

Supplementary Information for:

Enantiomorphic Helical Coordination Polymers of $\{[M(\text{pyrimidine})(\text{OH}_2)_4][\text{SiF}_6]\cdot\text{H}_2\text{O}\}_\infty$, (M = Co^{2+} , Cu^{2+} , Zn^{2+})

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Experimental details for the synthesis of 1–3.

1. $\text{Co}(\text{BF}_4)_2\cdot 6\text{H}_2\text{O}$ (0.34 g, 1.0 mmol) dissolved in 10 mL acetonitrile was layered with a 10 mL methanolic solution of pyrimidine (80 mg, 1.0 mmol). Slow diffusion resulted in the formation of yellow–orange crystals of $\{[\text{Co}(\text{pyrimidine})_2(\text{OH}_2)_4][\text{SiF}_6]\cdot\text{H}_2\text{O}\}_\infty$, complex **1**.

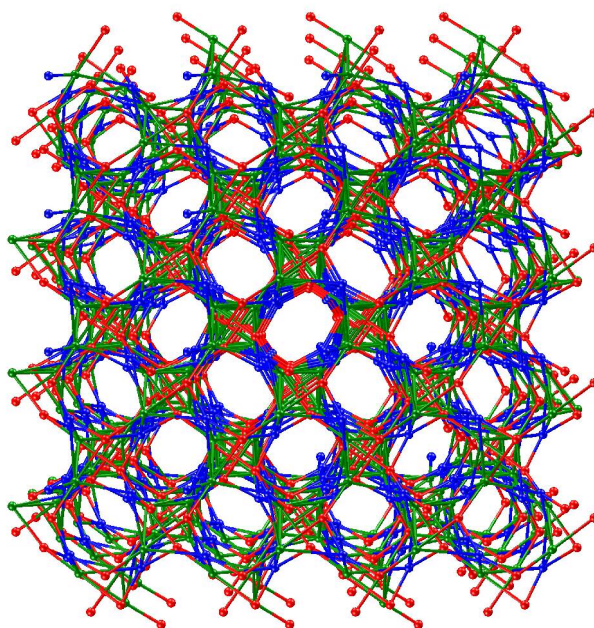
2. $\text{Cu}(\text{BF}_4)_2\cdot x\text{H}_2\text{O}$ (0.24 g, 1.0 mmol based on anhydrous salt) dissolved in 10 mL acetonitrile was layered with a 10 mL methanolic solution of pyrimidine (80 mg, 1.0 mmol). Slow diffusion resulted in the formation of blue crystals of $\{[\text{Cu}(\text{pyrimidine})_2(\text{OH}_2)_4][\text{SiF}_6]\cdot\text{H}_2\text{O}\}_\infty$, complex **2**.

3. $\text{Zn}(\text{BF}_4)_2\cdot x\text{H}_2\text{O}$ (0.24 g, 1.0 mmol based on anhydrous salt) dissolved in 10 mL acetonitrile was layered with a 10 mL methanolic solution of pyrimidine (80 mg, 1.0 mmol). Slow diffusion resulted in the formation of colorless crystals of $\{[\text{Zn}(\text{pyrimidine})_2(\text{OH}_2)_4][\text{SiF}_6]\cdot\text{H}_2\text{O}\}_\infty$, complex **3**.

Topological analysis for 1–3

Topological analysis of the networks was carried out using OLEX.¹ The network comprises four nodes, one metal-based, one based on each Si of the SiF_6^{2-} anions, and one based on the non-coordinated H_2O molecule (Supplementary Figure 1). The Schläfli symbols for these nodes were $3^6.4^6.5^{10}.6^6$ for

metal-based, $3^4.4^4.5^4.6^3$ and $3^4.4^2.5^2.6^5.7^2$ for Si-based and $3^2.4.5^3$ for H₂O-based nodes. The same topological network could be found using either of the disordered SiF₆²⁻ anions.



Supplementary Figure 1. View of the topological network formed by **3** along the crystallographic *c*-axis. Green, Zn-based nodes; blue, two different Si-based nodes; red, H₂O-based nodes.

References

- ¹ Dolomanov, O. V.; Blake, A. J.; Champness, N. R.; Schröder, M. *J. Appl. Crystallogr.* **2003**, *36*, 1283–1284.