# Scorpionate Complexes with the Main Group Elements Ca, Ba, Sr

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The poly(pirazolyl)borate ligands together with various substituted forms have developed into one of the most versatile ancillary ligand in metal coordination chemistry. Particular attention is sometimes devoted to special azolyl rings, such as triazolyl, methyl- or trifluoromethyl-pyrazolyl rings. These ligands can exert quite different electronic and structural effects when compared with the analogues. Very little has been done on poly(pyrazolyl)borate systems bearing electron withdrawing substituents. The electron withdrawing groups in polyfluorinated ligands commonly improve the volatility, oxidation resistance, thermal stability, and solubility of metal complexes. To our knowledge, no poly(azolyl)borates containing a -$NO_2$ function have been prepared, presumably due to difficulties in the synthesis of ligands having both a hydride and a nitro group. However, a poly(azolyl)borate containing a -$NO_2$ substituent could be of interest due to its high coordinative flexibility from $\kappa^4$- to $\mu^4$-$N_2O_2$ coordination ability.

We report here on the syntheses and structural investigations of main-group metal elements Ca, Ba and Sr with the hydrotris(3-methylpyrazolyl)borate, the hydrotris(1,2,4-triazolyl)borate and the new hydrotris(3-nitro-1,2,4-triazolyl)borate, an emerging category of electron withdrawing substituted scorpionate ligands.

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