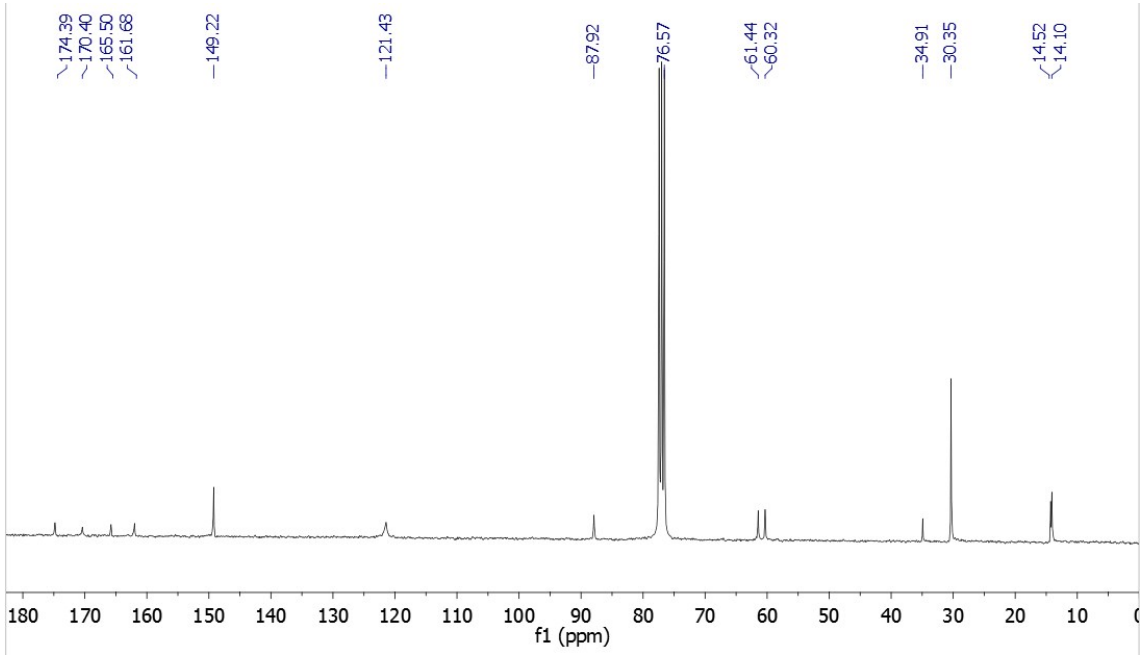

Fig. S7. ^{13}C-NMR of [Zn(deox)$_2$(tbpy)$_2$] 2H$_2$O measured in CDCl$_3$.

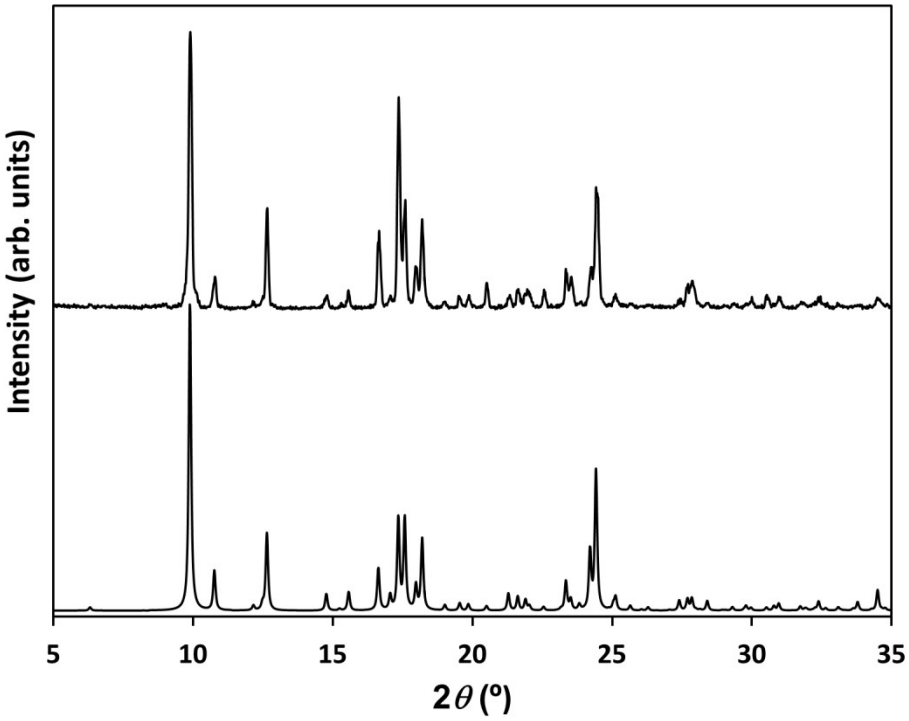

Fig. S8. X-ray diffractograms of $[Co(deox)_2(tbpy)_2]\cdot H_2O$ (up) measured at room temperature. Calculated pattern from resolved crystal structure is also included (down) as a reference.

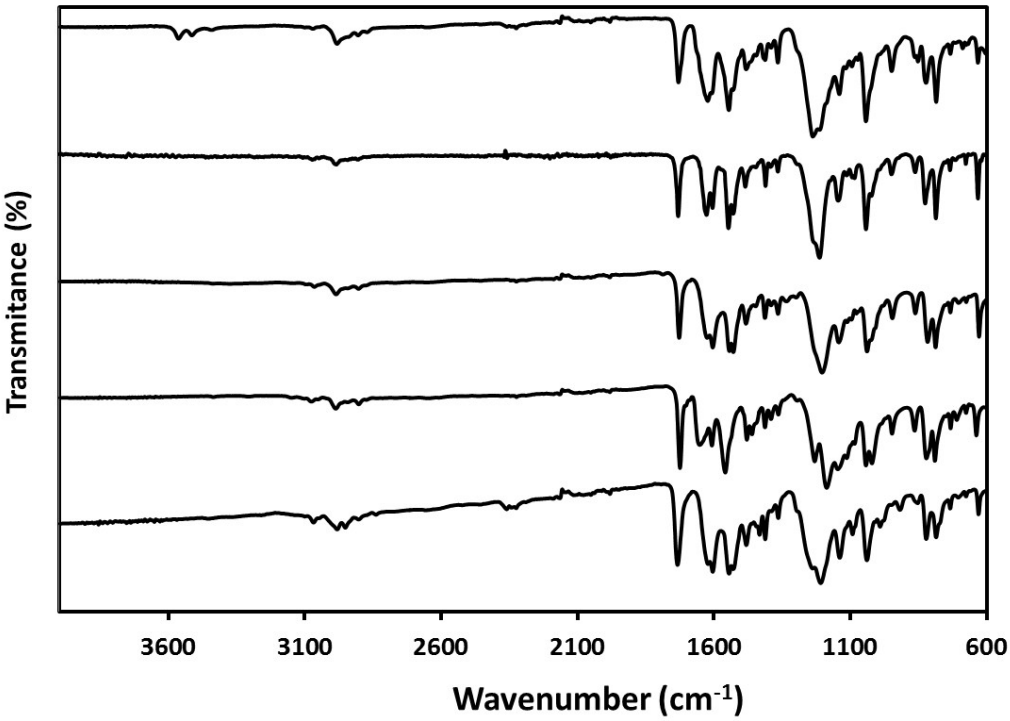

Fig. S9. ATR-FTIR recorded spectra of $[M(deox)_2(bipy)]_\infty$. From bottom to top, M= Co, Cu, Mn, Ni and Zn respectively.

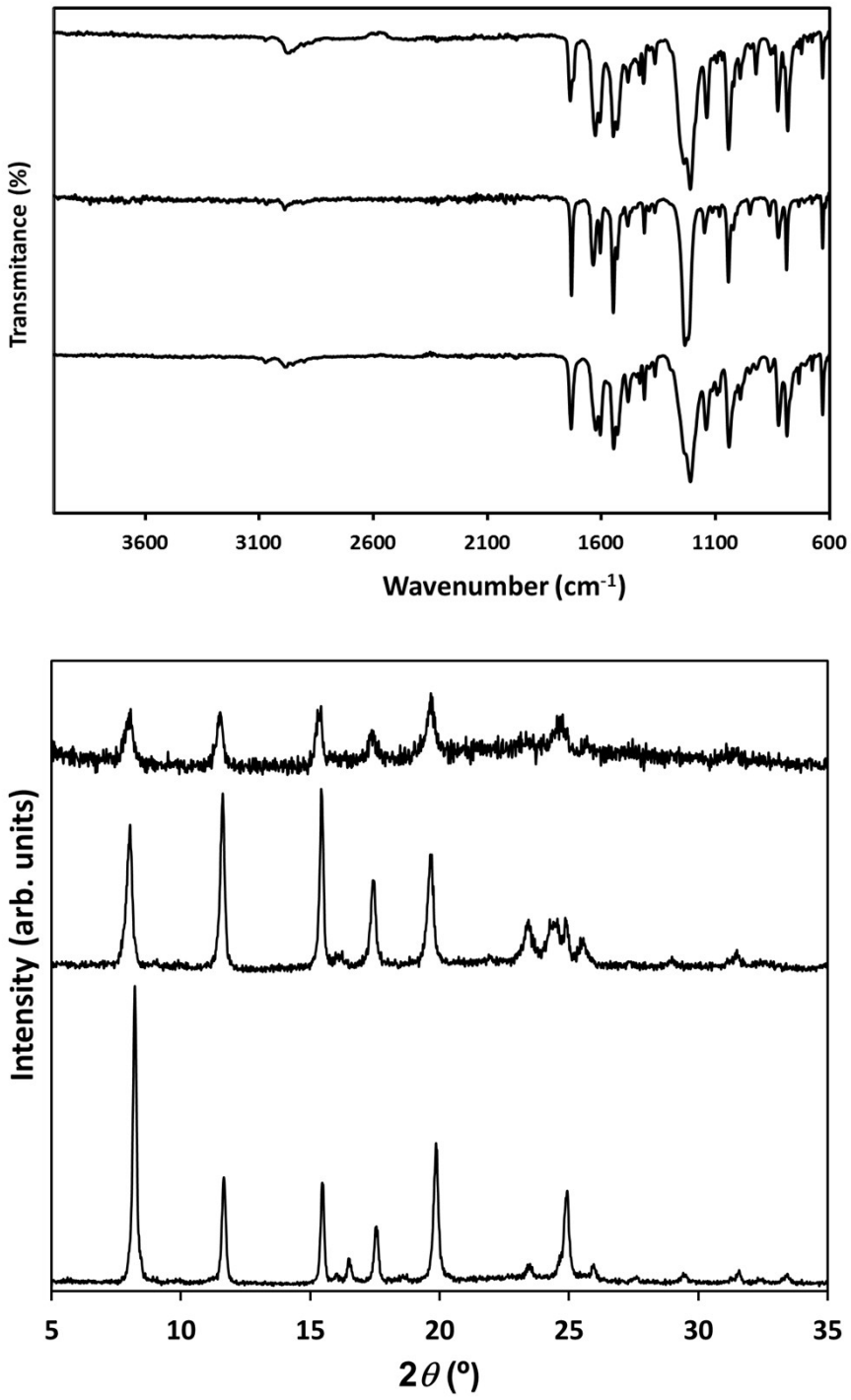

Fig. S10. ATR-FTIR spectra (up) and powder XRD pattern (down) of $[Co(deox)_2(bipy)]_\infty$ samples precipitated in conventional solvent (methanol, bottom), in scCO2 with 2% ethanol (middle) and neat $scCO_2$ from $[Co(deox)_2(tbpy)_2]$ H_2O.

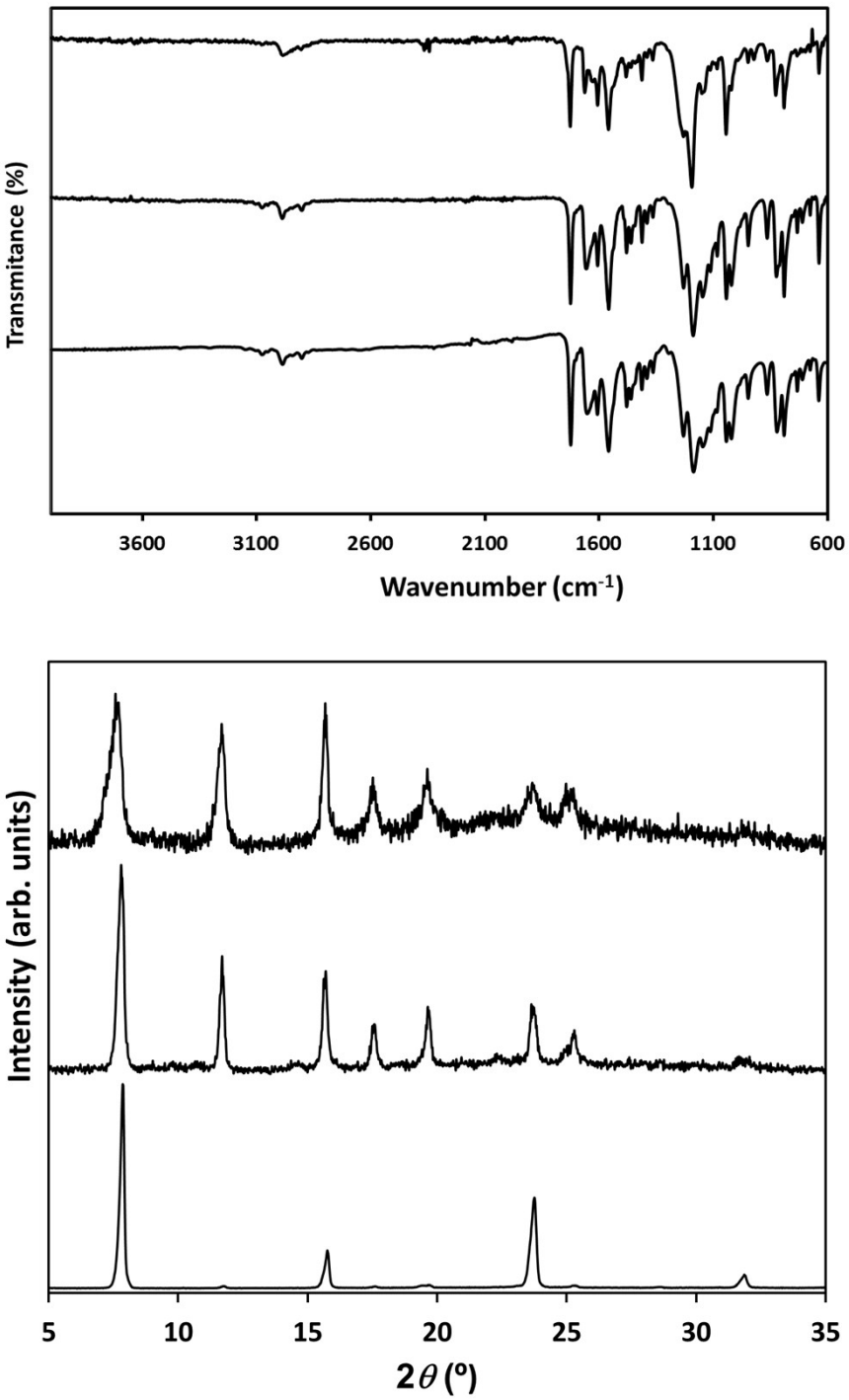

Fig. S11. ATR-FTIR spectra (up) and powder XRD pattern (down) of $[Cu(deox)_2(bipy)]_\infty$ samples precipitated in conventional solvent (methanol, bottom), in scCO2 with 2% ethanol (middle) and neat $scCO_2$ from $[Cu(deox)_2(tbpy)_2]\cdot 2H_2O$.

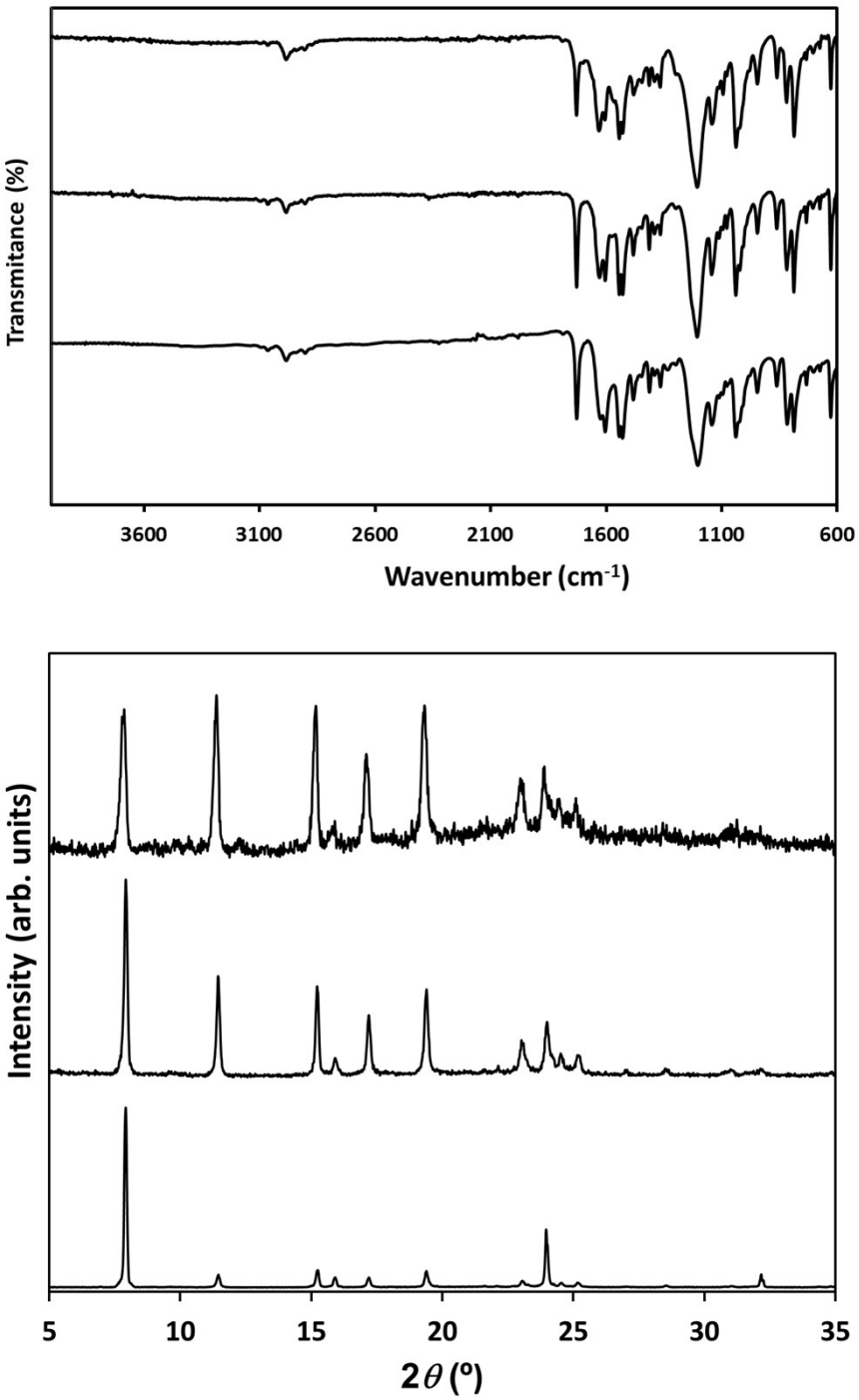

Fig. S12. ATR-FTIR spectra (up) and powder XRD pattern (down) of $[Mn(deox)_2(bipy)]_\infty$ samples precipitated in conventional solvent (ethanol, bottom), in scCO2 with 2% ethanol (middle) and neat $scCO_2$ from $[Mn(deox)_2(tbpy)]\cdot 1.5H_2O$.

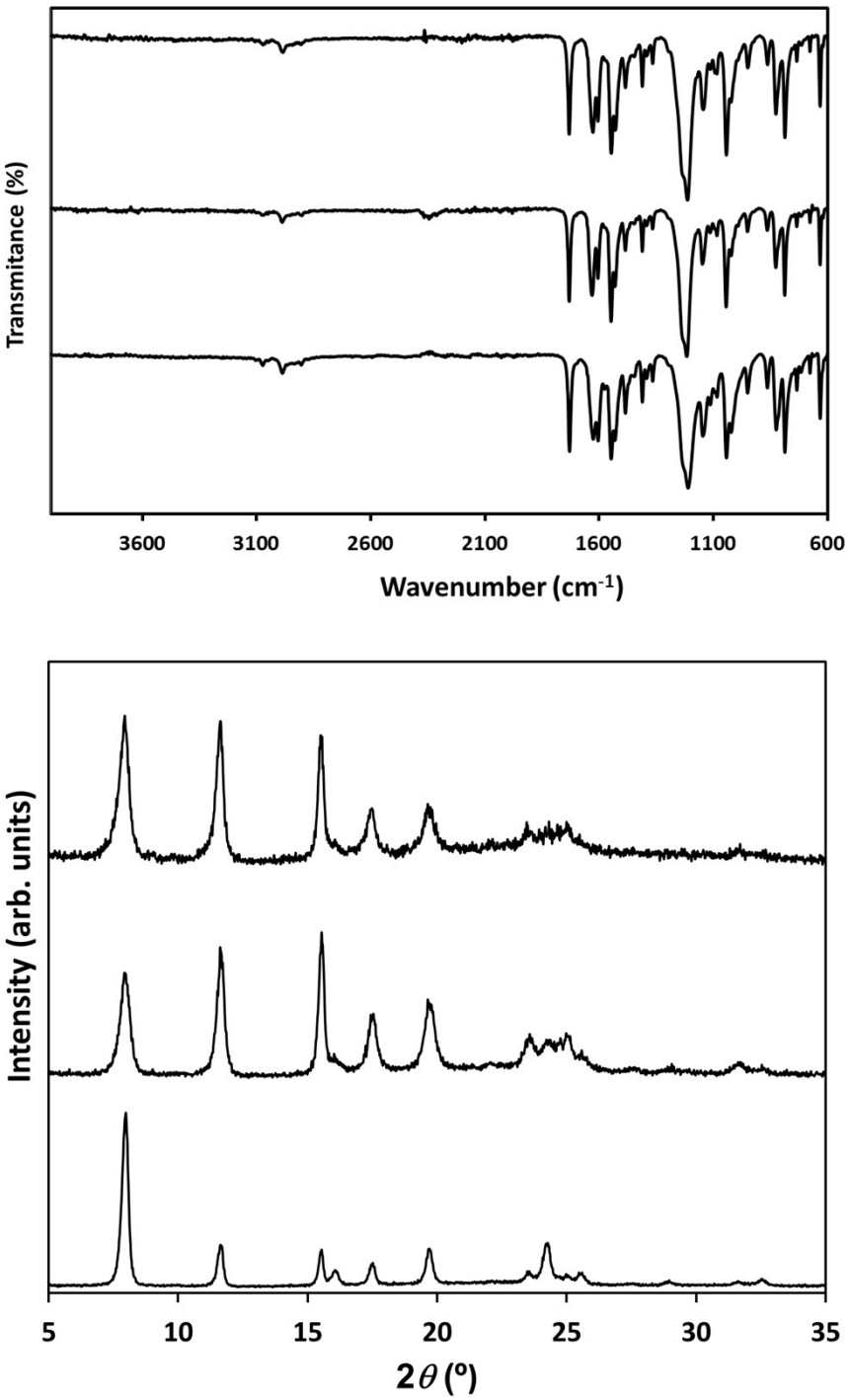

Fig. S13. ATR-FTIR spectra (up) and powder XRD pattern (down) of $[Ni(deox)_2(bipy)]_\infty$ samples precipitated in conventional solvent (methanol, bottom), in scCO2 with 2% ethanol (middle) and neat $scCO_2$ from $[Ni(deox)_2(tbpy)_2]$.

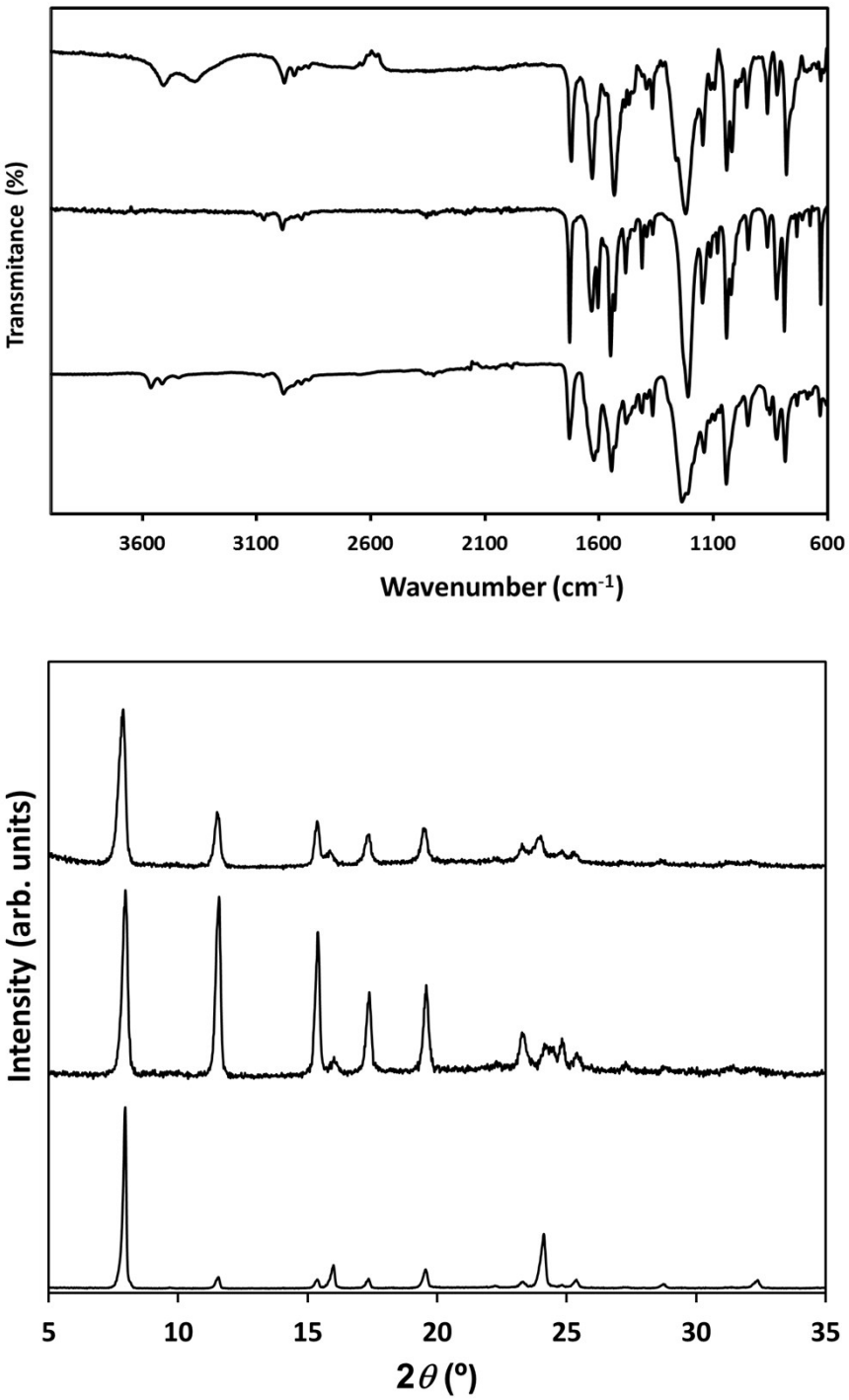

Fig. S14. ATR-FTIR spectra (up) and powder XRD pattern (down) of $[Zn(deox)_2(bipy)]_\infty$ samples precipitated in conventional solvent (methanol, bottom), in scCO2 with 2% ethanol (middle) and neat $scCO_2$ from $[Zn(deox)_2(tbpy)_2]$ $2H_2O$.