

Hybrid Organo-inorganic Materials of the VPO System

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One of the methods to obtain materials based on the VPO system is to incorporate organic molecules that modify the oxide structure. The organic species can be introduced as simple cationic species which act as charge compensating agents, or as the ligand of a transition metal complex species. Here we report the synthesis of $[\text{Cu}_2\text{L}_2(\text{VO}_2)(\text{HPO}_4)_2\text{NO}_3]_n$ where L=bipy (**1**), phen (**2**) and the corresponding magneto-structural characterization. (**1**) and (**2**) crystallize in the P-1 space group with $a=10.5927(13)$, $b=12.0359(15)$, $c=12.1655(15)$ Å; $\alpha=107.090(2)$, $\beta=110.399(2)$, $\gamma=93.876(2)^\circ$; $V=1364.3(3)\text{Å}^3$; $Z=2$ for (**1**) and $a=7.936(5)$, $b=12.122(5)$, $c=16.066(5)$ Å; $\alpha=107.216(5)$, $\beta=94.496(5)$, $\gamma=100.390(5)^\circ$; $V=1437.7(3)\text{Å}^3$; $Z=2$ for (**2**). The copper(II) ions present a square base pyramidal geometry in these reported complexes with a Cu-Cu distance of 5.013 and 5.017 Å for (**1**) and (**2**) respectively. Both compounds present antiferromagnetic behaviour with T_m of 15.5 and 32 K for (**1**) and (**2**). The magnetic behaviour will be compared with other reported Cu-VPO systems.¹

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[1] Moreno Y., Vega A., Ushak S., Baggio R., Peña O., Le Fur E., Pivan J.Y., Spodine E., *J. Mater. Chem.*, 2003, **13**, 2381.

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