

Synthesis of the water-soluble [Rh(Tpms)(CO)(PTA)] compound, the first transition metal complex bearing the 1,3,5-triaza-7-phosphaadamantane (PTA) and the tris(1-pyrazolyl)methanesulfonate (Tpms) ligands.

Autorzy

Piotr Smoleński

C. Dinoi

Silva M. Fátima. C. Guedes
da

Armando J. L. Pombeiro

Rok wydania

2008

CzasopismoJournal of Organometallic
ChemistryNumer woluminu

693

Strony

2338-2344

DOI

10.1016/j.jorganchem.2008.04.008

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The water-soluble Rh^I compound [Rh(Tpms)(CO)(PTA)] (**1**) (Tpms = O₃SC(pz)₃⁻, PTA = 1,3,5-triaza-7-phosphaadamantane) has been easily prepared in high yield by a single-pot reaction of [Rh(CO)₂(μ-Cl)]₂ with PTA and the tris(1-pyrazolyl)methanesulfonate lithium salt Li(Tpms), in a CH₂Cl₂/MeOH solution at room temperature. This synthetic strategy can be easily applied to the preparation of general [Rh(Tpms)(CO)(L)] (L = phosphine) complexes and constitutes a substantial improvement over the previously described procedures. Compound **1** is air stable in the solid state and water-soluble, affording stable solutions under an inert atmosphere. It has been characterized by IR, ¹H, ³¹P{¹H} and ¹³C{¹H} NMR spectroscopies, elemental and single crystal X-ray diffraction structural analyses. The solid state structure of **1** has a square-planar geometry with the Tpms ligand coordinating the metal centre in a (κ²: N,N) bipodal mode. The title compound has also been investigated by cyclic voltammetry in CH₃CN, and values of the E_L Lever and P_L Pickett electrochemical parameters (which measure the ligand net electron-donor character) are proposed for the PTA ligand. Complex **1** represents the first example of a transition metal complex bearing both PTA and Tpms (or any other tris(1-pyrazolyl)methane or derivative) ligands.

Adres publiczny<https://doi.org/10.1016/j.jorganchem.2008.04.008>Strona internetowa wydawcy<http://www.elsevier.com>