Two new hybrid organic/inorganic copper(II)-oxovanadate(V) diphosphonates: [Cu2(phen)2(O3PCH2PO 3)(V2O5)(H2O)]·H 2O and [Cu2(phen)2(O3P(CH 2)3PO3)(V2O5)] ·C3H8. Synthesis, ...

Ushak, Svetlana

Spodine, Evgenia

Le Fur, Eric

Venegas-Yazigi, Diego

Pivan, Jean Yves

Schnelle, Walter

Cardoso-Gil, Raul

Kniep, Rüdiger

Full title: Two new hybrid organic/inorganic copper(II)-oxovanadate(V) diphosphonates: [Cu2(phen)2(O3PCH2PO 3)(V2O5)(H2O)]·H 2O and [Cu2(phen)2(O3P(CH 2)3PO3)(V2O5)] ·C3H8. Synthesis, structure, and magnetic properties. Two new hybrid organic/inorganic copper oxovanadium diphosphonates [Cu 2(phen)2(O3PCH2PO 3)(V2O5)(H20)]· H 2O (1) and [(Cu2(phen)2(O3P(CH 2)3PO3)(V2O5)] ·C3H8 (2) have been obtained by hydrothermal synthesis. The compounds are monoclinic, and they crystallize in the space group P21/n with cell parameters of a = 11.788(2) Å, b = 17.887(3) Å, c = 14.158(2) Å, and ? = 93.99(0)° and in the space group C2/c with cell parameters of a = 11.025(1) Å, b = 18.664(2) Å, c = 15.054(2) Å, and ? = 90.06(0)°, respectively. Both compounds present two-dimensional frameworks built up from infinite chains of corner-sharing vanadium tetrahedra and diphosphonate groups connected by copper tetramers for (1) and copper dimers for (2). The remarkable feature of (2) is the encapsulation of prop