

**Co[(C₆H₁₀)(NH₃)₂][C₆H₂(COO)₄] · 2H₂O and Zn[(C₆H₁₂)(NH₃)₂][C₆H₂(COO)₄] · 1/2H₂O -
Two Zeolite-Like Three-Dimensional Coordination Polymers**

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Abstract

Monoclinic single crystals of Co[(C₆H₁₀)(NH₃)₂][C₆H₂(COO)₄] · 2H₂O have been prepared in aqueous solution at 80 °C. Space group C2/c (no. 15), a = 1065.92(8), b = 1568.97(9), c = 1140.88(9) pm, β = 90.101(6)°, V = 1.9080(2) nm³, Z = 4. Co²⁺, which is situated on a twofold crystallographic axis, is coordinated in a moderately distorted tetrahedral fashion by four oxygen atoms stemming from the pyromellitate anions (Co–O 197.87(12) and 200.64(12) pm). A three-dimensionally connected coordination polymer is made up by Co²⁺ and C₆H₂(COO)₄⁴⁻ featuring channel-like voids, which accommodate water molecules and (C₆H₁₀)(NH₃)₂²⁺ cations compensating for the negative excess charge of the three-dimensional framework. Thermogravimetric analysis in air showed that the dehydrated compound was stable between 198 and 361 °C. Further decomposition yielded CoO. Zn[(C₆H₁₂)(NH₃)₂][C₆H₂(COO)₄] · 1/2H₂O (**2**) was prepared analogously to **1** employing 1, 6-diaminohexane. Space group P2₁/n (no. 14), a = 1087.78(8), b = 1515.18(11), c = 1162.21(10) pm, β=96.249(7)°, V = 1.9042(3) nm³, Z = 4. Zn²⁺ is coordinated tetrahedrally like Co²⁺ by oxygen atoms of the pyromellitate anions (Zn–O 195.0(4) - 197.8(4)). The connection of Zn²⁺ with the anions leads similar to **1** to a three-dimensional framework with voids accommodating (C₆H₁₂)(NH₃)₂²⁺-cations and water molecules. **2** was stable anhydrously between approx. 120 and 340 °C, the further decomposition was completed at 700 °C yielding ZnO.

