# Ruthenocene mit sterisch anspruchsvollen Cyclopentadienylliganden

Ruthenocene Complexes Containing Sterically Demanding Cyclopentadienyl Ligands

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1-*tert*-Butyl-2,4-cyclopentadiene (**1**), 1,3-di(*tert*-butyl)-2,4-cyclopentadiene (**2**), 1-ethyl-2,3,4,5-tetramethyl-2,4-cyclopentadiene (**3**), 1-*iso*-propyl-2,3,4,5-tetramethyl-2,4-cyclopentadiene (**4**), 1-*tert*-butyl-2,3,4,5-tetramethyl-2,4-cyclopentadiene (**5**), and 1-phenyl-2,3,4,5-tetramethyl-2,4-cyclopentadiene (**6**) react with *n*-butyl lithium followed by tributyltin chloride to give the corresponding tributyl(cyclopentadienyl)stannanes $Bu_3SnCp^{\#}$ **1a** to **6a**. The reactions of **1a** to **6a** with $Ru(COD)Cl_2$ result in the formation of the corresponding ruthenocenes $RuCp^{\#}_2$ **1b** to **6b**. $Ru(C_5H_3Ph_2)_2$ (**7b**) is prepared from $[Ru(p\text{-cymol})Cl_2]_2$ and $Na[C_5H_3Ph_2]$. The $^1H$ and $^{13}C$ NMR spectra of the new stannanes **1a** to **6a** and the ruthenocenes **1b** to **7b** as well as the single crystal X-ray structure of **4b** are reported and discussed.

*Key words:* Ruthenium Complexes, Cyclopentadienylruthenium Complexes, Organotin Compounds