Synthetic routes and structures of $[Rh(Hdmg)\{ClZn(C_2H_5OH)dmg\}(PPh_3)Cl]$, $[Rh(Hdmg)_2(PPh)_2]^+[Rh(Hdmg)_2(Cl)_2]^- \cdot 2CH_3OH$, and $[Rh(Hdmg)2(PPh_3)I] \cdot 0.5C_2H_5OH$ complexes.

Autorzy

Monika Moszner

Zbigniew Ciunik

Józef J. Ziółkowski

Rok wydania

2003

Czasopismo

Polyhedron

Numer woluminu

22

Strony

3195-3203

DOI

10.1016/S0277-5387(03)00468-6

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Treatment of $[Rh(Hdmg)_2(PPh_3)Cl]$ with zinc amalgam afforded a heterobimetallic compound $[Rh(Hdmg)(ClZndmg)(PPh_3)Cl]$ (**1a**) (Hdmg=monoanion of dimethylglyoxime). Crystallization of (**1a**) from a $CHCl_3/C_2H_5OH$ mixture led to the formation of $[Rh(Hdmg)\{ClZn(C_2H_5OH)dmg\}(PPh_3)Cl]$ (**1**). The X-ray crystal structure of **1** revealed that the ethanol molecule was built into the complex molecule through the oxygen atom coordinated to the zinc cation and a hydrogen bond involving one of the chloride ligands. Reduction of $[Rh(Hdmg)_2(PPh_3)Cl]$ with Zn/Hg, followed by treatment with a $CHCl_3/CH_3OH$ mixture, gave the complex salt $[Rh(Hdmg)_2(PPh_3)_2]^+[Rh(Hdmg)_2(Cl)_2]^- \cdot 2CH_3OH$ (**2**). The X-ray structure of **2** showed crystals formed by cations $[Rh(Hdmg)_2(PPh_3)_2]^+$ and anions $[Rh(Hdmg)_2Cl_2]^-$. The anion binds one CH_3OH molecule through a hydrogen bond involving the adjacent oxime atom. Reduction of $[Rh(Hdmg)_2(PPh_3)Cl]$ with zinc amalgam in the presence of CH_3I led to the compound $[Rh(Hdmg)_2(PPh_3)I] \cdot 0.5C_2H_5OH$ (**3**), which was characterized by X-ray crystallography.The first instance of a bimetallic oximato compound containing Rh(III) and Zn(II) centres, **1**, has been obtained and structurally determined in addition to two new rhodoximes, **2** and **3**. It has been demonstrated that rhodium compounds with dioximato ligands can serve as suitable models for designing heteronuclear complexes.

Słowa kluczowe

Rhodium, Rhodoximes, Oximates, Spectral properties, Crystal structures

Adres publiczny

https://doi.org/10.1016/S0277-5387(03)00468-6