Schwingungsspektren und Normalkoordinatenanalysen der Dioxoosmate(VI) *trans*-$[OsO_2(CN)_4]^{2-}$, *trans*-$[OsO_2(CN)_2(OH)]_2^{2-}$ und *trans*-$[OsO_2(CN)_2(OCH_3)]_2^{2-}$ sowie Kristallstruktur von *trans*-$(Ph_3PNPPh_3)_2[OsO_2(CN)_2(OCH_3)]_2$

Vibrational Spectra and Normal Coordinate Analysis of the Dioxoosmates(VI) *trans*-$[OsO_2(CN)_4]^{2-}$, *trans*-$[OsO_2(CN)_2(OH)]_2^{2-}$ and *trans*-$[OsO_2(CN)_2(OCH_3)]_2^{2-}$, and Crystal Structure of *trans*-$(Ph_3PNPPh_3)_2[OsO_2(CN)_2(OCH_3)]_2$

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trans-Dioxotetracyanoosmate(VI), *trans*-Dioxodicyano-μ-dihydroxodiosmate(VI), *trans*-Dioxodicyano-μ-dimethoxydiosmate(VI), Vibrational Spectra, Normal Coordinate Analysis, Crystal Structure

The crystal structure of *trans*-$(Ph_3PNPPh_3)_2[OsO_2(CN)_2(OCH_3)]_2$ (triclinic, space group $P\bar{1}$, a = 11.816(2), b = 13.480(3), c = 13.610(5) Å, α = 83.46(2), β = 77.09(2), γ = 71.06(2)°, Z = 1) has been determined by single crystal X-ray diffraction analysis. The IR and Raman spectra of the (n-Bu_4N)-salts of *trans*-$[OsO_2(CN)_4]^{2-}$ (**1**), *trans*-$[OsO_2(CN)_2(OH)]_2^{2-}$ (**2**) and *trans*-$[OsO_2(CN)_2(OCH_3)]_2^{2-}$ (**3**) were measured at room temperature. Based on the molecular parameters of the X-ray determination normal coordinate analyses have been performed and the vibrations are assigned. The valence force constants of **1** are f_d(Os=O) = 6.5, f_d(Os-C) = 2.62 and f_d(C≡N) = 16.85 mdyn/Å, of **2** and **3** are f_d(Os=O) = 6.7, f_d(Os-C) = 2.55 and f_d(C≡N) = 16.95 mdyn/Å. f_d(Os-O) ranges from 2.0 - 2.2 and for the methoxy bridge is f_d(C-O) = 4.00 mdyn/Å