

Molecular structure and properties of the rhodium(II) complexes with chemilabile ether-phosphine ligands $P(2\text{-MeOC}_6\text{H}_4)_3$ and $P(2,6\text{-(MeO)}_2\text{C}_6\text{H}_3)_3$.

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Reactions of dirhodium tetraacetate $[\text{Rh}_2(\text{O}_2\text{CCH}_3)_4]$ with tris(2-methoxyphenyl)phosphine (OMP) yield the oxygen-metallated complexes $[\text{Rh}_2(\mu\text{-OAc})_3\{\mu\text{-(2-OC}_6\text{H}_4)\text{P(2-MeOC}_6\text{H}_4)_2\}(\text{HOAc})]$ (**1**·HOAc) and $[\text{Rh}_2(\mu\text{-OAc})_3\{\mu\text{-(2-OC}_6\text{H}_4)\text{P(2-MeOC}_6\text{H}_4)_2\}(\text{NCMe})]$ (**1**·NCMe). In the case of tris(2,6-dimethoxyphenyl)phosphine (DOMP) analogous compound $[\text{Rh}_2(\mu\text{-OAc})_3\{\mu\text{-(2-O-(6-MeO)C}_6\text{H}_3)\text{P(2,6-(MeO)}_2\text{C}_6\text{H}_3)_2\}(\text{HOAc})]$ (**2**·HOAc) was obtained. In both ligands the CH_3^+ cation of one of the methoxy substituents is split off and the phosphine replaces one of the acetato bridges to form the bridge with Rh_2^{4+} core closing the six-member ring via P and O atoms. The compounds have been characterized using UV-vis, IR, ^1H -, $^{13}\text{C}\{^1\text{H}\}$ - and $^{31}\text{P}\{^1\text{H}\}$ -NMR spectroscopies. The crystal structure of compound **1**·NCMe has been determined. The Rh(1)–Rh(2) distance is distinctly longer than that in $[\text{Rh}_2(\text{OAc})_4(\text{H}_2\text{O})_2]$ (**3**·2H₂O). Axial sites of dirhodium core are occupied by a molecule of acetonitrile and a methoxy group of one of the nonmetallated phenyl rings. Detailed NMR studies reveal dynamic properties of complex **1** involving exchange between axial methoxy substituents and tilting of the metallated ring. The complexes **1** and **2** react with carbon monoxide giving complexes with a CO ligand coordinated in axial coordination sites.

Słowa kluczowe

Carbon monoxide, Dirhodium complexes, Ether–phosphines

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