

High Nuclearity, High Spin Clusters and Single Molecule Magnets from the Use of Diols in Mn Chemistry

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Single Molecule Magnets (SMMs) represent a molecular approach to nanomagnetism [1] and have been proposed for several technological applications including high-density information storage, molecular spintronics and qubits for quantum computation. One of the most successful synthetic approaches towards new high spin molecules and SMMs involves the use of chelates containing alcohol groups, since alkoxides are good bridging groups and thus favour the formation of polynuclear products. [2] Recently, we have been investigating the use of 1,3-propanediol (H_2pd) and other diols in Mn carboxylate chemistry. [3] We will report, the synthesis, crystal structures and magnetic properties of a series of new compounds that were prepared from the use of various diols in Mn - carboxylate chemistry, including the families of Mn_{17} octahedra, $Mn_{40}M_4$ ($M = Na^+$ or Mn^{2+}) loops of loops and $Mn_{36}Ni_4$ 'loop-of-loops-and-supertetrahedra' aggregates.

References

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