

Extraction Spectrophotometric Determination of Rhodium (III) using 2, 4-dimethyl -3H- 1, 5 benzodiazepine as Fresh Analytical Reagent

S. S. Patil

Associate Professor, Department of Chemistry
J. S. M. College, Alibag, Raigad, Maharashtra, India
sonaligayu285@gmail.com

Abstract: *In the present experimental investigations, a novel reagent 2, 4-dimethyl -3H- 1, 5 benzodiazepine (DBA) has been developed for the extractive estimation of rhodium (III) from given sample and by use of extractive spectrophotometric analysis. In the Laboratory, the fresh reagent was prepared and its characterization has been done with the help of mass spectrophotometer and IR, NMR, elemental analysis. The developed analytical reagent (DBA) when reacts with rhodium (III) produces red complex, this complex can be extracted by using n-butanol as a selected solvent, maintained at constant pH 8.9. The Beers law is followed in the concentration of 1-10 $\mu\text{g L}^{-1}$ of rhodium (III), the optimum values of maximum absorption, molar extinction coefficient and sandell's sensitivity to the red complex, observed to be 510 nm, 4863 $\text{Lit mol}^{-1}\text{cm}^{-2}$ and 0.01102 $\mu\text{g cm}^{-2}$. The proposed analytical reagent is found to be best, simple and superior for extraction of rhodium (III) metals from synthetic samples at optimized conditions.*

Keywords: Rhodium (III), Spectrophotometric determination, DBA reagent, molar absorptivity.

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