Title:	First report on N,N′-diisoalkylisonicotinamide 1D coordination network containing linear trinuclear [CO3L4Cl6] units with mixed CoII(Td)-CoII(Oh)-CoII(Td) geometries: Structure and magnetic properties
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Abstract:	Reaction of anhydrous CoCl2 with N,N′- diisopropylisonicotinamide (L) has yielded a coordination polymer containing linear trinuclear [Co3L4Cl6] units with a rare, mixed Co(Td)-Co(Oh)-Co(Td) assembly (compound 1). The central CoII ion, of each trinuclear entity, exhibits a distorted octahedral geometry, with two ligand molecules coordinating through their carbonyl oxygen atoms along with two bridging Cl- ions and two pyridine N atoms from the neighboring molecules. Also, in each unit, two outer CoII ions display distorted tetrahedral geometry, coordinating to one ligand molecule through the pyridine N atom and to three Cl- ions (one of them bridged to the central CoII and the two acting as a terminal ligands). The magnetic properties of this compound were investigated in the temperature range of 2.0 to 300.0 K. Owing to the complexity of the system and the weak interactions among trinuclear aggregates, the magnetic response has been analyzed using a model which considers these units as isolated systems. In addition, magnetic data has been examined in two separated blocks, above and below 50 K, applying programs VPMAG FORTRAN and MAGPACK-fit, respectively. This way, only the most significant effects at each interval of temperature were considered: spin-orbit coupling of the Co(Oh), at high temperatures and zero-field splitting parameters of the Co(Td) at the low. Spin-spin magnetic interaction has been taken into account for the whole range of temperatures. As a result, the analysis of the magnetic data shows that, within every trinuclear unit, the central position matches well with a high-spin CoII (S = 3/2) and also reveals weak ferromagnetic interactions between the Co(Oh) and the two terminal Co(Td) ions (J = +0.34 cm-1).
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