Binuclear complex of Cu(II) containing 4-hydroxypyridine-2,6-dicarboxylic acid and 2-amino-4-methylpyrimidine ligands: Synthesis, X-ray crystal structure and thermal properties

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A novel binuclear complex of Cu(II) synthesized and characterized by elemental analysis, FTIR spectroscopy, TG analysis, and single crystal X-ray structure determination. The chemical formula and space group of the resulting complex is [Cu₂(hypydc)₂(ampym)₂].5H₂O (1) (hypydc: 4-hydroxypyridine-2,6-dicarboxylate, ampym: 2-amino-4-methylpyrimidine) and C₂/c where the R final value is 0.0275 for 3679 reflections collected. One (hypydc)²⁻ and two ampym are bonded to each Cu(II), giving a CuN₃O₂ bonded set. The coordination geometry around of each Cu(II) is distorted square pyramid. N—H···O and O—H···O hydrogen bonds connect the stacks of complex and crystallized water molecules and lead to consolidation of crystalline network. Different noncovalent interactions such as ion-pairing and hydrogen bonding play essential factors in the construction of extended networks in the crystal systems as can be observed in the title compound. The TG curve shows that titled complex exhibits three steps of weight loss and is quite thermal stable.

Keywords: Copper, 4-Hydroxypyridine-2,6-dicarboxylic acid, 2-Amino-4-methylpyrimidine, Crystal structure, TGA.

References: