

Synthesis and Reactions with CO and C₂H₄ of Cobalt(I) Complexes Containing Trimethylphosphine and Chelating *o*-Diphenylphosphanylphenolate Ligands

Hans-Friedrich Klein*, Alexandra Brand, Gerhard Cordier

Institut für Anorganische Chemie der Technischen Universität Darmstadt,
Petersenstraße 18, D-64285 Darmstadt

Z. Naturforsch. **53 b**, 307–314 (1998); received November 28, 1997

Cobalt, *o*-Phosphanylphenolate Complexes, Synthesis, Structure, Fluxionality

In tetracoordinate cobalt(I) halide compounds CoX(Ph₂P[^]OH)(PMe₃)₂ (X = Cl, Br) *o*-phosphanylphenols Ph₂P[^]OH are coordinated as phosphane ligands. In the presence of base chelating anions Ph₂P[^]O⁻ give rise to pentacoordinate complexes Co(Ph₂P[^]O)(PMe₃)₃. Molecular structures are presented for both types of compounds. The five-membered chelate ring in Co(Ph₂P[^]O)(PMe₃)₃ is resistant to protonation, and ring-opening is not observed in the presence of CO or C₂H₄. Replacing one of the trimethylphosphanes by one of the π-acceptor ligands affords fluxional complex molecules which upon cooling attain definite ground-state geometries out of a multitude of possible isomers.

* Reprint requests to Prof. Dr. H.-F. Klein; Fax: +49 6151 164173, E-mail: hfklein@hrz2.hrz.tu-darmstadt.de