Photolytisch induzierte Reaktionen von $CpCo(CO)_2$ ($Cp = C_5H_5$, C_5H_4Me, C_5Me_5 und C_5Ph_5) mit Thiiran zu dinuklearen 1,2-Ethandithiolato-*S*-*S*-Komplexen

Photolytically Induced Reactions of $CpCo(CO)_2$ ($Cp = C_5H_5$, C_5H_4Me, C_5Me_5 and C_5Ph_5) with Thiirane Yielding Dinuclear 1,2-Ethanedithiolato-*S*,*S* Complexes

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Z. Naturforsch. **61b,** 1365 – 1376 (2006); eingegangen am 7. Juni 2006

Herrn Professor Hansgeorg Schnöckel zum 65. Geburtstag gewidmet

The complexes $CpCo(CO)_2$ ($Cp = C_5H_5$, C_5H_4Me, C_5Me_5 and C_5Ph_5) (**1a** – **d**) react with thiirane C_2H_4S under UV-irridiation in THF to form the dinuclear μ_2-1,2-ethanedithiolate-*S*,*S* complexes $[(CpCo)_2(\mu_2\text{-}S_2C_2H_4)]$ (**2a** – **d**) as main products. Using column chromatography, in case of $Cp = C_5H_5Me$ also the dimeric complex $[C_5H_4MeCo(\mu_2\text{-}S_2C_2H_4)]_2$ (**3b**), in case of $Cp = C_5Ph_5$ the mixed disulfido-sulfido complex $[(C_5Ph_5Co)_2(\mu_2\text{-}S_2)(\mu_2\text{-}S)]$ (**4d**) were isolated in small yields. Only **2a** reversibly adds SO_2 gas to form the μ_2-SO_2 complex $[(C_5H_5CoSCH_2)_2(\mu_2\text{-}SO_2)]$ (**5a**). A bromo ligand bridging the Co atoms can be introduced by the reaction of $[(C_5Me_5CoBr_2)]_2$ (**6c**) with 1,2-ethanedithiol which gives the cationic complex $[(C_5Me_5CoSCH_2)_2(\mu_2\text{-}Br)]_2CoBr_4$ (**7c**). All compounds have been characterized by their IR, ^1H and ^{13}C NMR and MS spectra and compounds **2b** – **d**, **3b** and **7c** by X-ray structure analyses, which prove the *pseudo* tetrahedral skeleton $(CpCoS)_2$ and the ethane bridge between both sulfur atoms. **3b** shows, however, a new unsymmetrical bonding mode of both dithiolato bridges with η^1-S und μ_2-S ligand functions.

Key words: Cyclopentadienylcobalt Complexes, 1,2-Ethanedithiolato-*S*-*S* Bridges, Bromo Bridge, Decarbonylation Reaction, X-Ray Data