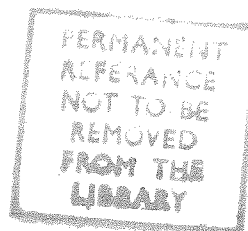


ESTIMATION OF MOLYBDENUM AND VANADIUM

BY A PHOTOMETRIC TITRATION PROCEDURE.

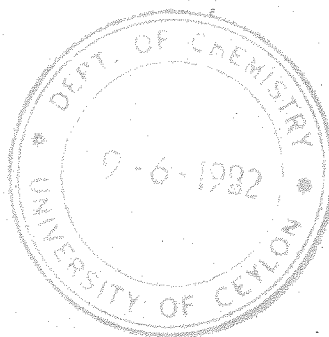
A DISSERTATION



Submitted in partial fulfilment of requirements,
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by

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ABSTRACTESTIMATION OF MOLYBDENUM AND VANADIUM
BY A PHOTOMETRIC TITRATION PROCEDURE.

A simple photometric procedure is developed for the rapid determination of Molybdenum in plants and soils. The procedure is based on the use of a reductor system coupled with a photometric titrator. Molybdenum (VI) is run through a Jones reductor column to a closed system cell containing Fe(III) and 1,10-Phenanthroline. The resulting absorbing species is titrated photometrically. The method has a lower detection limit of 0.5 ppm.

Studies on the effect of reductor column characteristics, reagent concentration, acidity and Fe(III) concentration have been carried out to determine optimum conditions for measurement. Effect of diverse ions show tolerances of 100 fold F^- , 20 fold tungstate, 5 fold Cu, 8 fold Co and 2 fold Ni. Use of appropriate cation and anion exchange resins ensures prior removal of Fe as well as effect separation of a mixture of Ti(IV), V(IV) and Mo(VI) prior to their determination using this procedure. The method is shown to be applicable for the determination of Vanadium(IV) and Vanadium(V) in the presence of each other as well as for the estimation of Ti(IV).