PREPARATION AND CHARACTERISATION OF METAL COMPLEXES WITH 2,4,6-TRIS(TRIFLUOROMETHYL)CHALCOGENOPHENOLATE LIGANDS

D. Labahn, N. Bertel, M. Scholz and H.W. Roesky

Institut für Anorganische Chemie der Universität,
Tammannstrasse 4, W-3400 Göttingen (F.R.G.)

The preparation of chalcogeno metal complexes with low co-ordination numbers at the metal centres by introducing the 2,4,6-tris(trifluoromethyl)phenyl ligand (R_f) will be reported. The preparation of the chalcogenophenols R_fOH, R_fSH, and R_fSeH is described. They are all colourless liquids which can be obtained by distillation under reduced pressure.

Their reactions with the bis(trimethylsilyl)amido metal compounds $M[N(SiMe_3)_2]_2$ (M= Zn, Cd, Ge, Sn, Pb) lead to metal complexes of composition $M(ER_f)_2$ (E= O, S, Se). They are characterised by n.m.r., mass spectra, and elemental analyses.

CpIn (cp = C_5H_5) and TlOEt react with R_fOH to afford compounds $M(OR_f)_2$. In solid state both have dimeric strutures. The co-ordination number of 2 for the metal centres is shown by single crystal X-ray structure determinations.

In the case of R_fSH, cpIn disproportionates into indium metal and $In(SR_f)_3$ while TlOEt reacts to give the polymeric $(TlSR_f)_n$[1]. All main group III metal complexes have been characterised by X-ray structure analyses.

1 D. Labahn, E. Pohl, R. Herbst-Irmer, D. Stalke, H.W. Roesky, G.M. Sheldrick, Chem. Ber., submitted.