Preparation and crystal structure lead(II) coordination polymers with pyridine-2,3-dicarboxylic acid

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An especially active research area in recent years has involved the preparation of metal-organic frameworks (MOFs) due to their tunable properties and functions. These compounds have been applied in many fields, such as molecular recognition, adsorption and separation processes, catalysis, ion exchange and molecular magnetism [1]. Polycarboxylate ligands have attracted an interest as the potential bridging ligands with a variety of connection modes with transition metal centers and abundant structural motifs [2]. pyridine-2,3-dicarboxylic acid often acts as a bidentate chelating ligand through the carboxylate groups to form a dimeric unit. As a result, each metal ions are bridged by 2,3-pydc ligands to furnish an extended neutral two-dimensional layer. The two Pb(II) ions bridged by pyridine-2,3-dicarboxylate ions (2,3-pydc) in the dimers are further connected by pdc ligands to furnish an extended polycarboxylate ligands have attracted an interest as the potential bridging ligands with a variety of connection modes with transition metal centers and abundant structural motifs [2].

Keywords: coordination polymer, lead complex, pyridine-2,3-dicarboxylic acid

Substituent effects in the structural parameters of the sydnone ring

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Sydnones are mesoionic 5-membered, heterocyclic compounds, that demonstrate aromatic character and thereby are observed to undergo electrophilic substitution at the N(3) and C(4) positions. Of interest is the stability of the ring system and the influence of the substituents at the N(3) and C(4) positions on that stability.

The structure of three new sydnone compounds have been determined and are reported herein.

The new structures as well as structures previously determined in this laboratory, and those found in the Cambridge Structural Database[1] have been examined so as to attempt to understand the stability of the sydnone ring.

Keywords: sydnone, structure, stability

Structural aspects of new n-heterocyclic carbene-rhodium catalysts

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Transition metal carbene complexes are currently tools of utmost relevance in organic chemistry and organometallics, as they exhibit appropriate properties as catalysts or intermediates in several highly valuable processes. ‘Fisher-type’ carbenes contain one or two heteroatoms directly connected to the metal-bonded carbon atom conferring greater stability to this kind of compounds. In these particular carbenes, the multiple bonding nature of the M-C link involves a synergetic donation from the carbon sp² hybrid orbital to the metal together with a back-donation from the metal. The whole interpretation of the details of the metal-carbene and the carbene-heteroatom interactions is usually evaluated from structural bonding parameters [1].

Keywords: coordination polymer, lead complex, pyridine-2,3-dicarboxylic acid