

Synthesis and Spectroscopic Characterization of Some Praseodymium (III) - 1,1-1, 1- Carbonyldiimidazol Chelates

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Abstract. A series of praseodymium (III) chelates containing - 1, 1-diimidazylketone was prepared. The values of Slater-Condon (F_2 , F_4 , F_6), Racah (E^1 , E^2 , E^3), Judd- Ofelt (T_2 , T_4 , T_6), spin-orbit (ξ_{4f}) and intensity parameter of the prepared praseodymium (III) complexes are critically determined. The observed energy levels and spectral intensities were correlated with the theoretically values. The shift in the peak positions due to the host was critically used on the evaluation of the nephelauxetic parameters, covalence and bonding parameters for Pr^{3+} of the prepared two complexes. The nature of the bonding in the praseodymium (III) complexes complex is discussed.