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Ultrasound-assisted fabrication of a novel nickel(II)-bis-pyrazolyl borate two-nuclear discrete nano-structured coordination compound

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Abstract

Ultrasound was used to synthesize nano-structures of $[Ni(bpzB)_2]_2$(**1**), a new two-nuclear discrete-coordination compound of divalent nickel with bis-pyrazolyl borate(bpzB). The nanostructure was characterized by scanning electron microscopy, X-ray powder diffraction, infrared, and elemental analysis. The single-crystal X-ray data show that the coordination number of Ni(II) ions is four ($Ni1N_4$ and $Ni2N_4$) with square planar geometry. The supramolecular features in these complexes are guided and controlled by weak directional intermolecular interactions. The discrete molecules interact with each other through labile interactions, creating a 3D supramolecular framework.

Key words: Nickel;Pyrazolyl borate; Nano coordination compounds; DFT calculations; Sonochemical.