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Molecular tectonics: Pyridyl containing thiacalix[4]arene based tectons for the generation of 2- and 3-D silver coordination networks

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Abstract

Three new organic tectons (2-4) based on the p-tert-butylthiacalix[4]arene backbone, blocked in the 1,3-alternate conformation, bearing four pyridyl coordinating moieties, have been synthesised and characterised in the solid state. The ligands are positional isomers and differ by the position of the N atom on the pyridyl unit (ortho for 2, meta for 3 and para for 4). Their combination with the Ag⁺ cation leads, reproducibly, to the formation of 2- and 3-D infinite silver coordination networks. Independent of the nature of the anion, the combination of 2 offering four (N,S) type chelates with the Ag⁺ cation affords an unprecedented diamond type 3D network. Both 3 and 4, behaving as tetrakis monodentate ligands, lead to the formation of 2-D architectures. © The Royal Society of Chemistry 2013.

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