

Synthesis and structures of two ruthenium dibenzoylmethane triphenylphosphine mixed ligand complexes

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Abstract: The reaction of dibenzoylmethane (HDBM) with $[\text{RuCl}_2(\text{PPh}_3)_3]$ in benzene in the presence of a supporting base (Et_3N) under reflux gives two different complexes, the side product as a green-yellow Ru(III) compound of composition $[\text{Ru}^{\text{III}}\text{Cl}_2(\text{DBM})(\text{PPh}_3)_2]$ (2) and the main product as a red Ru(II) complex of composition $[\text{Ru}^{\text{II}}(\text{DBM})_2(\text{PPh}_3)_2]$ (3). The products were studied by spectroscopic methods, cyclic voltammetry and X-ray single crystal diffraction. The molecular structure of 2 shows a distorted octahedral environment around the Ru atom with two phosphine ligands in trans positions. The octahedral complex 3 shows a cis arrangement of two phosphine ligands.    2009 Springer Science+Business Media B.V.

Index Keywords: Cis arrangement; Dibenzoylmethane; Mixed ligand complexes; Octahedral complex; Octahedral environment; Phosphine ligands; Ru complexes; Side products; Spectroscopic method; Triphenyl phosphines; X-ray single-crystal diffraction; Benzene; Chelation; Complexation; Crystal atomic structure; Cyclic voltammetry; Ligands; Phosphorus compounds; Ruthenium; Single crystals; Spectroscopic analysis; Synthesis (chemical); Ruthenium compounds

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