

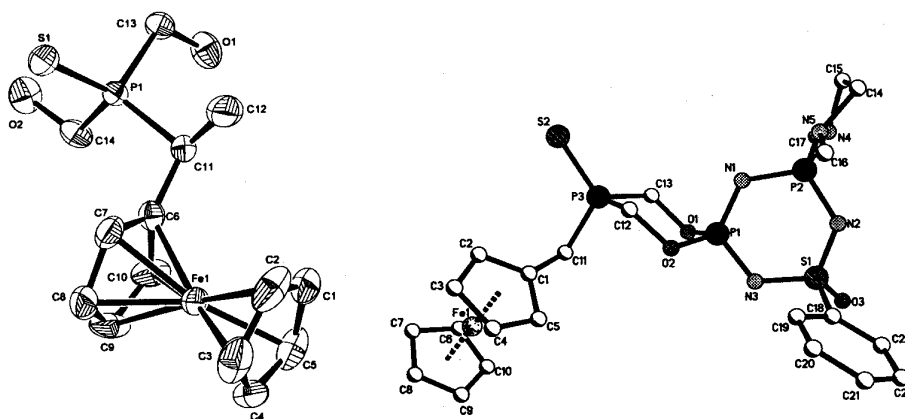
Synthesis and reactions of ferrocene derived hydroxymethyl phosphines, $[\text{Fe}(o\text{-C}_5\text{H}_5)\text{-}\{o\text{-C}_5\text{H}_4\text{CH}(\text{R})\text{P}(\text{CH}_2\text{OH})_2\}]$ $\text{R} = \text{H}, \text{CH}_3$

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The relevance of ferrocene-based phosphines stems from the fact that a large number of chiral aminoethyl and phosphinoethyl ferrocenes have been found to be highly efficient chiral ligands for homogeneous catalysts in asymmetric transformations¹. Many of these have been derived primarily from [1-(N,N-dimethylamino)ethyl/methyl] ferrocene with further substitution by a phosphine moiety on the substituted cyclopentadienyl group. Such compounds possess a planar chirality in addition to the central element of chirality resulting from a chiral carbon. Further, ferrocenyl diphosphines as well as substituted phosphoferrocene ligands belonging to this category have been synthesized and their metal complexes prepared. In this paper we discuss the synthesis of ferrocene derived racemic phosphines and their sulphides having hydroxymethyl and morpholinomethyl substituents on the phosphorus. Use of ferrocene-derived hydroxymethyl phosphine sulphide as a potential precursor for making organometallic spirocyclic compounds with inorganic heterocycles is studied.



Reference

1. Goodwin N J, Henderson W, Nicholson B K, Sarfo J K, Fawcett J and Russel D R 1999 *J. Chem. Soc., Dalton Trans.* 1785