

## Cobalt(II) triazene 1-oxide bis(chelates) : a case of planar (low spin) - tetrahedral (high spin) isomerism.

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### Streszczenie

High- and low-spin cobalt(II) triazene 1-oxide bis(chelates) have been isolated. The low-spin complexes possess square-planar structure whilst the high-spin complexes are tetrahedral. The molecular structure of high-spin  $[\text{Co}(\text{OMeN}_3\text{C}_6\text{H}_4\text{Me-4})_2]$  has been determined: triclinic, space group  $P$ ,  $Z = 2$ ,  $a = 7.970(5)$ ,  $b = 10.174(5)$ ,  $c = 11.676(5)\text{\AA}$ ,  $\alpha = 87.18(4)$ ,  $\beta = 74.31(4)$  and  $\gamma = 74.06(4)^\circ$ . For some complexes the isolation of both planar (low-spin) and tetrahedral (high-spin) isomers or of their conglomerates is possible depending on the synthesis conditions. The crystal structure of square-planar  $[\text{Ni}(\text{OMeN}_3\text{C}_6\text{H}_4\text{-Me-4})_2]$ , which is isomorphous with the low-spin isomer of  $[\text{Co}(\text{OMeN}_3\text{C}_6\text{H}_4\text{Me-4})_2]$ , has been determined: triclinic, space group  $P$ ,  $Z = 1$ , with  $a = 7.495(2)$ ,  $b = 7.694(5)$ ,  $c = 8.612(3)\text{\AA}$ ,  $\alpha = 64.64(5)$ ,  $\beta = 87.84(2)$  and  $\gamma = 78.64(3)^\circ$ . The complexes exhibit a planar-tetrahedral equilibrium in non-coordinating solvents, the  $\Delta H^\ominus$  and  $\Delta S^\ominus$  values of which, determined from solution magnetic susceptibility measurements, are in the range  $1\text{--}15\text{ kJ mol}^{-1}$  and  $5\text{--}30\text{ J K}^{-1}\text{ mol}^{-1}$ , respectively. The electrochemical properties of the complexes are given.

### Adres publiczny

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