Hydroformylation and related reactions of vinylsilanes catalyzed by siloxide complexes of rhodium(I) and iridium(I).

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Streszczenie

Rhodium(I) and iridium(I) complexes of the formula [(cod)Rh($OSiMe_3$)(PPh_3)] **(1)**, [(cod)Rh($OSiMe_3$)(PCy_3)] **(2)**, [(cod)Rh($OSiMe_3$)]$_2$ **(3)**, [(cod)Ir($OSiMe_3$)(PCy_3)] **(4)**, and [(cod)Ir($OSiMe_3$)]$_2$ **(5)**, used as catalysts of hydroformylation of the vinylsilanes $Me_3SiCHCH_2$, $Me_2PhSiCHCH_2$, $(MeO)_3SiCHCH_2$, and $Me_2PhSiCHCHPh$ at 80 °C and 10 atm of H_2/CO (H_2:CO = 1), produced aldehydes (*n* + iso) as the main products with yields of up to 100%. In the presence of the iridium complexes **(4)** and **(5)**, some amounts of ethylsilanes, up to 40%, were obtained, besides aldehydes as a result of hydrogenation of the substrates. In the presence of the rhodium complexes **(1)** and **(2)**, isomerization of iso-aldehydes to 1-siloxypropenes was observed under the reaction conditions. Under 10 atm of H_2, the rhodium complexes appeared to be very effective catalysts of vinylsilanes hydrogenation. The hydrogenation reaction products, in addition to ethylsilanes, also included products of homocoupling of vinylsilanes (hydrogenated and non-hydrogenated).

Słowa kluczowe

Rhodium(I)-siloxide complexes, Iridium(I)-siloxide complexes, Vinylsilanes, Hydroformylation, Isomerization, 1-Siloxypropene

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