

Chloro complexes of cobalt(II) in aprotic solvents: stability and structural modifications due to solvent effect

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Auteur	Chiboub-Fellah, Abdelghani [1], Vierling, François [2], Meullemeestre, Jean [3], Schwing-Weill, Marie-José [4], Khan, Mustayeen Ahmed [5]
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Résumé en anglais	Cobalt(II) chloro complexes were studied in aprotic solvents, namely, dimethylsulfoxide (DMSO), dimethylformamide (DMF), and propylene carbonate (PC). The measurements were performed spectrophotometrically in UV-visible-IR region at 25°C and at constant ionic strength: I = 1 mol L ⁻¹ in DMSO and DMF, and 0.1 mol L ⁻¹ in PC. Different models were tested and the model 1, 2, 3, 4, i.e., that of four mononuclear successive complexes was retained. Stability constants of the identified complexes were determined and they increase inversely with the Gutmann's donor number of the solvents. Calculated electronic spectra are reported and the effect of solvents on the spectral properties are discussed. The symmetry of tetrachlorocobaltate is strictly Td.
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