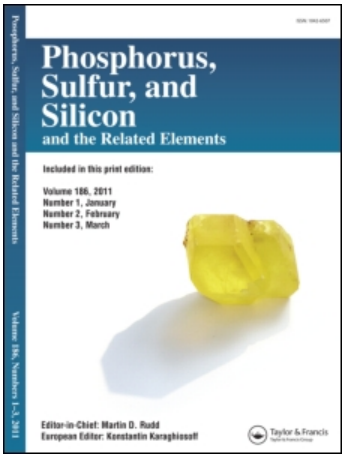

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Homogeneous Asymmetric Catalysis by Means of Chiral Metal Complexes of 2,3-Bis(Dimenthylphosphino)Maleic Anhydride and of 2,3-Bis(Dimenthylphosphino)Male-Imide Derivatives

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HOMOGENEOUS ASYMMETRIC CATALYSIS BY MEANS OF CHIRAL METAL COMPLEXES OF 2,3-BIS(DIMENTHYLPHOSPHINO)MALEIC ANHYDRIDE AND OF 2,3-BIS(DIMENTHYLPHOSPHINO)MALEIMIDE DERIVATIVES

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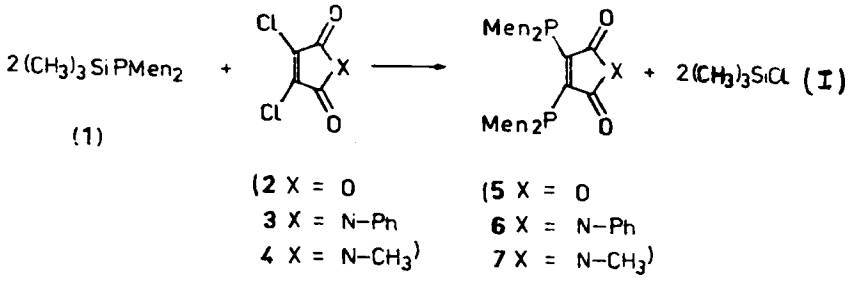
By treating of dimenthyl(trimethylsilyl)phosphine with the compounds 2, 3 and 4 the ligands 5, 6 and 7 were synthesized according to eq. (I)



(Men = (-)-(1R, 3R, 4S)-menthyl)

These compounds have been used as ligands for Rh-complexes in the asymmetric hydrogenation (1) and hydrosilylation. Ni and Pd-complexes of these ligands were tested in the Grignard cross-coupling reaction between (E)-ß-bromostyrene and 1-phenylethylmagnesium chloride.
The hydrogenation of -acetamido cinnamic acid gave 70 % enantiomeric excess, hydrogenation of acetophenone up to 47 % ee. Hydrosilylation of acetophenone led to 42 % ee. Attempts to asymmetric cross-coupling reactions resulted in very low enantiomeric excess.

(1) A. Kinting and H. W. Krause, J. Organomet. Chem., 302 (1986) 259