Diphenyl(2-hydroxy-phenyl)phosphine and its Trimethylsilyl Ether as Ligands for Gold(I) Complexes

Christian Hollatz, Annette Schier, Hubert Schmidbaur*

Anorganisch-chemisches Institut der Technischen Universität München, Lichtenbergstrasse 4, D-85747 Garching, Germany

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Diphenyl(2-hydroxy-phenyl)phosphine was introduced as a ligand for gold(I) halides and pentafluorophenyl gold(I) in order to probe the interplay of intra- and intermolecular interactions based on aurophilic (Au···Au) and hydrogen bonding. 1:1 complexes of the type Ph_2(2-HO-C_6H_4)P-Au-X with X = Cl, Br, C_6F_5 have been prepared and characterized by analytical and spectroscopic data. The crystal structure of the chloro complex (**1**) has been determined. In the lattice the molecules form dimers through O-H···Cl hydrogen bonds. Au···Au contacts are ruled out by steric congestion. Reaction of **1** with triethylamine yields a 1:1 adduct with O-H···NEt_3 hydrogen bonding. The trimethylsilyl ether of the title ligand also forms 1:1 complexes with AuCl, AuBr, AuI, and AuC_6F_5. The crystal structures of the chloro (**5**) and iodo (**7**) compound have been determined. In both cases the lattices are built from monomers which show only minor differences in their conformations. The silylether groups are not acting as intra- or intermolecular donor functions to the gold atoms.

* Reprint requests to Prof. Dr. H. Schmidbaur.