

Synthesis, crystal structures and magnetic behavior of Ni^{II} - 4f-Ni^{II} compounds.

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We report here synthesis, crystal and molecular structures as well as magnetic measurement results for new heterotrinnuclear Schiff base complexes having a general formula $[\text{Ni}_2\text{Ln}(\text{L})_2(\text{CH}_3\text{COO})_2(\text{MeOH})_2]\text{NO}_3 \cdot 4\text{H}_2\text{O}$ (where $\text{Ln} = \text{La}^{\text{III}}$ (**1**) and Nd^{III} (**2**) and $\text{L} = \text{C}_{19}\text{H}_{18}\text{N}_2\text{O}_4\text{Br}_2 = N,N'$ -bis(5-bromo-3-methoxysalicylidene)-1,3-diaminopropanato) and the mononuclear $[\text{NiL}(\text{H}_2\text{O})_2]$ (**3**) complex. The Ni^{II}/4f compounds are isostructural and crystallize in the monoclinic space group $P2_1/n$. The lanthanide(III) ion lies on the center of symmetry and is ten-coordinated forming pentagonal antiprism. Compound **3** crystallizes in orthorhombic space group $Pnma$ with the molecule lying on the mirror plane. The complex **1** indicated a weak antiferromagnetic interaction between the terminal Ni^{II} ions. The magnetic properties of **2** revealed that the Ni^{II}-Nd^{III} interaction is antiferromagnetic. The magnetic data for **3** show dominant zero-field splitting effect of Ni^{II} ions.

Słowa kluczowe

Heterotrinnuclear complexes, Nickel, lanthanides, Schiff base, crystal structure, magnetic properties

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