New rhodium(I) water-soluble complexes with 1-alkyl-1-azonia-3,5-diaza-7-phosphaadamantane lodides and their catalytic activity.

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Streszczenie

The water-soluble phosphine ligands, 1,3,5-triaza-7-phosphatricyclo[3.3.1.1^{3,7}]decane (tpa) and 1-alkyl-1-azonia-3,5-diaza-7-phosphatricyclo[3.3.1.1^{3,7}]decane iodides (Rtpa^{+}I^{-}), with alkyl=methyl(mtpa^{+}I^{-}), ethyl (etpa^{+}I^{-}) and n-propyl, (ptpa^{+}I^{-}), and mtpa^{+}Cl^{-} react with [$Rh_2Cl_2(CO)_4$] giving the rhodium(I) complexes [RhCl(CO)(tpa)$_2$], [RhI(CO)(Rtpa^{+}I^{-})$_2$], [RhCl-(CO)(mtpa^{+}Cl^{-})$_3$] and [RhI(CO)(Rtpa^{+}I^{-})$_3$]. The properties and reactivities of the complexes have been investigated using ^{1}H and ^{31}PNMR and IR spectroscopies. The five-coordinate complexes in solutions show dynamic properties. The complexes are catalysts of the water-gas shift reaction, the hydrogenation of C⌡C and C⌡O bonds, the hydroformylation of alkenes and the isomerization of unsaturated compounds.

Adres publiczny

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