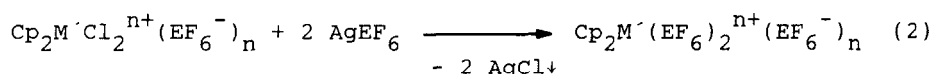
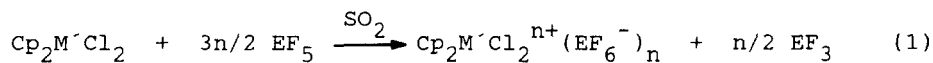


THE CHEMISTRY OF HIGHLY OXIDIZED METALLOCENE
HEXAFLUOROPNICOGENATE COMPLEXES

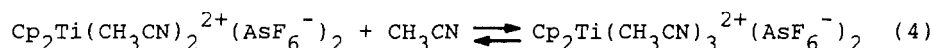
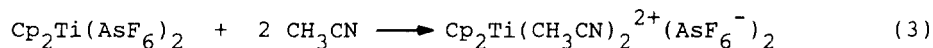
P. K. Gowik and T. M. Klapötke

Institut für Anorganische und Analytische Chemie, Technische Universität
Berlin, D-1000 Berlin 12 (F.R.G.)

Quite recently we reported the synthesis of covalent and cationic metallocene hexafluoropnicogenate complexes of the type $Cp_2M(EF_6)_2$ ($M = Ti, V$; $E = As, Sb$) and $Cp_2M'Cl_2(EF_6)_n$ ($M' = V, Nb$; $n = 1$. $M' = Mo, W$; $n = 2$). The per(hexafluoropnicogenate) species can be obtained quantitatively from the dichlorides according to eqs. (1) and (2):



The reaction of the covalent $Cp_2Ti(AsF_6)_2$ with strong Lewis bases leads to cationic derivatives according to eqs. (3) and (4):



The solution equilibria are discussed on the basis of 1H and ^{19}F n.m.r. data. Although the chemistry of neutral metallocene dichlorides is well documented it is interesting to investigate the reactivity of the corresponding highly oxidized cations. For example, Cp_2MoCl_2 reacts with two equivalents of sodium mercaptide yielding $Cp_2Mo(SR)_2$. Surprisingly (or not?) $Cp_2MoCl_2^{2+}$ oxidizes the sulphur yielding the disulfide.