Synthesis and structural characterization of magnesium and titanium siloxanes.

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Streszczenie

Dimeric magnesium complex with siloxane $OSiPh_3$ ligands have been synthesised with the aim of investigating magnesium sites able to bind TiX_4 (X=Cl, OR), of the type necessary for the formation of the active centres in polymerisation catalysts. The magnesium compound $[Mg_2(\mu\text{-}OSiPh_3)_2(OSiPh_3)_2(THF)_2]$ (1, 76%) was prepared by reaction of $[Mg_4(thffo)_8]$ (thffo-H=tetrahydrofurfuryl alcohol) with Ph_3SiOH in tetrahydrofurane (THF). The addition of $TiCl_4$ to 1 in a 2:1 molar ratio results in the formation of $[TiCl_2(OSiPh_3)_2(THF)_2]$.2THF (2, 50.5%). The reaction of 1 with 4 equiv. of cis-$[TiCl_2(\eta^2\text{-maltolato})_2]$ (maltolato=(O,O)-3-oxy-2-methyl-pyran-4-onato) in CH_2Cl_2 gave compound $[TiCl(OSiPh_3)(\eta^2\text{-maltolato})_2]$.THF (3, 72%). Straightforward chloride replacement reaction in 3 by use of Li^tBu and Ph_3SiOH results in the formation of species $[Ti(^tBu)(OSiPh_3)(\eta^2\text{-maltolato})_2]$ (4, 63%) and $[Ti(OSiPh_3)_2(\eta^2\text{-maltolato})_2]$ (5, 91%), respectively. The molecular structures of compounds 2 and 3 have been determined by X-ray structure analysis.

Słowa kluczowe

Magnesium compounds, Titanium complexes, Siloxanes, Polymerisation

Adres publiczny

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