



Impact of dioxygen and carboxylic acids on the transformation of rhodium(I) to rhodium(III) complexes.

Autorzy

Ewa Mieczysłowska
Anna M. Trzeciak
Józef J. Ziółkowski
Tadeusz Lis

Rok wydania

1995

Czasopismo

Journal of the Chemical
Society, Dalton Transactions

Strony

105-109

DOI

10.1039/DT9950000105

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The reaction of the hydroformylation catalyst precursor $[\text{Rh}(\text{acac})(\text{CO})(\text{PPh}_3)]$ (acac = acetylacetonate) with dioxygen and salicylic acid led to the formation of the rhodium(III) complexes $[\text{Rh}(\text{acac})(\text{HOC}_6\text{H}_4\text{CO}_2)_2(\text{PPh}_3)(\text{H}_2\text{O})]$ and $[\text{Rh}(\text{acac})_2(\text{HOC}_6\text{H}_4\text{CO}_2)(\text{PPh}_3)]$. The structures of the latter complexes were characterized spectroscopically (^1H and ^{31}P NMR) as well as by X-ray crystallography. Dioxygen activation by Rh^{I} proceeds through peroxo $[\text{Rh}(\text{O}_2)(\text{HOC}_6\text{H}_4\text{CO}_2)(\text{CO})(\text{PPh}_3)]$ and hydrogen dioxide $[\text{Rh}(\text{O}_2\text{H})(\text{acac})(\text{HOC}_6\text{H}_4\text{CO}_2)(\text{CO})(\text{PPh}_3)]$ complexes identified by IR UV/VIS and ^{31}P NMR methods. Oxidation of CO to CO_2 occurs in the inner coordination sphere of rhodium.

Adres publiczny

DOI <https://doi.org/10.1039/DT9950000105>

Strona internetowa wydawcy

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