Synthesis and characterization of unusual oxidorhenium(V) cores

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Abstract: Reactions of $(NBu_4)[ReOCl_4]$ with N-(N??, N??-dialkylaminothiocarbonyl)-N?-(2-hydroxyphenyl)benzamidines (H_2L^1) give complexes of the compositions $[ReOCl(L^1)]$ (1), cis-$[ReO(L^1)(OMe)]$ (2), or cis,cis-$[\{ReO(L^1)\}_2O]$ (3) depending on the conditions applied. Compound 3 contains a bridging oxygen atom in the cis position to the terminal oxido ligands of both rhenium atoms. The analogous dimeric, sulfur-bridged compound $[\{ReO(L^1)\}_2S]$ (4) was obtained by the reaction of 1 with Na_2S. Complexes with the unusual oxidorhenium(V) cores, cis-$\{ReO(OR)\}^{3+}$, cis,cis-$\{ORe\text{-}O\text{-}ReO\}^{4+}$, and cis,cis-$\{ORe\text{-}S\text{-}ReO\}^{4+}$, are formed from the reaction of $[ReOCl_4]^-$ and N-(N??,N??-dialkylaminothiocarbonyl)- N?-(2-hydroxyphenyl)benzamidine ligands depending on the conditions applied.

Author Keywords: Bridging ligands; Coordination modes; Oxido cores; Rhenium

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