

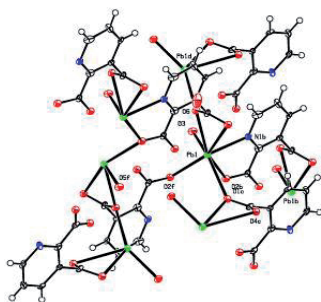
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Preparation and crystal structure lead(II) coordination polymers with pyridine-2,3-dicarboxylic acid

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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 nitrogen and one oxygen atom of one carboxylic group, while another carboxylate oxygen atom can act as a bridging atom between metal ions to form coordination polymer. Recently, We reported synthesis and crystal structure of Cd(II) and Co(II) polynuclear compounds with pyridine-2,3-dicarboxylic acid and have been reported [3]. In continuation of our research on the synthesis of metal complexes with pyridinedicarboxylic acids and heterocyclic amines such as 2-aminopyrimidine [4] or 2,2'-bipyridine [5], the reactions of lead nitrat with pyridine-2,3-dicarboxylic acid were done in the presence of 2-amino-6-methylpyridine. In this communication, we report synthesis and characterization of a coordination polymer with a main group element $\{[(\mu-2,3\text{-pydc})\text{Pb}]_2 \cdot \text{H}_2\text{O}\}_n$ (**1**). Compound **1** crystallizes in the monoclinic $C2/c$ space group. Polymeric chains of **1** is composed of Pb(II) ions bridged by pyridine-2,3-dicarboxylate ions (2,3-pydc) in N,O,O' fashion. Each Lead(II) ion is coordinated by two nitrogen and five oxygen atoms from four different 2,3-pydc ions and The distorted pentagonal bipyramidal coordination geometry is observed around the each metal ions. The two Pb^{II} atoms are bridged by 2,3-pydc ligands through their carboxylate groups to form a dimeric unit. As a result, the dimers are further connected by pdc ligands to furnish an extended neutral two-dimensional layer.



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

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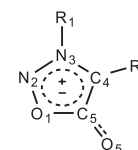
Substituent effects in the structural parameters of the sydnone ring

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Sydnone is a mesoionic 5-membered, heterocyclic compound, that demonstrates aromatic character and thereby is 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.



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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. 'Fischer-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 sp^2 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].

