Kristallstrukturen, Schwingungsspektren und Normalkoordinatenanalyse von *cis*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)], *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)] und *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCSe)(SeCN)]

Crystal Structures, Vibrational Spectra and Normal Coordinate Analyses of *cis*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)], *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)] and *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCSe)(SeCN)]

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cis/trans-Tetrabromothiocyanato(N)-thiocyanato(S)-rhenat(IV), *trans*-Tetrabromoselenocyanato(N)-selenocyanato(Se)-rhenat(IV), Crystal Structure, Vibrational Spectra, Normal Coordinate Analysis

The crystal structures of *cis*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)] (**1**) (monoclinic, space group $P2_1/n$, a = 11.203(3), b = 11.738(5), c = 35.218(7) Å, β = 93.434(4)°, Z = 4), *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCS)(SCN)] (**2**) (monoclinic, space group $P2_1/n$, a = 11.644(7), b = 13.695(3), c = 29.028(8) Å, β = 95.96(4)° Z = 4) and *trans*-(n-Bu_4N)$_2$[$ReBr_4$(NCSe)(SeCN)] (**3**) (monoclinic, space group $P2_1/n$, a = 11.894(2), b = 13.737(2), c = 28.869(7) Å, β = 96.98(10)° Z = 4) have been determined by single crystal X-ray diffraction analysis. Based on these molecular parameters the low temperature (10 K) IR and Raman spectra of the (n-Bu_4N) salts have been assigned by normal coordinate analysis. The valence force constants are f_d(ReN) = 1.70 (**1**), 1.75 (**2**) and 1.75 (**3**), f_d(ReS) = 1.32 (**1**) and 1.37 (**2**) and f_d(ReSe) = 1.20 mdyn/Å (**3**).