



New water-soluble rhodium(I) complexes containing 1-methyl-1-azonia-3,5-diaza-7-phosphaadamantane iodide.

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Streszczenie

Reaction of $[\text{Rh}_2\text{Cl}_2(\text{CO})_4]$ with stoichiometric quantities of 1-methyl-1-azonia-3,5-diaza-7-phosphaadamantane iodide (mtpa^+I^-) in MeOH and H_2O yields square-planar $[\text{RhI}(\text{CO})(\text{mtpa}^+\text{I}^-)_2]$ **1** and trigonal-bipyramidal $[\text{RhI}(\text{CO})(\text{mtpa}^+\text{I}^-)_3] \cdot 4\text{H}_2\text{O}$ **2**, respectively. The complexes are stable in aqueous solution under inert atmosphere and catalyse the hydroformylation and the hydrocarboxylation of alkenes and the hydrogenation of aldehydes and alkenes. An X-ray crystallography study revealed that **2** has a TBPY-5 structure. The coordination around the Rh atom forms a nearly ideal trigonal bipyramid [$a=15.705(3)$ Å, $b=13.219(3)$ Å, $c=20.894(4)$ Å, monoclinic, space group $P2_1/c$, $Z=4$, $\beta=110.72(3)^\circ$].

Adres publiczny

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<https://www.rsc.org/>