Synthesis of a Benzothiazol-2-ylidene Complex of Tungsten(0) and Transfer of the Ylidene Ligand to Rhodium(I)

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Dedicated to Professor Wolfgang Jeitschko on the occasion of his 70th birthday

2-Lithiobenzothiazole reacts with freshly generated [W(CO)$_5$(THF)] to give the anionic ylidene complex (**1**). Treatment of **1** with allyl bromide yields complex [W(CO)$_5$(1-allylbenzothiazolin-2-ylidene)] (**2**) while the reaction in wet CH_2Cl_2 leads to the formation of a mixture of **2** (major) and [W(CO)$_5$(1-H-benzothiazolin-2-ylidene)] (**3**) (minor). Complex **2** reacts in a transmetallation reaction with [Rh(coe)$_2$(μ-Cl)]$_2$ (coe = cyclooctone) to give the dicarbene complex [Rh(Cl)(η^1-NHC)(η^2-NHC)] (NHC = 1-allylbenzothiazolin-2-ylidene) with one carbene ligand coordinated *via* the C2 carbon atom and the other one coordinating with both the C2 carbon atom and the allyl group.

Key words: Benzothiazole, Benzothiazolin-2-ylidene, Tungsten, Rhodium, Crystal Structure