

Crystal structure and magnetic properties of the 1D bimetallic thiocyanate bridged compound: $\{(\text{CuL}_1)[\text{Co}(\text{NCS})_4]\}(\text{L}_1 = N\text{-rac-5,12-Me}_2\text{-[14]-4,11-dieneN}_4)$.

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Streszczenie

The synthesis, crystal structure and magnetic properties are reported for the new bimetallic compound $\{(\text{CuL}_1)[\text{Co}(\text{NCS})_4]\}$ where $\text{L}_1 = N\text{-rac-5,12-dimethyl-1,4,8,11-tetraazacyclotetradeca-4,11-diene}$. The complex forms a one-dimensional zig-zag coordination polymer along the crystallographic *c* axis, with Co(II) and Cu(II) ions connected via thiocyanate bridges. The Co(II) centre in the $[\text{Co}(\text{NCS})_4]$ fragment approximates a distorted tetrahedral symmetry. The Cu(II) geometry is a distorted tetragonal bipyramid with the apical position occupied by the bridging thiocyanate ligand and the basal ones by the four nitrogen atoms from the macrocyclic ring. The polymer chain nearest Cu(1)⋯Co(1) distances are 6.4152(9) and 6.0988(9) Å and the nearest Cu(1)⋯Co(1) interchain distances are 6.8609(9), 6.9628(9) and 6.0336(10) Å. The magnetization measurements for the examined compound have been carried out over the range 1.8–300 K. This data suggest ferromagnetic interactions through the thiocyanate bridge.

Słowa kluczowe

Crystal structure, Heterobimetallic chain, Thiocyanate bridge, Magnetism

Adres publiczny

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