Cationic rhodium(I) complexes formed in the reactions of $HRh(CO)L_3$ (L=PPh_3, $P(OPh)_3$) complexes with silver(I) salts.

Autorzy

Anna M. Trzeciak

Zofia Olejnik

Józef J. Ziółkowski

Tadeusz Lis

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Streszczenie

The reactions of $HRh(CO)L_3$ (L=PPh_3, $P(OPh)_3$) complexes with AgY (Y=BF_4^-, $CF_3SO_3^-$, PF_6^-) lead to $[Rh(CO)(PPh_3)_2(H_2O)]Y$ and $[Rh(CO)(P(OPh)_3)_3]Y$ compounds. The solvolysis of $[Rh(CO)(PPh_3)_2(H_2O)]PF_6$ in ethanol produced a crystalline *trans*-$[Rh(CO)(PPh_3)_2(OPOF_2)]$ complex containing distorted square-planar rhodium center. The different arrangement of $OPOF_2^-$ ligands found in two crystallographically independent molecules is connected with the presence of intra- and intermolecular C□H…O hydrogen bonds involving both oxygen atoms of each $OPOF_2^-$ anion. The reaction of $[Rh(CO)(P(OPh)_3)_3]Y$ (Y=BF_4^-, PF_6^-) in solution with CO leads to $[Rh(CO)_2(P(OPh)_3)_3]Y$ and with $P(OPh)_3$ to $[Rh(P(OPh)_3)_4]Y$ complexes. The $[Rh(P(OPh)_3)_4]PF_6$ complex was also obtained as a final reaction product of $HRh(P(OPh)_3)_4$ with $AgPF_6$.Rhodium complexes $HRh(CO)L_3$ (L=PPh_3, $P(OPh)_3$) are oxidized by AgY salts (Y=BF_4^-, $CF_3SO_3^-$, PF_6^-) to $[HRh(CO)L_3]Y$ complexes, which decompose to $[Rh(CO)(PPh_3)_2(H_2O)]Y$ and $[Rh(CO)(P(OPh)_3)_3]Y$ species, respectively, with H_2 evolution. The *trans*-$[Rh(CO)(PPh_3)_2(OPOF_2)]$ complex obtained by solvolysis of $[Rh(CO)(PPh_3)_2(H_2O)]PF_6$ in ethanol was structurally characterized. Complexes of $[Rh(CO)(P(OPh)_3)_3]Y$-type (Y=BF_4^-, PF_6^-) react with CO and $P(OPh)_3$ forming $[Rh(CO)_2(P(OPh)_3)_3]Y$ and $[Rh(P(OPh)_3)_4]Y$ species, respectively.

Słowa kluczowe

Hydridorhodium(I) complexes, Rhodium(II) complexes, Cationic Rh(I) complexes

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