

Synthese und Kristallstruktur von $[\text{Au}(\text{AuNCO})(\text{AuPPh}_3)_8]\text{Cl}$

Synthesis and Crystal Structure of $[\text{Au}(\text{AuNCO})(\text{AuPPh}_3)_8]\text{Cl}$

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The photolysis of $\text{Cr}(\text{CO})_6$ and Ph_3PAuN_3 (1:2) in thf yields the unstable cluster cation $[(\text{Ph}_3\text{PAu})_5\text{Cr}(\text{CO})_4]^+$ that slowly decomposes to form the new homometallic gold cluster $[\text{Au}(\text{AuNCO})(\text{AuPPh}_3)_8]\text{Cl}$. The cluster compound crystallizes in form of red needles in the tetragonal space group $I4$ with $a = 2214.1(3)$, $c = 1408.9(2)$ pm, and $Z = 2$. The inner skeleton of the cluster with the symmetry C_4 consists of a centered square antiprism of nine Au atoms with the square faces of the antiprism being bridged by the AuNCO group, and a Cl^- anion, respectively. The shortest Au-Au distances exist between the central and the 8+1 peripheral Au atoms ranging between 263.5(1) and 270.6(3) pm, the four Au-Cl distances are 280(1) pm.

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