E 46

# EXTRACTIVE SPECTROPHOTOMETRIC DETERMINATION OF MOLYBDENUM( VI) USING N-PHENYLLAUROHYDROXAMIC ACID AND PHENYLFLUORONE

S R L Fernando and H Dasaratha Gunawardhana
*Dept. of Chemistry, University of Colombo*

It is very important to develop sensitive and selective spectrophotometric methods for the determination of molybdenum (VI) since flame atomic absorption spectrophotometry fails to provide high sensitivity because of the formation of highly stable oxide species in the flame. Even though atomic absorption spectrophotometry with electrothermal atomization can be used, it involves expensive instrumentation not available in all laboratories in Sri Lanka. A colorimetric method followed by a selective extraction may be used as an alternative.

Molybdenum (VI) forms a colourless complex with N-phenyllauro-hydroxamic acid which is extractable into chloroform from 4.25M hydrochloric acid. This chloroform extract, on a second extraction from a 0.10M hydro-chloric acid medium, forms an intensely coloured mixed ligand complex with phenylfluorone in methanol. The complex exhibits an absorption maximum at 504 nm against a reagent blank. The system obeys Beer's law upto 10 ppm

of molybdenum(VI). The molar absorptivity is 2.69 x $10^4$ $dm^3$ $mol^{-1}$ $cm^{-1}$. The interferences from tungsten(VI), vanadium(V) and vanadium(IV) have also been studied. The method can be used for the determination or trace amounts of molybdenum.

References


1. Fernando, S. Amarasiri and Gunawardhana, H. Dasaratha (1984), Proc. Sri Lanka Assoc. Advmt. Sci. 40 (1) 67.
2. Gunawardhana, H. Dasaratha (1983) Analyst 108 952.