Synthesis of a Dinuclear \(\mu-(\eta^2\text{-Thioaldehyde})\)zirconocene Cation Complex

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Treatment of (butadiene)zirconocene with two molar equivalents of benzylmercaptane results in the formation of \(\text{Cp}_2\text{Zr(SCH}_2\text{Ph})_2\) (11). Subsequent reaction of 11 with \([\text{Cp}_2\text{ZrCH}_3]^+\)[\(\text{CH}_3\text{B(C}_6\text{F}_5)_3\)] (12) leads to rapid elimination of methane to yield the dinuclear \([\mu-(\eta^2\text{-thiobenzaldehyde})(\mu\text{-SCH}_2\text{Ph})(\text{ZrCp}_2)_2]^+\) cation complex 14. A similar reaction is observed upon treatment of \(\text{Cp}_2\text{Zr(SC}_2\text{H}_5)_2\) (15) with 12 to yield the thioacetaldehyde-bridged dinuclear metalloccene cation complex \(\text{Cp}_2\text{Zr-µ-(ξ^2\text{-MeCHS})-µ-(SEt)}\text{ZrCp}_2\) (16).