

Trinuclear Mixed-valent Gold Complexes Derived from 2-C₆F₄PPh₂: Phosphine Oxide Complexes of Gold(III) and an *ortho*-Metallated Complex of Gold(I)

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Crystals of two mixed-valent gold complexes [(O₂NO)Au^I(μ-2-C₆F₄PPh₂)Au^{III}{κ²-2-C₆F₄P(O)Ph₂}(μ-2-C₆F₄PPh₂)Au^I(ONO₂)] (**14**) and [(O₂NO)Au^I(μ-2-C₆F₄PPh₂)Au^{III}{κ³-2-C₆F₄P(O)Ph(C₆H₄)}(μ-2-C₆F₄PPh₂)Au^I] (**15**) have been obtained from the reaction of the digold(I,III) complex [ClAu^I(μ-2-C₆F₄PPh₂)(κ²-2-C₆F₄PPh₂)Au^{III}Cl] (**5**) with, respectively, a small and a large excess of silver nitrate. Both complexes contain three, approximately collinear metal atoms, the central gold(III) atom being planar-coordinated by a chelate (*O,C*)-phosphine oxide formed by oxidation of 2-C₆F₄PPh₂ and the carbon atoms of two bridging 2-C₆F₄PPh₂ groups. In **14** each of the terminal gold(I) atoms is coordinated by a monodentate nitrate ion and the phosphorus atom of μ-2-C₆F₄PPh₂, whereas in **15** the nitrate ion on one of the gold(I) atoms of **14** has been replaced by the carbon atom of a bridging C₆H₄ group derived by Ag⁺-promoted cyclometallation of a phenyl group on the neighbouring phosphine oxide.

Key words: Gold, Trinuclear, Cyclometallation, Phosphine Oxide