

First oxido-bridged cubo-octahedral hexanuclear rhenium clusters.

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Streszczenie

The first discrete hexanuclear metal clusters with cores adopting the $M_6(\mu-O)_{12}$ cubo-octahedral topology have been synthesized in the course of a simple one-pot reaction. We present a new class of rhenium clusters which are the first hexanuclear rhenium complexes with 12 bridging ligands and the first clusters with octahedrally arranged Re atoms bridged only by O atoms forming a unique cube-like $Re_6(\mu-O)_{12}$ unit. Our synthetic strategy demonstrates a new approach to the syntheses of polynuclear rhenium complexes under mild conditions. We discovered that the $[Re_6(\mu-O)_{12}(3-Mepy)_6]BPh_4$ cluster compound has the ability to undergo reversible or/and quasireversible redox reactions without changing spatial structure and overall geometry. Subsequently, a reduction reaction of $[Re_6(\mu-O)_{12}(3-Mepy)_6]BPh_4$ was performed successfully and almost quantitatively resulting in the formation of the molecular $[Re_6(\mu-O)_{12}(3-Mepy)_6]$ complex.

Adres publiczny

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Strona internetowa wydawcy

<https://www.acs.org/content/acs/en.html>