

A NEW 2D COORDINATION POLYMER BASED ON ZINC(II), 1,2,3-BENZENETRICARBOXYLIC ACID AND 4,4'-BIS(IMIDAZOL-1-YLMETHYL)BIPHENYL: SYNTHESIS AND CRYSTAL STRUCTURE

Irina Voda 

Institute of Chemistry, State University of Moldova, 3, Academiei str., Chisinau MD 2028, Republic of Moldova
e-mail: irina.voda@ichem.md; iravoda@gmail.com; phone: (+373 22) 739 722

Abstract. The solvothermal reaction of zinc(II) nitrate with 1,2,3-benzenetricarboxylic acid (1,2,3-H₃BTC) and 4,4'-bis(imidazol-1-ylmethyl)biphenyl (BIBPh) produced a crystalline solid $\{[\text{Zn}_3(\text{BIBPh})_3(\text{BTC})_2]\cdot\text{H}_2\text{O}\}_n$. The product has been structurally characterised and investigated by X-ray diffraction, IR and thermogravimetric methods. The polymer has a bidimensional structure and crystallizes in the $P2_1/c$ space group of the monoclinic system with the following unit cell parameters: $a= 14.8687(16)$, $b= 36.915(4)$, $c= 13.8378(16)$ (Å), $\beta= 105.584(6)^\circ$. The asymmetric unit of the crystal structure contains three zinc(II) ions, three BIBPh ligands and two BTC³⁻ monodentate ligands with all three deprotonated carboxylate groups that balance the overall charge. All zinc centers have similar coordination environment: each metal ion is four coordinated exhibiting a slightly distorted tetrahedral coordination, where two positions are occupied by oxygen atoms of the carboxylic acid and the other two by nitrogen atoms of imidazole subunits.

Keywords: coordination polymer, X-ray diffraction, zinc, 1,2,3-benzenetricarboxylic acid, 4,4'-bis(imidazol-1-ylmethyl)biphenyl.

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