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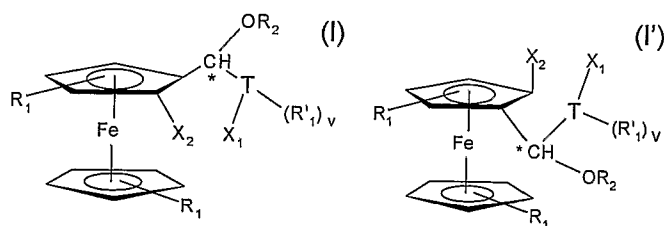
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(54) Title: FERROCENYL LIGANDS FOR HOMOGENEOUS, ENANTIOSELECTIVE HYDROGENATION CATALYSTS



(57) Abstract: Compounds of the formula (I) or (I'), where R₁ is a hydrogen atom or C₁-C₄-alkyl and R'₁ is C₁-C₄-alkyl; X₁ and X₂ are each, independently of one another, a secondary phosphine group; R₂ is hydrogen, R₀₁R₀₂R₀₃Si-, C₁-C₁₈-acyl substituted by halogen, hydroxy, C₁-C₈-alkoxy or R₀₄R₀₅N-, or R₀₆-X₀₁-C(O)-; R₀₁, R₀₂ and R₀₃ are each, independently of one another, C₁-C₁₂-alkyl, unsubstituted or C₁-C₄-alkyl or C₁-C₄-alkoxy-substituted C₆-C₁₀-aryl

or C₇-C₁₂-aralkyl; R₀₄ and R₀₅ are each, independently of one another, hydrogen, C₁-C₁₂-alkyl, C₃-C₈-cycloalkyl, C₆-C₁₀-aryl or C₇-C₁₂-aralkyl, or R₀₄ and R₀₅ together are trimethylene, tetramethylene, pentamethylene or 3-oxapentylene; R₀₆ is C₁-C₁₈-alkyl, unsubstituted or C₁-C₄-alkyl- or C₁-C₄-alkoxy-substituted C₃-C₈-cycloalkyl, C₆-C₁₀-aryl or C₇-C₁₂-aralkyl; X₀₁ is -O- or -NH-; T is C₆-C₂₀-arylene; v is 0 or an integer from 1 to 4; and * denotes a mixture of racemic or enantiomerically pure diastereomers or pure racemic or enantiomerically diastereomers, are excellent chiral ligands for metal complexes as enantioselective catalysts for the hydrogenation of prochiral organic compounds.