Syntheses and Structural Characterizations of Heterometallic Copper(I)/Indium(III) Complexes Containing Phosphine Ligands

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Addition of anhydrous InCl₃ to a THF solution of CuCl and dppe (dppe = Ph₂PCH₂CH₂PPh₂), or CuCl and PPh₃, resulted in the formation of the crystalline heterometallic copper(I)/indium(III) complexes [(dppeCu)₂(µ-Cl)(µ-dppe)][InCl₄]·THF (1·THF) and [{Cu(PPh₃)₂}₂(µ-Cl)₄(InCl)]·THF (2·THF), respectively, which have been characterized by X-ray diffraction. Compound 1 is composed of a dinuclear copper(I) complex cation and a mononuclear tetrahedral indium(III) complex anion. Complex 2 comprises an indium center in a quasi square-pyramidal chloride-coordination environment connected to two Cu(PPh₃)₃ fragments via Cu(µ-Cl)₂In bridges.

Key words: Synthesis, Crystal Structure, Copper(I) Complex, Indium(III) Complex, Heterometallic Complex