

Self-Assembly of a Cd²⁺ Compound with 4-Pyridylthioacetic Acid: Structural and Luminescence Properties

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Dedicated to Professor Hubert Schmidbaur on the occasion of his 70th birthday

An interesting 3-D supramolecular architecture has been constructed through O-H...O and S...S weak interactions based on a neutral 1-D coordination polymer, [Cd(pyta)₂(H₂O)]_n (pyta = pyridylthiocarboxylate), by self-assembly of the Cd²⁺ ion and Hpyta ligand. This supramolecular approach is achieved in combination of coordinative bonds, O-H...O and S...S interactions. The tetragonal unit of 1-D coordination polymers forms a 1-D channel structure with a dimension of 5.35 × 6.86 Å² in the solid state, leading to the formation of zeolite-like materials. In combination with the zeolite-like nature of the title compound as well as its luminescence behavior, it is expected to find useful applications in luminescence sensing for VOCs (volatile organic compounds).

Key words: Self-Assembly, Luminescence, Supramolecular, Coordination Polymers,
Volatile Organic Compounds