

NOTE

Spectrophotometric Determination of Nickel with 3-hydroxy-3-methyl-1-*p*-methoxy phenyl TriazeneREKHA BHATT, MANOJKUMAR S. CHHANGANI, A.K. GOSWAMI,
REKHA DASHORA and D.N. PUROHIT**Department of Chemistry
M.L. Sukhadia University
Udaipur-313 001, India*

3-Hydroxy-3-methyl-1-*p*-methoxy phenyl triazene has been established as a new reagent for spectrophotometric determination of nickel.

3-Hydroxy-3-methyl-1-*p*-methoxy phenyl triazene has been prepared¹ (m.p. 102°C) by coupling methyl hydroxylamine with diazonium salt in 1:1 molar proportion at 0–5°C. The reagent solution was prepared in ethanol. The standard solution of nickel was prepared by dissolving requisite quantity of nickel sulphate heptahydrate in double distilled water. It was then standardized by EDTA using murexide² as an indicator. A systronics UV-VIS spectrophotometer-108 was used for spectrophotometric work and for pH-measurements systronics pH meter-324 was used.

The brown Ni(II) complex was soluble in ethanol and its colour was stable for more than 12 h. It gives maximum absorbance at 390 nm, but subsequent absorbance measurements were made at 400 nm against solvent blank. Eight fold excess of the reagent was used and pH was kept between 9.4 to 9.8. The system obeys Beer's law in the range from 2.93 ppm to 17.61 ppm of nickel. Sandell's sensitivity is 21.37 ng/cm² and molar absorptivity is 2,747 l/mole cm. The Job's method³, slope ratio method⁴ and Mole ratio methods—(i) Yoe & Jones⁵ and (ii) Zolotov's⁶ gave 1:2 (Ni:R) stoichiometry for the complex.

Interference of 24 diverse ions was studied in determination of 14.67 ppm of nickel. Na(I), K(I), Ca(II), Ba(II), Hg(II), F⁻, Cl⁻, Br⁻, I⁻, NO₃⁻, CH₃COO⁻ and SO₄²⁻ did not interfere when present in 100 ppm concentration. In addition to these ions, Mg(II), Cd(II), CO₃²⁻ and PO₄³⁻ did not interfere when present in 5 ppm.

The precision study was carried for 14.67 ppm of Ni(II), standard deviation was 0.06 ppm of nickel. The solid complex was obtained as light brown shining plates, m.p. 60°C with molecular formula Ni(C₁₆H₂₀N₆O₄). This molecular formula corroborates the composition of the complex found with solution studies.

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COORDINATION CHEMISTRY****VANCOUVER, CANADA****August 18–23, 1996*****Contact address:***

PROFESSOR C. ORVIG
Department of Chemistry
University of British Columbia
2036, Main Mall
Vancouver, BC V6T 1Z1
CANADA