

Synthesis of new ruthenocene derivatives

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Hydrogenation of (1,3-diformylindenyl)cyclopentadienylruthenium derivatives $\{\eta^5-1,3-(\text{CHO})_2\text{C}_9\text{H}_5\}\text{RuCp}$ ($\text{Cp}=\text{C}_5\text{H}_5$), $\{\eta^5-1,3-(\text{CHO})_2\text{C}_9\text{H}_5\}\text{RuCp}^*$ ($\text{Cp}^*=\text{C}_5\text{Me}_5$) and $\{\eta^5-1,3-(\text{CHO})_2\text{C}_9\text{H}_5\}\text{RuCp}^{\text{F}}$ ($\text{Cp}^{\text{F}}=\text{C}_5\text{Me}_4\text{CF}_3$) with hydrides NaBH_4 or LiAlH_4 leads to formation of the corresponding [1,3-bis(hydroxymethyl)indenyl]cyclopentadienyl complexes $\{\eta^5-1,3-(\text{CH}_2\text{OH})_2\text{C}_9\text{H}_5\}\text{RuCp}^*$ and $\{\eta^5-1,3-(\text{CH}_2\text{OH})_2\text{C}_9\text{H}_7\}\text{RuCp}^{\text{F}}$.

Interaction of ruthenium(II) complexes $[\text{Cp}^{\text{F}}\text{RuCl}]_n$ and $[\text{Cp}^{\text{F}}\text{Ru}(\text{CH}_3\text{CN})_3]\text{PF}_6$ with pentafulvenes 1,2-(Me_2NCH)(CO_2Et) C_5H_3 and 1,3-(Me_2NCH)(CO_2Et) C_5H_3 , after the subsequent hydrolysis, leads to the formation of corresponding homoannular disubstituted ruthenocenes $\{1,2-(\text{CO}_2\text{Et})(\text{CHO})\text{C}_5\text{H}_3\}\text{RuCp}^{\text{F}}$ and $\{1,3-(\text{CO}_2\text{Et})(\text{CHO})\text{C}_5\text{H}_3\}\text{RuCp}^{\text{F}}$ ($\text{Cp}^{\text{F}}=\text{C}_5\text{MeCF}_3$).