

CRYSTAL STRUCTURES OF *trans*-DIOXIDOCOMPLEXES OF RHENIUM(V) WITH 3- AND 4-PICOLINE

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The new oxidorhenium(V) complexes were obtained: *trans*-dioxidotetra(4-methylpyridine)rhenium(V) iodide–dichloromethane (1/4), $[\text{ReO}_2(4\text{-Me-py})_4]\text{I}\cdot 4(\text{CH}_2\text{Cl}_2)$ (**1**) and *trans*-dioxidotetra(3-methylpyridine)rhenium(V) 3-methylpyridinium diiodide of the formula $[\text{ReO}_2(3\text{-Me-py})_4](3\text{-Me-py})\text{I}_2$ (**2**) (Fig. 1). The compounds were synthesized according to the preparative procedure of $[\text{ReO}_2(\text{py})_4]\text{I}$ [1]. In each of the complex cation the Re^{V} atom is bonded to two terminal O atoms, situated in *trans* positions, and four molecules of picoline. The six-coordinated environment of rhenium atoms is a distorted octahedron. In both crystals the networks of numerous C–H \cdots I, C–H \cdots O, N–H \cdots I (in **2**) and C–H \cdots Cl (in **1**) hydrogen bonds are present. The intermolecular $\pi\cdots\pi$ stacking as well as the C–H $\cdots\pi$ and O $\cdots\pi$ (in **2**) interactions are responsible for the stability of studied crystals. The **1** crystallizes in monoclinic space group $P2_1/c$, with unit cell parameters $a = 19.737(6)$, $b = 10.494(3)$, $c = 20.240(6)$ Å, $\beta = 115.32(3)$, $V = 3789.7(2)$ Å³, $Z = 4$, $T = 90$ K, the **2** crystallizes in orthorhombic system with the space group $Pnma$, with unit cell parameters $a = 9.713(3)$, $b = 18.788(5)$, $c = 18.064(5)$ Å, $V = 3296.5(2)$ Å³, $Z = 4$, $T = 100$ K.

Fig. 1. Left: the complex cation in **1**; right: the complex cation in **2**.

Literature:

1. Siczek, M., Krawczyk, M.S., Lis, T. *Acta Cryst.* E**65**, m1057 (2009).