E-01

EXTRACTION AND SPECTROPHOTOMETRIC DETERMINATION OF VANADIUM(V) WITH N-PHENYLBENZOHYDROXAMIC ACID AND PHENYLFLUORONE

S. Amarasiri Fernando *and* **H. Dasaratha Gunawardhana**
(Centre for Analytical Research and Development,
(Dept. of Chemistry, University of Colombo, Colombo 3)

N-Phenylbenzohydroxamic acid (NPBHA) and its analogues[1] are extensively used as reagents for the spectrophotometric determination of vanadium(V). However, the maximum sensitivity so far reported[2] corresponds to molar absorptivity of 7.4×10^3 dm^3 mol^{-1} cm^{-1}. The violet coloured complex formed between vanadium(V) and NPBHA was extracted from about 5M hydrochloric acid into chloroform. The chloroform extract of the vanadium(V) complex, on second extraction from a dilute hydrochloric acid medium (0.1-0.5 M) in the presence of phenylfluorone (PF) and ethanol, forms an intensely coloured complex possessing an absorption maximum at 520 nm against a reagent blank. The molar absorptivity under optimum conditions was 1.6×10^4 dm^3 mol^{-1} cm^{-1}. The system obeys Beer's law up to 2.0 ppm of vanadium(V). Considerable amounts of many cations and anions except molybdenum (VI) and tungsten (VI) can be tolerated. The method bears somewhat similar selectivity and sensitivity as the previously reported[3] method for titanium (IV).

References

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