2,9-Dimethyl-1,10-phenanthroline as Ligand in the Holo- and Hemidirected 1:1 and 1:2 Lead(II) Complexes

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1:1 and 1:2 lead(II) complexes with 2,9-dimethyl-1,10-phenanthroline (Dmphen), {[Pb(Dmphen)$(NO_3)_n$] and [Pb(Dmphen)$_2(ClO_4)_2$]} have been synthesized and characterized by CHN elemental analysis, IR, ^{1}H NMR, ^{13}C NMR and ^{207}Pb NMR spectroscopy. The structure of these complexes was confirmed by X-ray crystallography. The single crystal X-ray data of [Pb(Dmphen)$(NO_3)_n$] show the complex to be polymeric and the Pb atom to have an unsymmetrical eight-coordinate geometry, the coordination being holodirected, whereas the [Pb(Dmphen)$_2(ClO_4)_2$] complex is monomeric and the Pb atom has an unsymmetrical eight-coordinate geometry with the coordination hemidirected.

Key words: Lead(II) Complexes, Crystal Structure, Lone Pair of Electrons,
2,9-Dimethyl-1,10-phenanthroline