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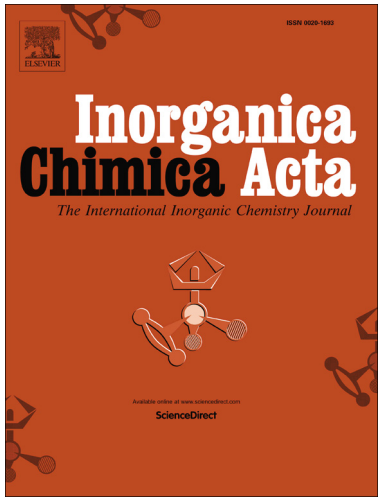

Triarylphosphanes with 2-(Et_2NCH_2)C_6H_4 groups. Copper(I) complexes and oxidation derivatives of type E$P(C_6H_4CH_2NEt_2\text{-}2)_nPh_{3-n}$ (E = S, Se; n = 1,2)

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Triarylphosphanes with 2-(Et_2NCH_2)C_6H_4 groups. Copper(I) complexes and oxidation derivatives of type $EP(C_6H_4CH_2NEt_2\text{-}2)_nPh_{3-n}$ (E = S, Se; n = 1,2).

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Abstract

The triarylphosphanes $P(C_6H_4CH_2NEt_2\text{-}2)_nPh_{3-n}$ [n = 1 (**1**), 2 (**2**)] were obtained by reacting Ph_2PCl or $PhPCl_2$ with [2-(Et_2NCH_2)C_6H_4]Li in a 1:1 and a 1:2 molar ratio, respectively. Further oxidation with elemental sulfur or elemental selenium powder resulted in the triorganophosphane chalcogenides $EP(C_6H_4CH_2NEt_2\text{-}2)_nPh_{3-n}$ [E = S, n = 1 (**3**), 2 (**5**); E = Se; n = 1 (**4**), 2 (**6**)]. The copper(I) complexes [$CuCl\{P(C_6H_4CH_2NEt_2\text{-}2)_nPh_{3-n}\}$] [n = 1 (**7**), 2 (**8**)] were prepared by the reactions between the triarylphosphanes **1** and **2** with CuCl in a 1:1 molar ratio. The new species were investigated in solution by NMR spectroscopy. The single crystal X-ray diffraction studies revealed a monomeric structure for the triorganophosphane sulphides **3** and **5**, while the copper(I) complexes **7** and **8** form dimers by bridging chlorine atoms. In both copper complexes the phosphane ligands behave as *C,N* chelating moieties. For compound **8** the two $C_6H_4CH_2NEt_2$-2 groups are equivalent in solution, while in solid state only for one of them the N→Cu intramolecular interaction was observed.

Key words: P/N triarylphosphanes; triarylphosphane chalcogenides; copper(I) complexes; solution behaviour; solid state structure;