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2, 4-Dihydroxy-5-Bromo [2'Methyl] Propiophenone Thiosemicarbazone [DHBMPT] as an Analytical Reagent: Studies on Pd (II) Chelate

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Abstract : 2, 4-Dihydroxy-5-Bromo-[2'methyl]-Propiophenone thiosemicarbazone [DHBMPT] has been used for the spectrophotometric determination of Pd(II) at pH = 2.5. Job's method of continuous variation and Yoe and Jones Mole ratio method show metal: ligand ratio in the complex to be 1:1. The molar absorptivity of complex at 390 nm was found to be 1.457×10^3 lit.mol⁻¹.cm⁻¹ and Sandell's sensitivity was found to be 0.0730 μ g/cm². The stability constant determined spectrophotometrically is found to be 1.35×10^6 and Gibb's free energy change for complex formation reaction is calculated to be -8.414 k.cal /mole. The Beer law is obeyed up to 7.45 ppm of Pd (II) ion at 390 nm. From TG studies, the energy of activation for both the decomposition steps has been calculated using broido method. They were found to be 23.04 k.cal/mole and 3.1 k.cal/mole respectively. The reagent has been successfully applied for the determination of percentage purity of palladium from palladiased carbon sample.

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