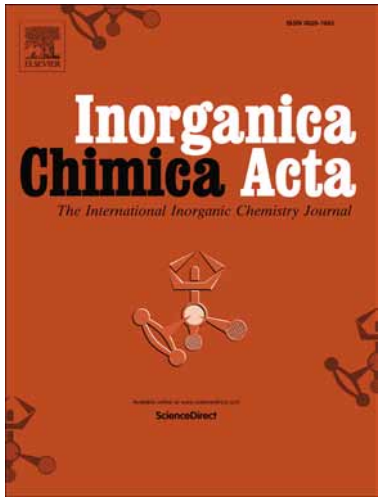

A one-dimensional self-assembled porous coordination polymer poly[bis(picolinato-N,O)(μ-1,2-bis(4-pyridyl)ethane-N,N´)cobalt(II)] dimethanol

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A one-dimensional self-assembled porous coordination polymer poly[bis(picolinato-N,O)(μ-1,2-bis(4-pyridyl)ethane-N,N´)cobalt(II)] dimethanol

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Abstract

A one-dimensional coordination polymer $\{[(Co(pic)_2(bpe)]\cdot 2CH_3OH\}_n$(**1**) has been synthesized using $[Co(pic)_2(H_2O)_2]\cdot 2H_2O$ where pic= picolinate as a building block and 1,2-bis(4-pyridyl)ethane (bpe) as an linker in a 1:1 molar ratio. This compound was characterised by using elemental analysis, IR spectroscopy, thermogravimetric analysis and single crystal X-ray diffraction. Single crystal X-ray structural analysis revealed that the compound **1** formed by bridging bpe ligand which gives rise to the one-dimensional (1D) linear chain. In the crystal structure coordination sphere consists of two oxygen atoms and two nitrogen atoms of the two picolinato and two nitrogen atoms of two bpe ligand. Weak interactions such as hydrogen-bonding, π···π stacking interaction join the polymeric chain to generate three dimensional network structures. The framework is stable up to 232°C and nitrogen adsorption measurement reveals the adsorption of 11.4 cc g^{-1} at $P/P_0 \sim 0.95$.

Keywords: cobalt(II) complex, one-dimensional coordination polymer, bridging ligand, π···π stacking interactions, hydrogen-bonding, nitrogen adsorption.