

DINUCLER NICKEL(II) PIVALATE WITH μ -AQUA AND DI- μ -PIVALATO BRIDGES SHOWING A FERROMAGNETIC INTERACTION

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Abstract. Dinuclear nickel(II) complex, $[\text{Ni}_2\{\text{O}_2\text{CC}(\text{CH}_3)_3\}_4(\text{OH}_2)\{\text{HO}_2\text{CC}(\text{CH}_3)_3\}_4]$ (**1**), was synthesized and characterized by elemental analysis, IR and UV-Vis-NIR spectroscopy, and temperature dependence of magnetic susceptibilities (4.5—300 K). Single-crystal X-ray crystallography revealed a dinuclear core with μ -aqua and di- μ -pivalato bridges having monodentate pivalato and monodentate pivalic acid molecules. Magnetic data analysis showed a ferromagnetic interactions between the two nickel atoms with $g = 2.251$, $J = 2.78 \text{ cm}^{-1}$, $D = 3.75 \text{ cm}^{-1}$, and $tip = 184 \times 10^{-6} \text{ cm}^3 \text{ mol}^{-1}$; $g = 2.253$, $J = 2.73 \text{ cm}^{-1}$, $D = -3.26 \text{ cm}^{-1}$, and $tip = 176 \times 10^{-6} \text{ cm}^3 \text{ mol}^{-1}$.

Keywords: nickel complex, dinuclear complex, magnetic property, ferromagnetic interaction.