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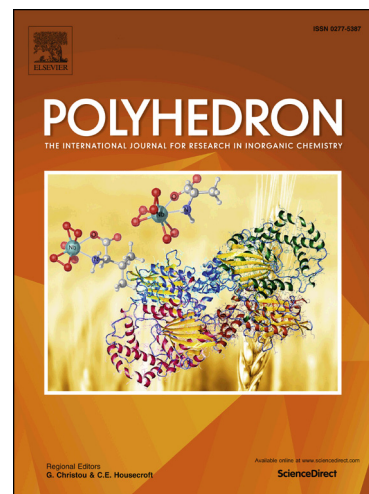
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## Investigation on the reactivity of tetranuclear Group 7/8 mixed-metal clusters toward triphenylphosphine

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### Abstract

Reactions of the tetranuclear mixed-metal clusters  $\text{ReM}_3(\text{CO})_{13}(\mu_3\text{-thpymS})$  (**1**, M = Os; **2**, M = Ru; thpymSH = tetrahydropyrimidine-2-thiol) with  $\text{PPh}_3$  are examined. At room temperature reaction between **1** and  $\text{PPh}_3$  in the presence  $\text{Me}_3\text{NO}$  leads to the formation of mono- and bis-phosphine substituted clusters  $\text{ReOs}_3(\text{CO})_{12}(\text{PPh}_3)(\mu_3\text{-thpymS})$  (**3**) and  $\text{ReOs}_3(\text{CO})_{11}(\text{PPh}_3)_2(\mu_3\text{-thpymS})$  (**4**). Cluster **3** also reacts with  $\text{PPh}_3$  under similar conditions to give **4**. In contrast, a similar reaction between **2** and  $\text{PPh}_3$  furnishes only the mono-phosphine substituted clusters  $\text{ReRu}_3(\text{CO})_{12}(\text{PPh}_3)(\mu_3\text{-thpymS})$  (**3**). All the new clusters have been characterized by analytical and spectroscopic data together with single crystal X-ray diffraction for **1**, **3** and **5**.

**Keywords:** Mixed-metal clusters; Tetrahydropyrimidine-2-thiol; Carbonyls; Triphenylphosphine; X-ray structures.

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