

Table of Contents

	Page
5.2.9 With P-Containing Substituents	1
5.2.9.1 Phosphines and Phosphonium Salts	1
1,1' Compounds	2
Compounds of the Type $RR'P-A_n-C_5H_4FeC_5H_4-R^2$ ($n = 0, 1$; $RR'P-A_n = R^1$) and Derived Phosphonium Salts	2
Chelate Complexes Derived from Phosphines of the Type $RR'P-A_n-C_5H_4FeC_5H_4-R^2$ ($n = 0, 1$; $RR'P-A_n = R^1$)	17
1,2 Compounds	48
Compounds of the Type $C_5H_5FeC_5H_3(A_n-PRR'-1)R^2-2$ ($n = 0, 1$; $A_n-PRR' = R^1$) and Derived Phosphonium Salts	48
Complexes Derived from Phosphines of the Type $C_5H_5FeC_5H_3(PPR'-1)R^2-2$ ($PPR' = R^1$)	67
5.2.9.2 Compounds with P=O Bonding	78
5.2.9.3 Compounds with P=S Bonding	81
5.2.9.4 P-Containing Heterocycles	82
 5.2.10 With As-Containing Substituents	 86
5.2.10.1 1,1' Compounds	86
Arsines and Arsonium Salts	86
Complexes Derived from Arsines of the Type $Fe(C_5H_4-AsR_2)_2$ ($R = CH_3, C_6H_5$)	89
5.2.10.2 1,2 Compounds	94
 5.2.11 With Li-Containing Substituents	 95
5.2.11.1 1,1' Compounds	95
$Fe(C_5H_4-Li)_2$ and Adducts	95
$Fe(C_5H_4-Li)_2$	95
Adducts of $Fe(C_5H_4-Li)_2$	100
Adduct of $Fe(C_5H_4-Li)_2$ with $(CH_3)_2NCH_2CH_2N(CH_3)_2$	100
Adduct of $Fe(C_5H_4-Li)_2$ with $(CH_3)_2NCH_2CH_2N(CH_3)CH_2CH_2N(CH_3)_2$	107
Compounds of the Type $Li-A_n-C_5H_4FeC_5H_4-R^2$ ($n = 0$ or 1 ; $Li-A_n = R^1$)	113
5.2.11.2 1,2 Compounds	118
5.2.11.3 1,3 Compounds	129
 5.2.12 With Na-, K-, Mg-, or Zn-Containing Substituents	 130
5.2.13 With Hg-Containing Substituents	132
5.2.13.1 1,1' Compounds	132
$Fe(C_5H_4-HgCl)_2$	132
$Fe(C_5H_4-HgSCN)_2$ and Derived Complexes	135

	Page
Further Compounds of the Type $\text{Fe}(\text{C}_5\text{H}_4\text{-HgX})_2$	140
Compounds of the Type $\text{XHg-C}_5\text{H}_4\text{FeC}_5\text{H}_4\text{-R}^2$ ($\text{XHg} = \text{R}^1$)	141
5.2.13.2 1,2 Compounds	146
5.2.13.3 1,3 Compounds	151
 5.2.14 With Ge-, Pb-, Sn-, Ti-, Cr-, V-, W-, or U-Containing Substituents	 154
5.2.14.1 Ge and Pb Compounds	154
5.2.14.2 Sn Compounds	157
5.2.14.3 Compounds with Ti, Cr, V, W, or U	162
 5.2.15 With Mn-, Ni-, Co-, or Fe-Containing Substituents	 167
 5.2.16 With Cu-, Ag-, or Au-Containing Substituents	 175
 5.2.17 With Pd-, Ru-, Re-, or Pt-Containing Substituents	 178
5.2.17.1 Pd Compounds	178
5.2.17.2 Compounds with Re, Ru, or Pt	189
 5.3 Trisubstituted Compounds $\text{FeC}_{10}\text{H}_7\text{R}^1\text{R}^2\text{R}^3$	 191
 5.3.1 With Only C- and H-Containing Substituents	 191
5.3.1.1 1,2,1' Compounds	191
5.3.1.2 1,3,1' Compounds	201
5.3.1.3 Homoannular Substituted Compounds	212
5.3.1.4 Compounds without Positional Assignments for the Substituents	213
 5.3.2 With Halogen-Containing Substituents	 215
 5.3.3 With O-Containing Substituents	 216
5.3.3.1 Alcohols and Derived Carbenium Ions	216
1,2,1' Compounds	216
Alcohols	216
Carbenium Ions Derived from the Alcohols	223
1,3,1' Compounds	228
Alcohols	228
Carbenium Ions Derived from the Alcohols	232
Further Alcohols and Derived Carbenium Ions	235
5.3.3.2 Carbonic Acid Esters of the Type $\text{FeC}_{10}\text{H}_7\text{R}^2\text{R}^3\text{AO}_2\text{CR}$ ($\text{AO}_2\text{CR} = \text{R}^1$) and Ethers	237

	Page
5.3.3.3 Aldehydes	237
5.3.3.4 Ketones	240
1,2,1' Compounds	240
1,3,1' Compounds	253
Further Ketones	264
5.3.3.5 Carboxylic Acids	266
1,2,1' Compounds	266
1,3,1' Compounds	269
Further Carboxylic Acids	275
5.3.3.6 Carboxylic Acid Esters	277
1,2,1' Compounds	277
1,3,1' Compounds	279
Further Carboxylic Acid Esters	282
5.3.3.7 Further Compounds with O-Containing Substituents	283
5.3.4 With N-Containing Substituents	284
5.3.4.1 Amines and Derived Ammonium Compounds	284
1,2,1' Compounds	284
1,3,1' Compounds	288
Further Amines	292
5.3.4.2 Further Compounds with N-Containing Substituents	293
5.3.5 With S-Containing Substituents	296
5.3.6 With B- or Si-Containing Substituents	299
5.3.7 With P-Containing Substituents	300
5.3.7.1 1,2,1' Compounds	300
Phosphines and Phosphonium Salts	300
Complexes Derived from Phosphines of the Type $R_2^1P-C_5H_4FeC_5H_3(PR_2^1-1)R^2-2$ ($PR_2^1 = R^1$ and R^3).	316
5.3.7.2 Further Phosphines and Phosphonium Salts	319
5.3.8 With Li-Containing Substituents	322
5.3.8.1 Heteroannular-Substituted Compounds	322
5.3.8.2 Homoannular-Substituted Compounds	326
5.3.9 With Further Metal-Containing Substituents	328
Formula Index	335
Physical Constants and Conversion Factors	364