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Chiral and Diastereoisomeric Ferrio Phosphanes

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Deprotonation of the iron salts $[\text{Cp}(\text{CO})_2\text{FePRH}_2] \text{BF}_4$ ($\text{R}=\text{alkyl, aryl}$) (1) yields the ferrio-phosphanes $\text{Cp}(\text{CO})_2\text{FeP}(\text{R})\text{H}$ (2), which are converted in the presence of PMe_3 to the diastereomeric derivatives $\text{Cp}(\text{CO})(\text{PMe}_3)\text{FeP}(\text{R})\text{H}$ (3).

The one pot reaction of $\text{Na}[\text{Fe}(\text{CO})_2\text{Cp}]$, Me_3P and $\text{RR}'\text{PCl}$ ($\text{R}=\text{Me}$, $\text{R}'=\text{Ph}$) represents an alternative way for the synthesis of diastereomeric ferrio-phosphanes $\text{Cp}(\text{CO})(\text{PMe}_3)\text{FeP}(\text{R})\text{R}'$ (4).

Quarternization of 3,4 with diverse alkylhalides $\text{R}''\text{X}$ leads to the formation of the complex salts $[\text{Cp}(\text{CO})(\text{PMe}_3)\text{FePRR}''\text{H}]\text{X}$ (5) as mixtures of diastereomers.

Optical induction as a function of R and R'' is observed. Studies concerning the reactivity of the P-H bond of 2,3 and $\text{Cp}(\text{PMe}_3)_2\text{FeP}(\text{R})\text{H}$ (6) will be reported.