# Synthesis of Novel Tetracarboxylato Dirhenium(III) Compounds and Crystal Structure of $[Re_2(1\text{-Adamantylcarboxylate})_4Cl_2] \cdot 4\ CHCl_3$

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The coordination compounds of the general formula $Re_2(L)_4X_2$ (X = Cl, Br; L = 1-adamantylcarboxylate and 1-adamantylacetate) have been prepared and characterized by means of UV-VIS spectroscopy (20000 $cm^{-1}$, $\delta \rightarrow \delta^*$). The crystal and molecular structure of $Re_2(AdCOO)_4Cl_2 \cdot 4\ CHCl_3$ solvate was determined by X-ray diffraction. The units $Re_2(AdCOO)_4Cl_2$ adopt a centrosymmetric dinuclear array with each metal atom coordinated in a distorted octahedron comprising one rhenium and one chlorine atoms (Re-Cl 2.505(2) Å) and four carboxylate oxygen atoms in the equatorial plane. The rhenium-rhenium separation of 2.2300(5) Å corresponds to quadruple bond between the metal atoms. All Re-O bonds have an almost uniform length (2.017(4) - 2.032(4) Å) and do not differ essentially from the parameters reported for related compounds. The closest environment of the $Re_2(AdCOO)_4Cl_2$ molecules in the crystal comprises weak Cl- - -HC hydrogen bonds with the chloroform molecules and significantly shortened van der Waals contacts Cl- - -Cl, 3.46 Å.