P-5: Cobalt-Azido-Dipicolinato Complexes

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We report the synthesis, spectral, thermoanalytical and structural characterization of a series of Cobalt(II,III) azido complexes with different dipicolinato anions. In case of 2,3- and 2,5-dipicolinato anions mononuclear Co(III) complexes were formed, where the dipicolinato ligands are coordinated via the pyridine N atom and one O atom of the carboxylic group in position 2 of the pyridine rings, respectively. The azide groups act as unidentate ligands. The sodium counter ions form NaO₆ polyhedra with oxygen atoms of -COO- groups and lattice water molecules. In case of 2,6-dipicolinato anion (2,6-L) and Co(II) as metal centers, the [Co(2,6-L)(N₃)(H₂O)]₂[Co(H₂O)₆].2H₂O compound is obtained, where a dinuclear subunit is bridged by two EO-bridging azido groups (EO = end-on). Rapid exothermic deflagration at approx. 235°C during the dehydration processes demonstrate the explosive nature of these Cobalt azido compounds.

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