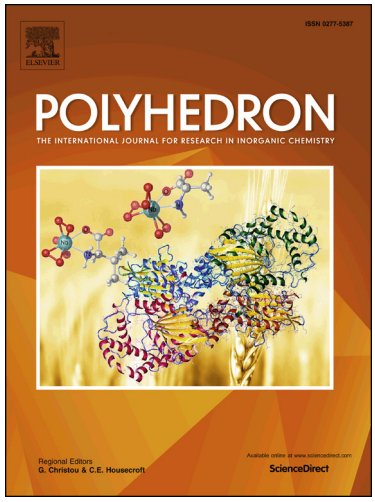

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A new phenylthiourea grafted Mn-Anderson polyoxometalate cluster: synthesis, crystal structure and characterization

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Abstract: A novel phenylthiourea modified Mn-Anderson polyoxometalate, $[N(C_4H_9)_4]_3[MnMo_6O_{18}\{(OCH_2)_3CNHCSNHPh\}\{(OCH_2)_3CNH_2\}]$ (**1**) has been synthesized and characterized by IR, NMR, UV–vis spectroscopy, thermogravimetric electrochemical and single-crystal X-ray diffraction analysis. Structural analysis reveals that compound **1** crystallizes in the orthorhombic crystal system, space group *Pcab* with a = 17.7477(9) Å, b = 33.6245(16) Å, c = 32.322(2) Å, V = 19288.7(19) Å^3 and Z = 8. Noticeably, the asymmetric POM cluster with terminal modification could be connected through H-bonding interactions of C-H···O to form an infinite supramolecular chain. Furthermore, the adjacent 1D chains are linked by H-bonding interactions of N-H···O to generate a 2D supramolecular layer.

Keywords: polyoxometalate; Mn-Anderson cluster; phenylthiourea; post-functionalization

1. Introduction

Polyoxometalates (POMs) are a class of early transition metal oxygen anion