

Electronic Supplementary Information

Self-assembly of the tetrachlorido(oxalato)rhenate(IV) anion with protonated organic cations: X-ray structures and magnetic properties

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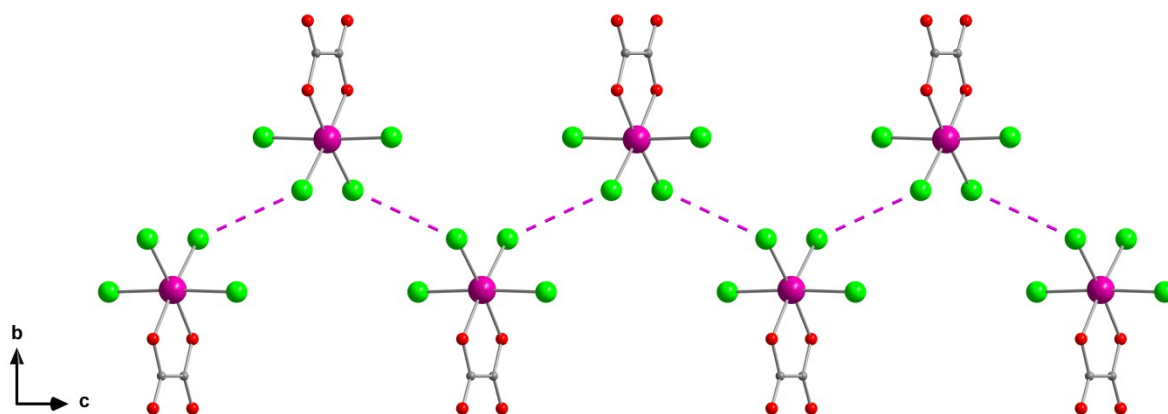
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a)



b)

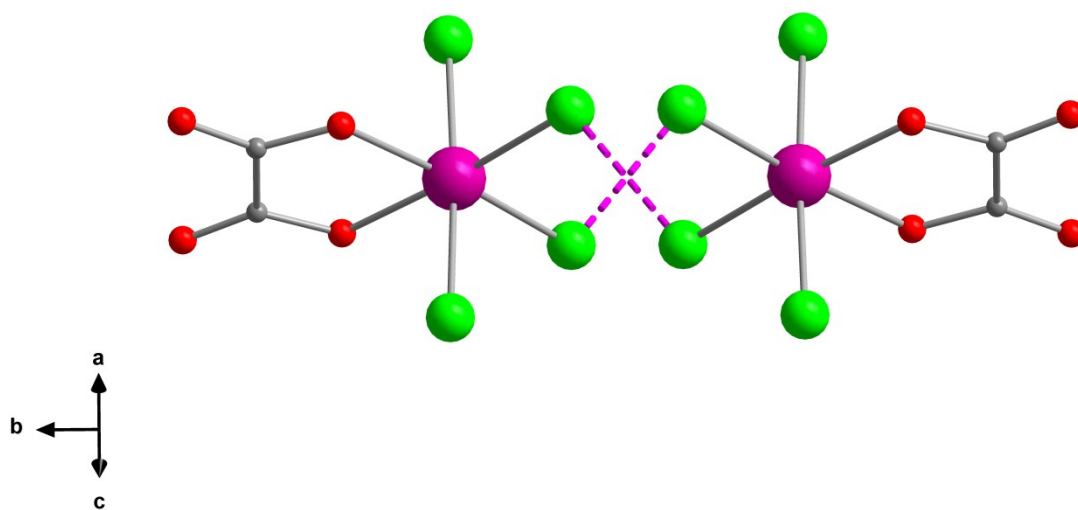


Figure S1. (a) View through the bc plane and (b) along the crystallographic $[101]$ direction of the one-dimensional arrangement of $[\text{ReCl}_4(\text{ox})]^{2-}$ anions connected by means of short $\text{Cl}\cdots\text{Cl}$ contacts (dashed lines) in **1**.

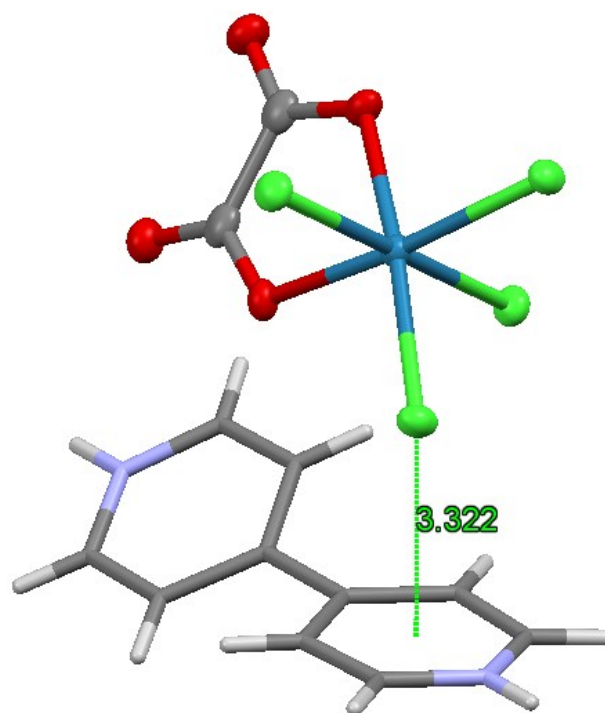


Figure S2. Detail of the Cl $\cdots\pi$ interaction between the neighboring [ReCl₄(ox)]²⁻ anions and [H₂bpy]²⁺ cations in **1** (Cl $\cdots\pi$ distance of *ca.* 3.32 Å).

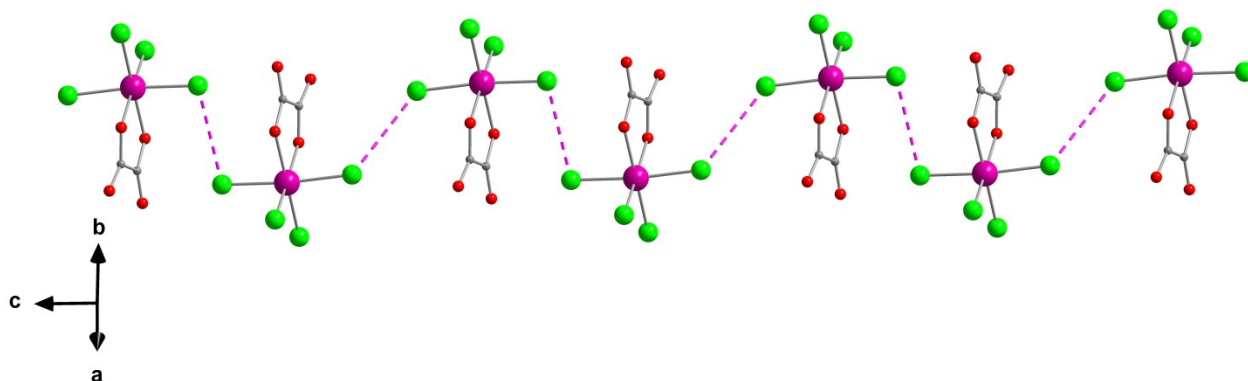


Figure S3. Perspective view of the one-dimensional arrangement of $[\text{ReCl}_4(\text{ox})]^{2-}$ anions connected by means of short $\text{Cl}\cdots\text{Cl}$ contacts (dashed lines) growing along the crystallographic c axis in **1**.

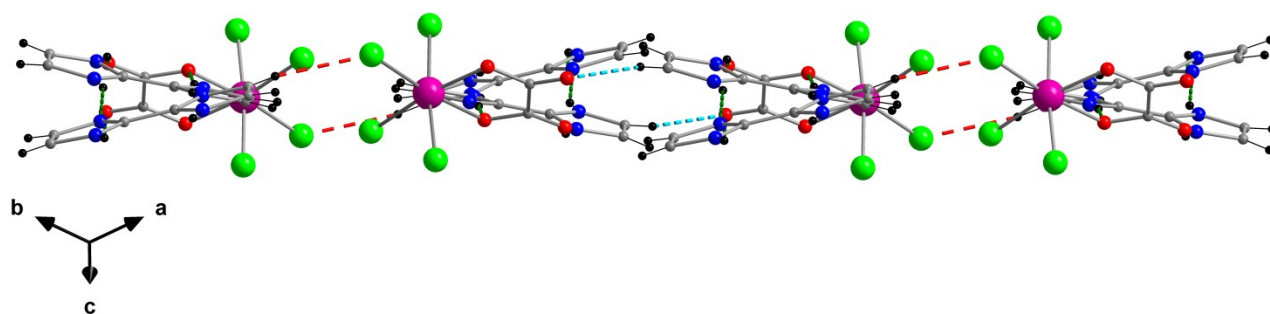


Figure S4. View along the crystallographic $[111]$ direction of the sheets of $[\text{H}_3\text{biim}]^+$ cations and $[\text{ReCl}_4(\text{ox})]^{2-}$ anions which are self-assembled through hydrogen bonds (dashed green lines), $\text{C-H}\cdots\text{Cl}$ (dashed red lines), and $\text{C-H}\cdots\text{O}$ interactions (dashed blue lines) in **2**. Color code: pink, Re; green, Cl; red, O; blue, N; gray, C; black, H.

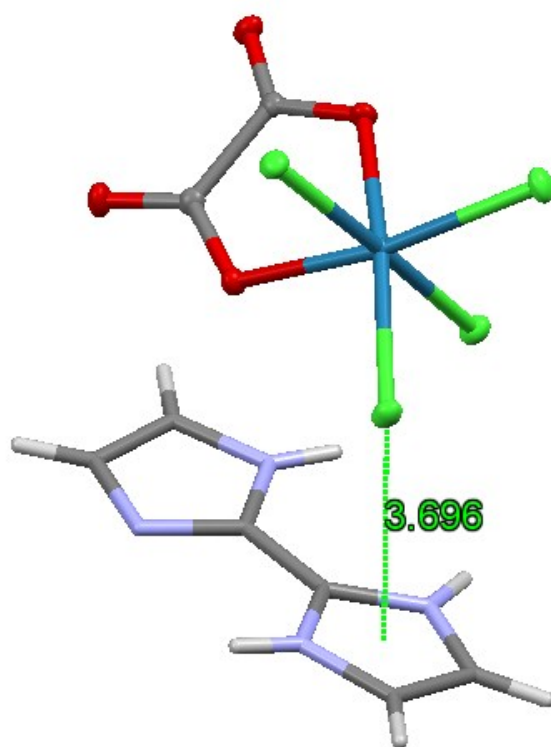


Figure S5. Detail of the Cl $\cdots\pi$ interaction between the neighboring [ReCl₄(ox)]²⁻ anions and [H₃biim]⁺ cations in **1** (Cl $\cdots\pi$ distance of *ca.* 3.70 Å).