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HOMO AND HETERO BINUCLEAR COMPLEXES OF BRIDGING 1,8-NAPHTHALENE DITHIOLATE LIGANDS

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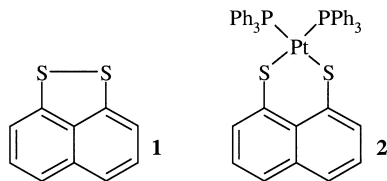
HOMO AND HETERO BINUCLEAR COMPLEXES OF BRIDGING 1,8-NAPHTHALENE DITHIOLATE LIGANDS

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Naphthalene-1,8-dithiolate and related ligands represent a poorly studied set of ligands with this in mind we have embarked on a systematic study of the coordination chemistry of these ligand. The reaction of naphtha[1,8-*cd*][1,2]-dithiole **1** with an equimolar quantity of $[\{\text{Ir}(\mu\text{-Cl})(\text{cod})\}_2]$ ($\text{cod} = 1,5\text{-cyclooctadiene}$) gave the dithiolate bridged dimer $[\{\text{IrCl}(\text{cod})\}_2(1,8\text{-S}_2\text{-nap})]$ ($1,8\text{-S}_2\text{-nap} = \text{naphthalene-1,8-dithiolate}$) in good yield. Examples of neutral homo and hetero binuclear complexes have been prepared by the addition of various metal substrates to the metallo disulfur donor “ligand” $[\text{Pt}(1,8\text{-S}_2\text{-nap})(\text{PPh}_3)_2]$ **2** (which is prepared by oxidative addition of **1** to $[\text{Pt}(\text{PPh}_3)_4]$). Complexes of the general type $[(\text{PPh}_3)_2\text{Pt}(\mu^2\text{-1,8-S}_2\text{-nap})\{\text{ML}_z\}]$ (where $\text{ML}_z = \{\text{PtCl}_2\}, \{\text{PtClMe}\}, \{\text{PtClPh}\}, \{\text{PtMe}_2\}, \{\text{PtMe}_3\text{I}\}$, and $\{\text{Mo}(\text{CO})_4\}$) have been prepared and fully characterized as have cationic complexes with the general formula $[(\text{PPh}_3)_2\text{Pt}(\mu^2\text{-1,8-S}_2\text{-nap})\{\text{ML}_n\}][\text{X}]$ (where $\{\text{ML}_n\}[\text{X}] = \{\text{Pt}(\eta^3\text{-C}_3\text{H}_5)\}[\text{ClO}_4], \{\text{Pd}(\eta^3\text{-C}_3\text{H}_5)\}[\text{ClO}_4], \{\text{IrCl}(\eta^5\text{-C}_5\text{Me}_5)\}[\text{ClO}_4], \text{RhCl}(\eta^5\text{-C}_5\text{Me}_5)\}[\text{BF}_4], \{\text{Pt}(\text{PMe}_2\text{Ph})_2\}[\text{ClO}_4]_2$, and $\{\text{Rh}(\text{cod})\}[\text{ClO}_4]$ were prepared by the addition of a halide abstractor such as $\text{Ag}[\text{BF}_4]$ or $\text{Ag}[\text{ClO}_4]$ to the metal



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chloride starting material to which was added $[(PPh_3)_2Pt(1,8-S_2-nap)]$ giving the appropriate cationic or di-cationic species.

Selected examples of both neutral and cationic complexes have been characterized by single crystal x-ray analysis.